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said, no one, perhaps, regrets it more than the Ministers who demanded it, but that will not lighten the payment to the tax-gatherer. It may go towards paying the National Debt, or for mending a hole in an ironclad, but in neither case is it fair to fix it permanently on chemists and druggists. An official protest ought to have been made before the Act was passed, and we cannot understand why the opportunity was allowed to go by. But surely the Pharmaceutical Council will make a representation on the subject now. They act for a body "incorporated by Royal charter," and if that document does not confer upon them the right of communicating their views on trade matters to State departments, we do not know what use it is. In all probability the full duty will have to be paid this year, but by timely and earnest action the removal of the sixpence, or some compensation, might be secured from the Chancellor of the Exchequer next April.

QUALIFIED ASSISTANTS WANTED.

THERE are 4,000 qualified assistants now wanted, say some of the authorities who have been alarmed into inquiry by the Wheeldon decision, and as the annual increase of the register is considerably less than 300, the possibility of filling these 4,000 vacant places is very slender. The nature of the vacancies requires some explanation. Throughout the country there are a large number of businesses which are carried on by their owners with boy help; they are small businesses which yield but a poor living for one man, and a qualified assistant in them to supply the public with poisons in the owner's absence is out of the question. If we were to deduct the number of such businesses from 4,000 we should come well within 1,000 probable vacancies for qualified assistants. It would, of course, be absurd to say that there are actually so many vacancies; for in many the owners are not a bit frightened by the new interpretation, and will continue to carry on their trade with unqualified assistance, while others will give the juniors time to qualify; but it seems to be unquestionably the fact that Justice Hawkins's decision has created a demand for qualified assistants. We have a very good proof of that in the advertisements which we publish weekly of situations vacant. Previous to May 3 from one-fourth to a third of these only sought qualified men, but since then the demand has been for almost a half. Thus, for the six weeks previous to and including May 3 we published notifications of 260 vacancies, and for 81 of these qualified men were wanted; but during the six weeks following May 3 there were 308 vacancies announced, and in 144 of these qualified men were wanted. In exact terms this indicates an immediate rise in the demand, and consequently the market value of qualification, of from 31 to 46 per cent. We have included some instances wherein there was no special mention of qualification, but there have been comparatively few instances of that kind since May 3; indeed, there has been a sudden specific demand for those with the Minor qualification, which clearly indicates that those who have vacancies are alive to the importance of conforming to Justice Hawkins's reading of the law. What we gather from our own advertisement pages is corroborated by what we hear from different parts of the country—the demand for qualified men has suddenly increased, and the supply appears to be inadequate.

But there is no reason why the trade should get into a panic about this. About three years ago a decision somewhat similar to the one in the Wheeldon case was given in a court in Scotland, and suddenly there was an excited demand for qualified assistants. The immediate

effect was to compel men who were putting off the Minor to prepare for it. Some were allowed to continue in their situations on condition that they would qualify, and gradually the excitement waned, and everybody appeared to be suited. The incident has, however, had the effect that employers now prefer to give 10*l.* or 20*l.* more a year to get a qualified man. There is no reason why the same course of events should not go on at this side of the border; and as we are assured that the Pharmaceutical Society will not be unduly oppressive in enforcing the law, we may take it that the next few years will exert an important influence upon retail pharmacy. That assistants will be better paid there seems to be no question—that must follow the law of supply and demand—and when this happens we shall find some improvement in the position of retail pharmacy. For there is no denying the fact that in the past small salaries to assistants, and indisposition on the part of the trade to recognise the legal superiority of qualified men, have been the means of compelling large numbers to start in business in a small way. "Better 100*l.* a year in a shop of my own than 80*l.* from a master," was the argument which has been so fatal to many a man's health, and has tended to keep pharmacy at starvation allowance, so to speak. It is, we believe, for the public good, and for the benefit of the trade, that pharmacy should be conducted in the smallest number of shops compatible with the general convenience: and there is some prospect of attaining this consummation by providing a better outlet for the energies of qualified young men than small pharmacies yielding a beggarly pittance for income, and confining their owners from early morn to dewy eve. In that light the Wheeldon case has been a blessing to the trade, and present inconvenience may become of permanent benefit.

THE FRUIT-SALT TRADE-MARK.

A TRADE case which is fought up to the House of Lords ought to furnish some instruction to onlookers, and the action tried under the title of "Eno v. Dunn," the last stage of which we reported last week, is not without its moral. Neither party to the suit has gained much by the action, and the lesson for the rest of us is rather of a negative character. It may be conveyed in a simple recommendation to agree with your adversary, or do nearly anything else with him short of shooting him, rather than go to law with him. Both of the litigants in this case have won some fame, which, of course, for an advertising manufacturer is a commodity of substantial value. But the other side of the account is fairly heavy for both. Mr. Eno, the ultimate victor, comes out of the affair with his costs charged to his opponent, but with the very serious loss of the presumptive exclusive right to the words "fruit salt" in collocation. Mr. Dunn has a heavy cheque to sign, and fails to get his trade-mark admitted to the register. The public results are a good-sized hole in the Trade marks Act, and a collection of arguments of varying degrees of solidity from the most learned law lords.

When the action commenced, Mr. Eno had on the register as trade-marks the words "fruit salt" simply, and the words "Eno's fruit salt" in the medicine and in the food sections. Mr. Dunn sought to register with a design the words "Dunn's Fruit Salt Baking-powder" in the food section. Mr. Eno opposed, and the Comptroller refused registration. The case then came before Mr. Justice Kay, Mr. Eno opposing Mr. Dunn's application for registration, and Mr. Dunn asking for the rectification of the register by the removal of the "fruit salt" trade-mark. Mr. Eno's counsel abandoned his trade-mark for the words "fruit salt" appearing alone, and thus it appeared

as if the words by themselves were common property. But Mr. Justice Kay refused to allow the registration of Dunn's trade-mark, basing his judgment on the 73rd section of the Act, which says, "It shall not be lawful to register as part of or in combination with a trade-mark any words the exclusive use of which would, by reason of their being calculated to deceive or otherwise, be deemed disentitled to protection in a court of justice." Mr. Dunn appealed against this decision, and the case was re-argued before three Lords Justices. The result in the Court of Appeal was that Lords Justices Lindley and Fry were in favour of allowing the registration, and that Lord Justice Cotton dissented. Judgment was given in Mr. Dunn's favour. Mr. Eno then appealed to the highest court, and by three votes against two (Lords Watson, Herschell, and Macnaghten, against the Lord Chancellor and Lord Morris) won the suit. Thus, out of nine judges who have had to consider this question, Mr. Eno has secured the suffrages of five, and Mr. Dunn those of four.

But the point ruled upon is such an exceedingly fine one, that the judgment settles nothing. Can Mr. Dunn make and sell "Dunn's Fruit Salt Baking-powder"? It ought to follow from the judgment, as a matter of course, that he cannot. But this is by no means certainly the case. Lord Watson, who ruled in Eno's favour, says the applicant (Dunn) in this case had to satisfy the Comptroller of the court that his proposed trade-mark was not of a character to come within the description of section 73. But if he were defending himself against an action for infringement, the onus would rest on the prosecutor to prove that the words of the mark were so calculated to deceive as to bring the trade-mark into the category of those disentitled to protection. Lord Watson, in fact, only came to his conclusion on the ground that the point was one which is *in dubio*, and that in such a case the application should be disallowed. Can then Mr. Eno prevent anyone taking the words "fruit salt"? At first sight it would appear that when he abandoned the claim to them as a trade-mark, he gave up the whole contest. Not at all. On technical grounds he surrendered an untenable position, but aimed to get the same advantage as he could have got if his original position had been a sound one. His counsel argued that though Mr. Eno might not have the right to have the two words merely registered as a trade-mark, the use of them by Mr. Dunn was calculated to lead to deception and that consequently was disentitled to the protection of a court of justice. The judges have decided in Mr. Eno's favour, but they all carefully limit the effect of their judgment to the exact case before them. Lord Justice Cotton said, "Eno has no right to monopolise the use of two English words, but he has a right to prevent persons using the words in such a manner as to induce others to believe that they are an adaptation of his mark." Lord Watson said it had been argued that such a judgment as he favoured "would be equivalent to allowing the appellant to appropriate, as his own property, two words in common use. The argument appears to me to under-rate the resources of the English language, which are, in my opinion, quite sufficient to enable anyone, honestly desirous of distinguishing his own goods, to use these words in a trade-mark in such a manner as to prevent any possibility of their being connected with the appellant's fruit salt." Lord Herschell is a shade more definite. He says: "In my opinion the appellant has no exclusive property in the words 'fruit salt,' and if it were proposed so to employ them that no reasonable person could suppose that they had reference to the appellant's preparation, such a use would be perfectly unobjectionable." He would not object, for

instance, to a "fruit salt umbrella," but there was evidence that a couple of funny people had used Eno's salt as baking-powder, and Lord Herschell thought this sufficed to prove the possibility of deception. Lord Macnaghten is energetic in declaring that Mr. Eno cannot have the exclusive right to the words "fruit salt." "They are common English words," and "anybody may use them in any manner and in any connection he pleases, provided he takes care that the use to which they are applied is not calculated to deceive."

Practically, we suppose, the effect will be that Mr. Eno will have secured what the judges say he cannot possess—namely, the exclusive use of those two English words, because in the first place nobody will want to use them to describe an umbrella, and in regard to anything for which the phrase might be applicable nobody can be sure whether his title does or does not come within the range of the law until he has fought for it up to the House of Lords.

COMMENTARY.

ADVERTISERS, BEWARE!—A man was fined 10s. at the Westminster Police Court, a few days ago, for driving a furniture-van through the streets of London, to the sides of which were affixed advertisements of the Military Tournament. The placards thus displayed were 8 feet high and 18 feet long, but the size of the advertisement was not the characteristic of the offence. It would appear that any advertisement of the kind, except newspaper-bills, carried or driven through the streets of London, needs first the approbation of the Commissioner of Police, or the risk of a penalty is incurred. The Act under which the man was prosecuted was the well-known Metropolitan Traffic Regulation Act (30 & 31 Vict., c. 134), which provides, among other things, that "No picture, print, board, placard, or notice, except in such form and manner as may be approved of by the Commissioner of Police, shall by way of advertisement be carried or distributed in any street within the general limits of this Act by any person riding in any vehicle, or on horseback, or being on foot." This prohibition is evidently immensely comprehensive. The section goes on to prescribe the penalty and to declare that it does not apply to the sale of news papers.

SPICEY.—The ways of the adulterator are past finding out. A worker in the chemical laboratory of the Philadelphia College of Pharmacy has recently discovered that it is possible to buy "artificial ground spices" which are innocent of anything like flavour, and have not the remotest relation to Araby. A large steam bakery in Philadelphia is the source of the spices, and the substance from which they are made is a very low grade of wheat, worse than "middlings," but better than "feed." The Philadelphia baker makes the meal into biscuits, some of which are baked "white" and others are browned. The white ones when ground are used for adulterating white pepper; a little charcoal added helps to simulate black pepper; a touch of red brings it a fair way on to cayenne pepper, and a change is made to mustard by means of turmeric. The well-browned biscuits furnish a "clove mixture." The trouble about these powders is that the starch is difficult to detect microscopically, but it is there to a large extent, 75 per cent. of the white powder being insoluble in water. Glucose and sugar are also present to the amount of 20 per cent. or thereby, so that here we have a clue to the presence of the adulterant. May it stay in the States until we send for it! We have enough of spice adulterants.

MANNA-YIELDING PLANTS.

By JOHN R. JACKSON, Curator of the Museum, Royal Gardens, Kew.

WHAT is generally understood by the term *Manna* is a sweet exudation from the stems of the manna ash (*Fraxinus Ornus*, L.), a small tree found in Italy, and extending into Switzerland, the Southern Tyrol, Hungary, Greece, Turkey, and other places. In this country the tree is also grown for its ornamental character, but with us it grows to a height of 30 feet or more. No manna is collected from the English-grown trees. It is from Sicily that the bulk of the manna of commerce is at the present time obtained, the plants being regularly cultivated in plantations in certain localities within twenty-five miles of Palermo on the west, and within fifty to seventy miles on the east. The trees, which are here planted in rows, grow to a height of from 10 to 20 feet, and are about 7 feet apart. A manna-ash plantation is kept free from weeds, the ground is loosened, and is occasionally enriched with manure. At the age of eight years the stems have attained a diameter of about 3 inches, and the manna is then drawn from them by making incisions through the bark to the wood from 1 inch to 2 inches long, and at distances from each other of about 1 inch. The first cut is made at the lower part of the trunk, and the next day another is made just above it, and this is continued daily during the dry weather, after which the tree is left alone till the following season, when the untouched part of the stem is operated upon in the same way, and similar practice is continued in succeeding years till the tree is exhausted, which is usually at the age of ten or twelve years, when the stem is cut off, and another shoots up from the same stump—indeed, several stems are often to be seen growing from the same root. The very finest manna is that which has become encrusted around pieces of stick or straws placed in the incisions in the stems to receive it, but the fine quality ordinarily seen in commerce, and known as flake manna, is that which has hardened on the stem. The inferior qualities are those which flow from the lower incision, and are either collected on tiles or in the hollow of boat-shaped joints of a species of *Opuntia*. After removal from the tree the manna is laid upon shelves to dry or harden before packing. The best manna harvests are obtained in warm, dry weather, usually in the months of July and August, when the trees have fully matured their leaves.

Such then is the source and means adopted in obtaining commercial manna, the character and uses of which are well known. But several other plants yield substances somewhat analogous, which are generally known under the name of manna. Though these less-known products have attracted a certain amount of attention at different times and by various writers, no careful examination, so far as we know, has been made of many of them, and it is with the view of drawing the attention of chemists more prominently to them that we have here collected together what information can be gained on the subject, in the hope that these undeveloped products may be thoroughly investigated, and that some, at least, may find their way into the list of really useful substances.

Taking them in the order of the natural affinities of the plants which yield them, and not in that of their supposed importance, we find that *Tamarix gallica*, L., var. *mannifera*, a small tree or bush widely distributed in Europe, Africa, and Asia, produces in Persia and Arabia a kind of manna known by the Arabic and Persian names of "Gazangabin" and "Gazanjabin"—names which imply Tamarisk honey. In June and July the shrubs which grow in the valleys of the peninsula of Sinai exude from their slender branches small drops of a honey-like substance, which become solid in the cool of the early morning. The exudation is assisted by the puncture of a small insect. The Arabs collect the manna and dispose of it to the monks of St. Katharine, from whom it is obtained by pilgrims and visitors to the convent. It is also collected in Persia, but there does not seem to be any record of its collection in India at the present time, inasmuch as it now forms an article of export from Persia to Bombay. In 1861 Berthelot examined a sample of this substance obtained from Sinai, which had the appearance of a thick yellowish syrup, consisting of cane sugar, inverted sugar

(levulose and glucose), dextrin, and water—the last constituting one-fifth of the whole. Dymock says that in Persian works Tamarisk manna is described as a dew which falls upon this and other trees, notably the willow and oak, and becomes solidified. The Hakims consider the manna to be detergent, aperient, and expectorant. It is sold in Bombay at half a rupee a pound, and is kept in most druggists' shops.

Astragalus.—From one or more species of this leguminous genus manna is said to be obtained in Persia under the same common name of "Gazangabin." Fluckiger and Hanbury, on the authority of Haussknecht, say that this name is used at the present time in Persia to designate certain round cakes common in all the bazaars, of which the chief constituent is a manna collected in the mountain districts of Chahar-Mahal and Faridan, and especially about the town of Khonsar, south-west of Ispahan, from *Astragalus florulentus*, Boiss. and Haussk., and *A. adscendens*, Boiss. and Haussk. The best sorts of this manna, which are termed "Gaz-Alef," or "Gaz Khonsari," are obtained in August, by shaking it from the branches, the little drops finally sticking together and forming a dirty greyish-white tough mass. The commoner sort, got by scraping the stem, is still more impure. Ludwig found Haussknecht's specimen to consist of dextrin, uncrystallisable sugar, and organic acids. Dymock says that Rich, in his "Residence in Koordistan," describes the collection of Gazangabin, called by the Koords "Ghezo," by picking the leaves of the trees, getting them dry, and then gently threshing them over a cloth, the season for collecting being about the end of June.

From these notes there would seem to be much mystery attached to the source of this kind of Persian manna, the whole question of which should be taken up and worked out by European residents in Persia.

Alhagi Maurorum, Desv.—This is a widely-spread leguminous shrub, native of the plains of the North-west Provinces of India, Upper Ganges, and Coucan. The plant is described in Sanskrit works as having laxative, diuretic, and expectorant properties; but no mention is made of its yielding manna—none, indeed, being produced in India. It is known in Arabic as "Taranjabin." It exudes naturally from the plant, and is collected chiefly by shaking the twigs over a cloth. It is collected chiefly in Khorassan, Kurdistan, and Hamadan, and is imported into Bombay from Persia in skins and bags, and realises about 10 annas per lb. It occurs in whitish grains, or small agglutinated masses, in which the thorns, pods, and leaves of the plant occur. The taste is sweetish at first, becoming afterwards slightly acid, and it has hardly any odour.

Mir Mohammad Husain describes *Alhagi* manna as "aperient, cholagogue, more digestible than ash manna, expectorant, a good purifier of the blood from corrupt and adust humours, when given in diet drinks, such as barley-water, &c., diuretic, and, with milk, fattening and aphrodisiac."

Dr. Dymock says, in Bombay fine clean white samples are obtainable during the season of import—November to January; but, unless very carefully preserved, it soon spoils in the moist climate of the western coast, running together and becoming a brown sticky mass.

A similar manna is described by some authors as being produced by an allied species of *Athagi*, namely *A. camelorum*, Fisch, a spiny shrub of Persia, Afghanistan, and Beluchistan. It is said to be collected near Kandahar and Herat at the time of the flowering of the plants, and is imported into India from Cabul and Kandahar to the extent of about 2,000 lbs. annually. Dr. Aitchison says: "The country round Rui-Khauf, in Persia, is celebrated for this product, whence it is exported in all directions." It is possible that there is some confusion between these two plants as manna-producers, and that what has been stated under *A. maurorum* rightly applies to *A. camelorum*.

Under the name of "Shir-Khist," a kind of manna has been described by ancient writers and referred to as follows by Fluckiger and Hanbury:—Haussknecht, in his paper on "Oriental Manna," states that it is the exudation of *Coton-caster nummularia*, Fisch. et Mey., a rosaceous plant, and also of *Atraphaxis spinosa*, L., a plant belonging to the natural order Polygouaceæ. It is found in the bazaars of North-Western India, being imported in small quantities from Afghanistan and Turkestan. The manna occurs in irregular roundish tears, from about a quarter to three-

quarters of an inch in greatest length, of an opaque dull white, slightly clammy, and easily kneaded in the fingers. Its odour is that of manna, and its taste a pure sweet. It has a crystalline fracture, and forms with water a syrupy solution, with an abundant residue of starch granules.

Shir-Khist was found by Ludwig to consist of an exudation analogous to tragacanth, but containing, at the same time, two kinds of gum, an amorphous levogyre sugar, besides starch and cellulose.

Dr. Aitchison, who has done so much to elucidate the botany of Afghanistan, in a paper read before the Pharmaceutical Society in 1886, thus speaks of this manna:—"It is largely exported, and is an exudation that occurs in certain seasons and years upon *Cotoneaster mummularia*. The plant is called "Siah-chob" (black stick), and the manna "Shir-Khist," meaning hardened milk. This *cotoneaster* is a tall, stout shrub, growing occasionally to 12 or 14 feet in height. It is met with throughout the Paropamisus range and in Khorassan, at an altitude of about 5,000 feet. Although common everywhere in these hills, it is found in greater abundance on the Siah-Koh and Safed Koh and the Ar-dewán pass, forming regular thickets. These are also noted localities for obtaining the manna. During July, as the corn ripens, the smaller branches of the *Cotoneaster* become covered with the exudation, and this is collected by merely shaking the branches over a cloth. It is eaten largely by the people as a sweetmeat, and exported in quantity to Persia and India.

From the sandalwood or dogwood tree of Australia (*Myoporum platycarpum*, R. Br.) a saccharine substance, or manna, is exuded. It is of a dirty whitish colour, with a slight pinkish tinge. It has an extremely sweet and pleasant taste, and is much sought after as an article of food by the aborigines, and is also highly appreciated by the colonists.

Briançon manna is a white saccharine substance found on the leaves of the larch (*Larix europæa*), growing on the mountains about Briançon in Dauphiny. It is most abundant in the height of the summer, and in the early part of the day. Fluckiger and Hanbury say that it was formerly collected for use in medicine, but only to a very limited extent; for in the time of Geoffroy (from 1709 to 1731) it was rare in Paris, while at the present day, though still gathered by the peasants, it has quite disappeared from trade. The manna, as usually seen, is in small whitish opaque tears, oblong and channelled, and mostly encrusting the narrow leaf of the larch. It has a slight smell and a sweet taste, and exhibits under the microscope indistinct crystals.

Many sweet manna-like substances are known, the exudations of which are due more or less to insect agency, and are, therefore, not truly vegetable products. Among these may be included the following:—*Eucalyptus* manna, or "lerp." This is found chiefly on the *Eucalyptus dumosa*, A. Cunn, and is the nidus of an insect. It consists of a starch-like substance of a sweet taste, and of a white or yellowish-white colour. In appearance, the pieces somewhat resemble small shells. It is eaten in summer by the aborigines of the Mallee country of Victoria, where the plant is found, as also in southern New South Wales. Referring to lerp from *E. dumosa*, Mr. Maiden, in his "Useful Native Plants of Australia," gives the following extract from Fluckiger in "Watts's Dictionary":—"This substance occurs on the leaves, and consists of white threads clotted together by a syrup proceeding from the insect (*Psylla eucalypti*) which spins the threads. It contains, in round numbers, of water 14 parts, thread-like portion 33 parts, sugar 53 parts. The threads possess many of the characteristic properties of starch, from which, however, they are sharply distinguished by their form. Where lerp is washed with water, the sugar dissolves, and the threads swell but slightly, and dissolve to a slight extent, so that the solution is coloured blue by iodine. The threads, freed from sugar by washing, consist of a substance called "lerp amyllum." This is very slightly soluble in cold water, and not perceptibly more so in water at 100°, but entirely soluble to a thin transparent liquid when heated to 135° in sealed tubes, with 30 parts of water; this solution, on cooling, deposits the original substance in flocks, without forming a jelly at any time. The separation is almost complete. If the material employed in this experiment were entirely free from sugar, the liquid left after the separation of the flocks will also be free from sugar. The flocks

deposited from solution are insoluble in boiling water; therefore, lerp amyllum suffers no chemical change on being heated to 150° with water. Heated in the air-bath to 190° while dry, it turns brown, and is afterwards merely reddened by solution of iodine; at the same time it becomes partially soluble in hot water—hence it appears that lerp amyllum undergoes a change similar to that which occurs when starch is converted into dextrin. By oxidation with nitric acid it yields oxalic acid, but no mucic acid; it is neutral to vegetable colours, and is not precipitated by lead acetate, and is, therefore, not to be confounded with the gums, &c." We have quoted rather extensively on this subject, as lerp manna has attracted some attention of late amongst chemists in comparison with similar products—indeed, from the trunk of *Eucalyptus viminalis*, Lab., found in South Australia, Victoria, New South Wales, and Tasmania, a quantity of sweet saccharine juice exudes, which has a pleasant taste and is much used by the natives as food. The tree in some localities is called the "manna gum." Mr. Maiden thus describes this manna:—"It is in small pieces, about the size of peas, but of irregular flattened shape. In appearance it very much resembles lime which has naturally crumbled or slacked by exposure to a moist atmosphere. It is composed of an unfermentable sugar called *Eucalin*, which is peculiar to the sap of the *Eucalyptus*, together with a fermentable sugar, supposed to be dextroglucose. The manna is derived from the exudation of the sap, which, 'drying in the hot, parched air of mid-summer, leaves the sugary solid remains in a gradually increasing lump, which ultimately falls off, covering the ground in little irregular masses.' This exudation of the sap is said by McCoy to take place from the boring of the great black, or manna, cicada (*C. mærens*). The Hon. W. Macleay, of Sydney, is, however, by no means of that opinion, as he thinks it cannot be doubted that the manna is the work of a gall-making coccus. It is a subject that requires clearing up, and it is to be hoped that a naturalist will give his earnest attention to the matter."

On the subject of oak manna, Fluckiger and Hanbury point out that the occurrence of a saccharine substance on the oak is noticed by both Ovid and Virgil, and that it has also been mentioned by Arabian physicians and other writers of later dates. At the present day it is said to be the object of some industry among the wandering tribes of Kurdistan, who collect it from *Quercus vallonæa*, Kotschy, and *Q. persica*, Jaub. et Spach. In the month of August the trees are covered with enormous numbers of a small white coccus; from the punctures made by them a saccharine juice exudes, which solidifies in small grain-like lumps. These are collected before sunrise by shaking the branches of the trees on to linen cloths spread beneath them. The exudation is also collected by dipping the small branches on which it is formed into vessels of hot water, and evaporating the saccharine solution to a syrupy consistence, which in this state is used for sweetening food, or for mixing with flour to make a kind of cake. This manna would appear to vary considerably in its composition and quality, the best sort being moist and soft, and described as resembling an inferior description of ash manna, while an inferior quality is sometimes seen in hard, compact, greyish lumps, so hard as to require a hammer to break it. It is composed of sugary matter, mixed with a quantity of small fragments of green leaves. It has a sweet taste and a herb-like smell.

A very singular manna-like substance is that known as "Trehala" in Syria, and as "Shukkar Tigel" in India. These have been considered as distinct products, though closely allied. The so-called manna consists of oval-shaped cases, averaging $\frac{1}{2}$ inch to $\frac{3}{4}$ inch in length, externally rough and irregular, hard and brittle, of a greyish white colour and with a sweetish taste. These cases are found attached by one side to twigs of a species of *Echinops* in Syria, and are constructed by a small beetle which has been described as *Larinus subrugosus*. The larva of this insect collects a considerable quantity of saccharine and amyloseous matter from the *Echinops*, and it constructs its dwelling by disgoring this matter and moulding it in the form to cover itself. Each case contains one insect only, and when this has attained its perfect form it emerges at the upper end. Analysis of these peculiar cocoons or nests has proved them to contain gum, starch, and sugar. Placed in water at

an ordinary temperature they swell, partly dissolve, and become converted into a pasty mass. They are collected in Turkey and Syria, and used as food, and they are also exported in quantity to Constantinople and other Turkish cities.

The Shukkar Tregal, or Tigel, of India has been described as the product of a similar insect on the mudar plant (*Calotropis procera*). They are said not to be common, but in sufficient quantity for the natives to collect as an article of food. Dr. Royle describes it in his "Himalayan Botany" as a "sweetish exudation formed on the plant, in consequence of the puncture of an insect called *Gultigal*." The beetles found in a sample of the so-called manna received from India were some years ago submitted to an eminent entomologist at the British Museum, who pronounced them to be those of *Larinus ursus*, Fabricius. Further information on this interesting subject is contained in Hanbury's "Science Papers," pp. 158-163, where attention is drawn to the fact that M. Guibourt has pointed out that, under the Persian name of "Schakar tigel," these cocoons were described by Father Ange, in his "Pharmacopœia Persica," so far back as 1681; but, from that time to 1855, when they were exhibited amongst some drugs from Constantinople in the Paris Exhibition of that year, they were practically unknown to pharmacologists.

In a note communicated by Mr. Hanbury to the Linnean Society in 1858, and published in the Proceedings of that society for May, 1859, it is stated that the insect was determined by Mr. Wilson Saunders, in 1856, to be the *Larinus maculatus* of Faldermann—this determination being founded on specimens collected at Kirrind, in Persia, in September, 1851, by Mr. W. K. Loftus, whose specimens were presented to the British Museum. There is a specimen, however, in the Kew Museum, collected by the same gentleman, at the same place, and on the same date, and bearing the same name of "Shek roukeh," which is further stated to be "produced by the larva of a rhynchophorous insect on the 'Tucee' plant, which name I have been unable to trace. Two samples of gum accompany this specimen, one labelled "Gum of 'Tucee' Kourdish, from Kirrind Persia, July, 1851," and the other labelled "Gum ('Keeje') of 'Tucee' Kourdish, near Kirrind, July, 1851." The first of these is a white gum in small pieces, not unlike gum arabic; while the second is a brownish substance, easily crumbling into small pieces, and not soluble in water. Mr. Hanbury describes a second product, collected by Mr. Loftus, near Kirrind, on July 13, 1851, as "a saccharine substance resembling dark honey," and "exuded by a species of thistle when pierced by a rhynchophorous insect." The plant was identified as *Echinops persicus*, Fisch., and the insect as a new species of *Larinus*, under the name of *L. mellificus*, Jekel. Both products would therefore appear to be formed on species of *Echinops*, but, though we have the authority of M. Guibourt that the insect-cases known as "Trehala," or "Schaker tigel," are composed of a large proportion of starch of gum, a peculiar saccharine matter, and a bitter principle, as well as earthy and alkaline salts, no analysis seems ever to have been made of the dark honey-like substance. Again, the "Trehala" is stated to be abundant in the shops of the Jew drug-dealers of Constantinople, and to be frequently used by the Arab and Turkish physicians in the form of a decoction, and is regarded by them as of peculiar efficacy in diseases of the respiratory organs: but to what use the second, or saccharine, substance is put has never been stated.

It is possible that Mr. Loftus's "Keeje" in the Kew Museum may be identical with the saccharine substance described by Mr. Hanbury; and it seems more than possible that the Trehala, or Schakar Tigel, of Persia, which is undoubtedly produced on a species of *Echinops*, is in every way identical with that referred to by Dr. Royle, which has been stated to be produced on *Calotropis procera*. That it has nothing to do with *Calotropis* is certain from a sample in the Kew Museum which was received from the India Museum under that name, but which contains numerous spines of unmistakable *Echinops*.

Whether any of these peculiar substances are ever likely to be useful as drugs in Europe remains yet to be proved.

Another singular product, which is a manna only in name, is that furnished by two species of *Lecanora*, namely, *L. cseulenta* and *L. affinis*, lichens which are said to have appeared suddenly, or even to have fallen in the form of

rain, at various times, covering vast tracts of country in Persia, Tartary, the Caucasus, the Crimea, on Mount Ararat, near Damascus, in Algeria, and in the African Sahara. The sudden appearance of these plants has been the cause of their being designated manna, as the people have believed that they have been miraculously sent in times of scarcity, and the lichens have been eaten by both men and cattle. It is thus described by Lauder Lindsay:—"The manna is usually found in the form of small lumps, from the size of a pin's head to that of a pea or small nut, which are greyish or whitish, hard, irregular in form, inodorous, and insipid. Individual plants weigh from a few grains to about a couple of scruples when dry; the thallus bears no evidence of having, at any period of its growth, been attached to any base of support, and, singularly enough, analysis has failed to discover in it starch, though it has detected no less than 66 per cent. of oxalate of lime in some specimens—hence it has proved deleterious to sheep feeding on it in Algeria, and has only been used by man in extreme need." It cannot be supposed that these lichens could ever be turned to practical account, and the notice of them is only introduced here to make this list more complete. The same may be said of the following, which are described as furnishing a manna-like substance:—*Pyrus glabra*, like oak manna, collected by the people in Luristan. In Persia *Scrophularia frigida* and *Salix fragilis* are said to yield saccharine exudations, and in Spain *Cistus ladaniferus*.

This list of mannas, some of which have but slight claim to the name, may perhaps be added to by those who have opportunities of observing the habits of plants, especially in hot and dry countries: for it is most likely that many other plants besides those here enumerated might be turned to some useful account in this direction.

Pharmaceutical Society of Great Britain.

EXAMINATIONS IN LONDON.

June 18 and 19, 1890.

MAJOR EXAMINATION.

TEN candidates were examined, of whom the following seven passed:—

Cox, Frederick H., Southampton	Lovibond, James Joseph, Plymouth
Farnworth, Walter, Blackburn	Marsden, Frederick Steele, Snaith
Hulme, Harold Edwin, Pendleton	Wilkinson, William, Bradford
Johnstone, E. S., Whaley Bridge	

MINOR EXAMINATION.

Forty-five candidates were examined, of whom the following eighteen passed:—

Blayney, William Cowan, London	Holt, James Hartley, Ormskirk
Clarkson, Richard Bell, Newark	Leighton, T. T., West Hartlepool
Coleman, John David, Cardiff	Mountain, John T., Woodbridge
Curtis, Michael, Malvern Link	Pattison, T. D., West Hartlepool
Dalby, William James, Hastings	Payne, Joseph Hind, Wainfleet
George, David, Cardigan	Pears, Harry William K., Brighton
Goddard, H. E., Great Yarmouth	Shaw, Tom, Roebdale
Hocking, Francis Almond, London	Simpson, James William, Maidstone
Hodson, Ernest Albert, Bromsgrove	Tompsett, Walter H., Maidstone

MODIFIED EXAMINATION.

Two candidates were examined. One failed. The under-mentioned passed:—

Walters, John, Penarth.

A PASTE which will stick anything is said by Professor Winchell to be made as follows:—Take two ounces of clear gum arabic, one and a half ounces of fine starch, and half an ounce of white sugar. Dissolve the gum arabic in as much water as the laundress would use for the quantity of starch indicated. Mix the starch and sugar with the mucilage. Then cook the mixture in a vessel suspended in boiling water, until the starch becomes clear. The cement should be as thick as tar, and kept so. It can be kept from spoiling by the addition of camphor, or a little oil of cloves.

TRADE-MARKS APPLIED FOR.

THE *Trade Marks Journal* publishes the following notice:—"Any person who has good grounds of objection to the registration of any of the following marks may, at any time within one month of the date of this journal, give notice in duplicate, at the Patent Office, in the form 'J,' in the second schedule to the Trade Marks Rules, 1883, of opposition to such registration." All communications to be addressed to H. Reader Laek, Esq., Comptroller General, at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.

From the "Trade Marks Journal," June 4, 1890.

- "TRILENE"; for medicinal tablets for human use. By Deane Bennett, trading as The Trilene Company, 70 Finsbury Pavement, E.C. 96,349.
- "MONARCH OF PAIN"; for a specially prepared oil to relieve pain. F. and C. T. Renshaw, Mount Eden Laboratory, Auckland, New Zealand. 96,445.
- "PARAMOL"; for chemical substances prepared for use in medicine and pharmacy. By Duncan Flockhart & Co., 104 and 106 South Canongate, Edinburgh. 96,854.
- "SPOTTED OX," and other wording, and picture of an ox on shield; for mineral and aerated waters. By Waller and Smith, The Spotted Ox Stores, 5 Upper Millergate, Bradford. 96,333.
- "SHIPLEY'S SELTZER," and picture of house standing on cliff; for seltzer water. By G. Hickton, Great Freeman Street, Nottingham. 96,347.
- "KATHARTIC MARVEL FLUID"; for a washing and cleansing fluid included in Class 47. By A. H. Parker & Co., 26 Paradise Street, Bradford. 95,285.
- "QUEEN'S CONDENSED SOAP," and other wording on label; for perfumed soap. By Hodgson & Simpson, Calder Soap Works, Wakefield. 62,450.
- "EAU HORN," and other wording on label; for a preparation for the hair. By Otto E. Horn, 38 Elm Grove, Newport, Isle of Wight. 95,159.

From the "Trade Marks Journal," June 11, 1890.

- "VIVIFIC," and "VIVIFIC INSTANTER" on shield; for a cattle medicine. By R. Skelton, trading as the London and Counties Cattle Medicine Company, Whickham, Durham. 95,986, 95,988.
- "EMBROKASHUN"; for an embrocation for horses, &c. By R. Skelton, trading as The London and Counties Cattle Medicine Company, Whickham, Durham. 95,987.
- "MOSLEY'S CŪRA CŪRABUM EMBROCATIO"; for embrocation for human use. By W. M. Buxton, trading as Mosley, 5 Mytton Street, Hulme, Manchester. 96,357.
- "HAKKA CREAM," and Chinese lettering; for ointments and salves. By A. P. Bush and E. A. Talbot, trading as A. P. Bush & Co., Boston, U.S.A. 96,752.
- "KEURCATON"; for an embrocation. By Marsh & Co., Holly Cottage, High Lane, Burslem, Staffordshire. 96,976.
- "MOLĒNIA"; for medicated cigarettes, pastilles, and medicinal preparations in Class 3. H. M. Prior, 7 Ferryquay Street, Londonderry. 97,176.
- "NOBLE'S BLACK CURRANT ELIXIR," and monogram on label; for a medicinal preparation. By H. E. Noble, 1 Midgate Buildings, New Road, Peterborough. 96,719.
- "SCOTT'S EMULSION," and picture of fisherman carrying cod-fish; for an emulsion of cod-liver oil with hypophosphites. By Scott & Bowne, Limited, 47 Farringdon Street, London. 97,227.
- "GODSON'S SPICED MEAL," and other wording, and picture of a wind-mill; for cattle food. By R. Godson, Heckington, Lincolnshire. 97,076.
- "VINOLIA," and other wording; for an emollient cream for toilet purposes. By Blondeau & Cie., Perrin Street, Ryland Road, Kentish Town, N.W. 96,243.

- "CERELLA" and "CEROLA"; for food substances. By Jas. Marshall, 22 Adelphi Terrace, Glasgow. 95,913, 96,790.
- "VECTIS" and monogram on shield; for food substances. By Ash & Thomas, Newport, Isle of Wight. 96,746.
- "LEAMINGTON SPA MINERAL WATER CO. LIMITED," and monogram; for mineral and aerated waters. By the Leamington Spa Mineral Water Company, Morell Street, Leamington. 96,041.
- "NOITOLCIGAM"; for a toilet preparation or wash for skin. By T. S. Stevens, Denis House, Spencer Road, Bromley Kent. 96,784.
- "STURROCK'S COMAURINE"; for a preparation for the hair. By J. Sturrock, trading as Sturrock & Sons, 123 Buchanan Street, Glasgow. 96,724.
- "CLARK'S GLYCOLA"; for perfumery and toilet articles. By T. J. Clark, 31 The Broadway, Crouch End, London. 97,092.

From the "Trade Marks Journal," June 18, 1890.

- "CLARKSON'S HORSE AND CATTLE LINIMENT," and picture showing group of animals; for a veterinary preparation. By F. Gregory and H. Hoyes, trading as A. Clarkson & Co., Pelham House, West Cowes, Isle of Wight 96,456.
- "PHOSPHOR TONIC," and other wording, on label; for a medicine for human use. By Martin Magor, Old Square, 126 Corporation Street, Birmingham. 95,902.
- "PEPTOPAIN"; for chemical substances for use in medicine and pharmacy. By H. H. Millhouse, 54 Piccadilly, London, W. 96,448.
- "GLYCONA"; for a medicine for human use. By John Collishaw, 16 High Street, Wandsworth, London. 96,697.
- "MELUCINE"; for chemical substances not included in Class 1 and used in medicine and pharmacy; also for toilet soaps and preparations. By F. S. Cleaver & Sons, 32 Red Lion Street, Holborn, London. 97,194, 97,173.
- "THE PALMERSTON," and picture representing Lord Palmerston; for food-substances. By the Palmerston Wine Association (Limited), 34 Old Broad Street London. 95,058.
- "MAYO"; for an oilcake for cattle. By W. B. Barton, Oil Mill, Fazeley, Tamworth. 96,255.
- "NECTAR TABLE JELLY," and other wording, on circular label; for a food-jelly. By F. Machin & Sons, trading as Batger & Co., 96 Houndsditch, and Broad Street, Ratcliffe, London. 96,699.
- "PARAPHIN," and signature; for a hair-wash. By F. Chaventré, trading as Alex. Chaventré & Son, 98 Brompton Road, London. 95,600.
- "UDENTINE"; for dentifrices, &c., and toilet preparations. By H. M. Prior, 7 Ferryquay Street, Londonderry. 97,175.
- "R. & W. CLARKSON"; for perfumed soaps, perfumery, &c. By R. C. Scott, trading as R. & W. Clarkson, Burlington House, Litherland Park, near Liverpool. 97,390.

(From the Trade Marks Journal, June 25, 1890.)

- "PYOKTANIN"; for antiseptics. By E. Merck, with Haseltine, Lake & Co., 45 Southampton Buildings, Chancery Lane, W.C. 97,068.
- "THE FAMOUS NINE OILS," and other wording on label; for liniment. By J. Wohdend, 22 Pitt Street, Liverpool. 94,413.
- "VINOLIA" and other wording; for an emollient cream for the skin. By Blondeau & Cie., 2 Perrin Street, Ryland Road, N.W. 94,638.
- Picture of goddess carrying shield and bottle; for patent medicines, &c. By H. J. Sedway, Monaville, Lausanne Road, Hornsey, N. 97,597.
- "CREMOLIA"; for toilet soaps, perfumery, &c. By F. S. Cleaver & Sons, Red Lion Street, Holborn, London. 97,460.

HELBBING'S PHARMACOLOGICAL RECORD.

THIS is the title which Mr. H. Helbing, F.C.S., of 63 Queen Victoria Street, E.C., has given to a neat pamphlet which he has commenced to publish, and which we understand he will issue twice a year. The first number contains reports of the literature of the past six months regarding all the important new remedies which are now in use, together with original information and a number of suggestions to Pharmacopœia authorities. Judging from the first issue, we should think that the "Record" will be useful and valuable to physicians and pharmacists, and wholesale houses. It deals more fully with foreign medical literature than our medical journals generally do, and lists of references are given which will be of value to those who wish to follow up the details of the various subjects. Below we print a few extracts from the "Record." Amongst the subjects treated other than those mentioned are salicylic acid, antifebrin, arecoline, aristol, ethereal tincture of capsicum, chloralamide, medicated cotton, creolin, exalgine, medicated gauzes, ichthyol, kola, mercury and zinc cyanide, mithacetin, ouabain, papain, paraldehyde, penghawar djambi, pyocetanin, salol (with a plea for its admission into the Pharmacopœia), sodium paraeresotinate, strophanthus, sulphonal, and wickstroemia canescens. We understand that Mr. Helbing will send a copy of the "Record" to anyone who applies for it.

Acidum Carbolicum.—With reference to the melting-point given in the Pharmacopœia—"not lower than 33° C."—it would seem advisable to raise the minimum limit, it being a fact that many institutions actually use an acid with a higher melting-point. The attempt should at least be made to fix the melting-point as between 37° and 40° C., and the boiling-point between 182° and 184° C.

Antipyrin.—Mr. Helbing urges that the name "antipyrin" should be adopted by the British Pharmacopœia as it has been by the Austrian, Dutch, and German Pharmacopœia authorities. The following are the characters and tests which he suggests for the substance. This example will serve to show the nature of the suggestions which he makes in this department.

Antipyrin, Phenyl-dimethylpyrazol (Oxydimethylchinizin).

CHARACTERS AND TESTS.—White crystalline powder or small resplendent scales, nearly odourless, with a feeble bitter taste; freely soluble in water, alcohol, and chloroform, less so in ether. It melts between 111° and 113° C., and when heated on platinum foil, burns away without residue. The dilute aqueous solution mixed with a solution of nitrate of potassium, previously acidulated with dilute sulphuric acid, assumes a bluish-green colour. Thirty minims of a very dilute aqueous solution (1 : 1000) mixed with one drop of liquor ferri perchloridi assumes a deep red colour, which is changed to a yellowish tint by the addition of ten minims of concentrated sulphuric acid.

Echujin.—This is the active principle discovered by R. Böhm in an apocynaceous shrub (*Adenium Boehmianum*) growing in Africa, the milky juice of which is used by the natives as an arrow poison. The Ovambos in South-west Africa call the plant "Exuja," hence the name of the active principle, which is a glucoside, having the formula $(C_5H_8O_2)_n$ the same as that assigned to digitalin. It more resembles ouabain and strophanthin. The toxic dose for rabbits is $\frac{1}{12}$ – $\frac{1}{40}$ gr. per lb. of body weight. On higher animals it acts similarly to the above-named glucosides.

Iodol seems to be again attracting some attention, especially in the form of fine crystals, which has the advantage of amorphous iodol of not agglomerating when dusted on the mucous membrane.

Lanolin.—A page is devoted to recent literature regarding this ointment base, which is growing in esteem. Mr. Helbing suggests that the formula which he gave in this journal for unguentum lanolini may be simplified by the substitution of vaseline for the liquid paraffin and ceresin, so that the composition would be—

Lanolin	3 oz.
Vaseline	1 "

M.

The "lanolin" which he recommends for official adoption is a yellowish-white, fatty substance, 10 grammes of which

dried on a water bath must not lose more than 3 grammes weight.

Orcain.—Particulars are given regarding this synthetic appetizer, and we learn that from experiments made by the writer with the view of finding an agreeable mode in which to administer the remedy, it appears to be preferably given in the form of pills (containing $1\frac{1}{2}$ to 2 grains each, made up with extr. and pulv. gentianæ), which are coated with chocolate. In this manner the burning taste is entirely avoided. It is also advisable to take a quantity of liquid with each dose, to prevent any possible gastric irritation.

Sulphaminol.—Recommended for surgical purposes as being a sulphur compound which, in contact with animal secretions, splits up into sulphur and phenol. The researches of E. Weiss on the use of sulphaminol against the putrid brood of bees, show that while the substance is strong enough to be of service in this disease so troublesome to bee-keepers, it is quite harmless and does not kill the bees.

VETERINARY NOTES.

DISTEMPER.

MR. EVERETT MILLAIS, a son of the artist, has been investigating the origin of the disease of the dog tribe which is commonly known as distemper, and he believes that he has succeeded in establishing the identity of a bacillus which is the cause of it (*Brit. Med. Journ.*). The disease is infectious, and after exposure to infection an incubative period of variable duration follows; the symptoms which then appear are dulness, loss of appetite, and fever; the nose at the same time becomes hot and dry, and a husky cough, constipation, or diarrhœa is commonly present. The eyes and nose now discharge freely, the fluid being at first watery, but purulent later on. Finally, the animal emaciates rapidly, while the coat becomes hard and staring. In about three weeks, should no complication ensue, the dog begins to regain condition and recovers. Unfortunately, complications generally do supervene, for few cases occur in which bronchitis is not a symptom. Pneumonia carries off a large number of those attacked, whilst jaundice, fits, and diarrhœa account for the death of many others. As sequelæ we find chorea and paralysis.

The mortality is very high, and 90 per cent. has been given as the loss from this disease. It is nevertheless doubtful whether the mortality is really so high, as it is a notorious fact that mongrels are peculiarly exempt from malignant distemper. In well-bred dogs, however, 90 per cent. fairly represents the average of fatal cases.

The author, in the experiments made to discover the pathogenic micro-organism, inoculated several tubes of gelatine with the mucus obtained from dogs suffering from the disease. He succeeded in infecting puppies with the disease by inoculation with cultivation of the eighth generation. The cultivations showed two distinct bacilli, A and B, as well as a large number of micrococci. Bacillus A and the micrococci were found not to produce distemper, but bacillus B produced the diseases within the usual period. It was observed, however, that in the latter case the distemper produced was of a very mild description, this being due to the fact that the cultivations were made at a temperature of 60° to 70° F., which is much below the temperature of the dog (101.5° F.). The result of this was that the virus became attenuated, a fact which was experimentally proved by the inoculation of two valuable bloodhound puppies, and they only had very mild attacks, whereas it is the nature of the bloodhound to suffer severely when the distemper is on them. After a week the puppies were inoculated with a pure culture of the specific bacillus B, and to ensure infection they were placed in a kennel recently occupied by dogs suffering from distemper, but they were now proof against the disease. The experiments were repeated on other dogs, with practically similar results, and the author arrives at the conclusion that the bacillus is the primary cause of distemper and the micrococcus the cause of the complication pneumonia; whilst the two when combined produce pneumatic distemper. In the fatal cases it is pneumonia which is the immediate cause of death.

CHLORINE EXPOUNDED.

At a recent social meeting of the Westminster College of Pharmacy Club, Mr. Lovibond, a student at the college, delivered the following lecture on chlorine:—

To begin with, gentlemen, what is chlorine? Is it an article of diet or is it a piece of wearing-apparel? As an article of diet it is not much of a success. There is a want of substantiality about it, which, like the Barmecides' feast, does not satisfy the cravings of hunger. And if you attired yourself in it alone and went out for a walk, the police would soon demand an explanation. No, my friends, it is neither. It is an element. Chlorine is so called because after prolonged inhalation it feels as if a cat had been *clawrin* your throat. If you don't believe me, try it. The name is supposed by some to be derived from the Greek word chloros, a stench, but Archimedes, in his play "The Turning of the Screw," informs us that:

Alpha beta gamma delta
Epsilon zeta eta theta iota kappa lambda,

and from this we deduce the theory that the idiosyncrasies of the polymers and polymermaids of the genus homo are idiomatic with the vernacular of the conic section, differentiated by the calculus prevailing in the isoclinic demarkation, usually inversely as the square of the radius reckoned on the sum of the difference between the real and magnetic meridians. In support of this theory, Faraday discovered that the parabola described by Soerates on his descent into the volcano was hypothetically zygomorphic with the rectilinear declination of the chaotic atomicity of incipient molecular coagulation. And further, that the volume of gases employed in this reaction may be calorimetrically estimated by the diverse isonocism of their hebdomadal supererogation. And may be calculated into chlorine by dividing the tangent of their angle of dextro-rotation into the square root of their specific volume. Chlorine may be made in many ways. We have Deacon's process, used in disinfecting churchyards; Weldon's process, which certainly is well done, but it is usually bungled by Mrs. Weldon. The usual text-book process for laboratory work is by heating a mixture of manganese dioxide and hydrogen chloride. This is very easily done, as I will proceed to show you. When you only want the chlorine once in the afternoon this answers the purpose. But the best method when only a small quantity is required at a time is to make the black oxide of manganese into pellets about the size of a 5-gr. pill, and enclose the HCl in gelatine capsules. On commencing work about a dozen of each are swallowed, and the chlorine may be recovered as it is required by means of the stomach-pump. Chlorine enters into a number of useful and complicated compounds, of which the most useful is sodium chloride, in which form it exists in perhaps the most complicated, the sausage. Our thanks are due to the man who discovered NaCl, for without it the juicy rasher and the succulent tripe and onions would still be slumbering in the womb of futurity. HCl is another very useful compound of chlorine. It is, as you are aware, known in commerce as the "spirits of salt," so called under the erroneous impression that the fumes arising from the strong acid were in reality the ghosts of the atoms of salt from which it was distilled. I have here a sample of the anhydrous acid. At ordinary temperatures it is a gas, but when cooled down to minus 560°—that is, 560° below the zero of the Centigrade scale—it becomes a liquid, and eventually a solid. This has a great affinity for water. If I hold it over this tumblerful and let go it will fly towards it, and will combine with it, with a slight explosion. I do not know whether you will hear it. This, gentlemen, is all, I think, that will be necessary for you to know about this important element for the Minor. By the way, there is one anomaly in connection with the Minor examination which one cannot help observing—that, reversing the order of nature, candidates have to be majors before they can become minors. And now, my friends, let us tabulate the conclusions which may be deduced from these exhaustive researches. We can but be convinced that the closer we look into the mysteries of nature, the less we find that we know about them. Like a

child with a tangled skein, we fancy we have found the end. But alas! the harder we pull the tighter becomes the knot; the deeper we search, the farther truth flies from us. Let us, my friends, cease this hopeless struggle. Let us fold our arms and gaze in rapt awe at the vastness of our own ignorance—and the sale of patents. Let us, with a heartfelt sigh, relegate to the dim and distant future the measure which will enable us to place the initials M.P. on every halfpenny-worth of salts we sell; and, placing our hand on our bosom, let us say in all reverence: "Go thou and do likewise; be virtuous, and you will be happy."

AN ANALYTICAL LESSON.

If you desire to analyse the bases,
Just bear in mind the following simple cases:
Mercurous salts, and silver, lead as well,
All form precipitates on adding HCl.
Then through the acid filtrate briskly pass
A stream of stinking sulphuretted gas.
Of yellow sulphides you may find therein
Arsenium, cadmium, very likely tin.
Now copper, bismuth, lead,
Mercuric salts unsaid,
As sulphides all possess,
A jetty-coloured dress.

That these black sulphides may not feel the duller,
Stibium cheers them with his orange colour.
Now in the filtrate lurking, still unclaim'd,
May be most metals which I have not nam'd.
Of NH₃ the salts you'll need are few;
Hydroxide, chloride, and sulphhydrate too
Add to your filtrate, and then wait to see
Black sulphides fall, Ni, Co, Fe.
Zinc, as a sulphide, is a snowy white:
As hydrate, Al equally is bright.
Chromium hydrate is a dullish green;
And MnS as pink alone is seen.
But here are sulphides, as you'll rightly say,
Mixed up with hydrates in a puzzling way;
But filter off, and save, with eager care,
This filtrate which contains some metals rare.
Dissolve precipitates in HCl,
With little nitric acid, and boil well;
Then add the pungent alkali, and try, mates,
To get Cr, Al, and Fe, brownish hydrates.
The filtrate found, just add the carbonate
Of NH₄, and scarcely need you wait,
When barium, calcium, strontium, down will throw
Their carbonates, as colourless as snow.
Now filter off; add phosphate alkaline—
Magnesium falls if still success be thine.
Then filter off, and when the filtrate's boiled,
Lithium falls, because you'll not be foiled.
Still in the liquid, NH₄ and K
Are hiding slyly, with their friend Na.
An odour strong, on adding KHO,
Will tell of NH₄,* but this you know.
Dry the liquid by evaporating:
And salts volatilise—on waiting.
Than golden flame, no other test is surer,
To find Na; then add some aqua pura,
When PtCl₄ politely deigns
To tell of K by sparkling yellow grains.
Although this table teaches but a part
Of the knowledge on't, it constitutes a start
For those with men'ries good unbles'd,
And time and practice by-and-by'll do the rest.

JOSEPH H. VAN BIENE.

69 Loughborough Road, S.W., June 19.

* We allow the writer the due amount of poetical licence, but he has been adding ammonia for some time. So

If NH₄ you wish to surely prove
To original salt, or sal, now move,
And to it add a little KHO,
Or soda lime, and heat it slow-
Ly. Now use your nose to smell it,
And if it's there you'll quickly tell it.

Trade Report.

Notice to Retail Buyers.—It should be remembered that the quotations in this section are invariably the lowest net cash prices actually paid for large quantities in bulk. In many cases allowances have to be added before ordinary prices can be ascertained. Frequently goods must be picked and sorted to suit the demands of the retail trade, causing much labour and the accumulation of rejections, not all of which are suitable, even for manufacturing purposes.

It should also be recollected that for many articles the range of quality is very wide.

42 CANNON STREET, E.O., June 26.

THE markets have again been exceedingly quiet this week, and business in almost all departments of the drug and chemical trades has come as near suspension as seems possible for one of the great markets of the world. It is hoped, however, that when the half-yearly stock-taking, which is now about to engage the attention of a great many firms, is accomplished, the markets will take a turn for the better. In the department of drugs we have to report a weak market, and a more or less pronounced decline in value in the following articles: Cubebs, cumin seed, cowhage, gum myrrh, carcara sagrada, Russian anise, quassia, insect flowers, rhubarb, ipecacuanha, senega, and spermaceti. Peruvian balsam is rather weaker. There has been an advance in the price of cardamoms, nux vomica, kola nuts, star-anise oil, and buchu leaves; while the market for raw camphor also begins to show some signs of returning animation. In chemicals we have to report a weak or lower market for quinine, cream of tartar, tartaric acid, and sulphate of copper, and there is no corresponding improvement in any article to balance this fall. Among outside articles shellac remains firm, but gambier, ginger, white and black pepper, and cloves are all lower.

PROPOSED ALTERATION IN THE 'CHANGE HOUR.—On 'Change to-day the following notice was posted up:—An application having been made by certain merchants and others that the hours of 'Change should be altered, and stating that they desire to meet at 3.30 P.M. and to leave at 4 P.M., so that business on 'Change may be concluded not later than 4 P.M., notice is hereby given that the Gresham Committee will meet towards the end of July to take the said application into its consideration. The committee will, at the same time, consider any representations which may be made to them to the contrary.—By order, John Watney, clerk to the committee. Dated from the Mercers' Hall, June 25.

THE CLASSIFICATION OF DRUGS IN BROKERS' CATALOGUES.—A correspondent writes to call attention to the condition of a parcel of kola nuts offered at to-day's drug sales. He says: Some of these nuts were offered in Liverpool, and sold at 6d per lb. They were then offered again privately, and found to be so bad that the firms of good standing refused them. I called the broker's attention to their being mouldy and wormy, and he showed me the report from the London warehouse at which the parcel was stored, and which declared them to be sound, therefore, he said, he was not warranted in saying anything on his catalogue. I went to another broker to ask him what was the custom of the trade. He said that, unless the warehouse proprietors were ordered to "work up the goods"—i.e., to examine and classify them, &c., they sent in no report as to quality, and the broker was not obliged to say anything in his catalogue. The buyers, believing such drugs to be sound, buy accordingly, but when they get them home they find them mouldy and wormy, and are often "hung up" with them. The next step is to grind up the wormy kolas into a fine powder, in which form the nuts are now being sold, so a broker told me to-day. Is it at all surprising that the public should think that kola preparations are wretched rubbish when they are composed of such ingredients as could be seen this week on the brokers' boards?

ACIDS.—*Citric*: Flat, and without business of any importance, at 1s. 2½d. per lb. *Tartaric* also exceedingly slow

of sale, at 1s. 2d. to 1s. 2½d. for foreign brands, and up to 1s. 3d. per lb. for English. *Oxalic* offering somewhat more freely, at 3½d. per lb., perhaps a shade less.

ALOES.—Fifteen cases *Cape* aloes were included in the sales, but there was no serious bidding, and the whole was bought in, good bright hard quality at 24s. per cwt. Common *Curaçoa* remain in plentiful supply. Of 369 packages offered, 268 sold very cheaply at 15s. 6d. to 17s. for fair *Capey*, and at 8s. to 10s. per cwt. for common drossy and overheated. *Zanzibar* aloes in small supply at the auctions. Nine boxes soft sour-flavoured, of dark colour, sold without reserve at 30s.; fair red, but soft, in tins, at 55s.; and good orange hepatic, in boxes, rather soft, at 77s. 6d. per cwt. The arrivals of *Curaçoa* aloes on the New York market are still considerable, and prices remain very low in spite of the existence of a fairly strong demand for home consumption.

AMBERGRIS.—Only a few lots of rather ordinary quality were offered at to-day's sales, but nothing was actually sold. Ordinary black lump is held for 40s. per oz.

ANISE.—At to-day's auctions 12 cases Japanese *Star-anise* sold at 27s. per cwt. *Russian* of fair quality is said to be selling privately at 18s. to 18s. 6d. per cwt., but at auction 32 bags were disposed of cheaply at 17s. 6d. per cwt. For small *Spanish* anise 22s. to 23s. per cwt. is wanted, and 25s. per cwt. for good *Malta*.

ANNATTO.—The supply of *Seeds* was rather larger at to-day's sale than at the previous one, but the 62 bags offered met with very little demand. Some fair bright *Ceylon* seeds were disposed of at 2¼d. to 2½d. per lb., common sea-damaged at ¼d. to 1d. per lb.

BAEL-FRUIT.—Five bags pulp without shell were bought in. Only ½d. per lb. was offered for this pareel.

BALSAMS.—Of *Copaiba* balsam nothing was offered at to-day's auctions, but privately the market is dull and tending lower. A parcel of good unworked *Peruvian* balsam was bought in at to-day's drug sales—the price talked of being 4s. 9d. per lb., but that price is exaggerated, and altogether the market does not seem to be moving up as quickly as some speculators would like. We should think that some unworked balsam might still be had at 4s. 3d. per lb. The supply of *Peruvian* balsam on the New York market is said to be becoming very small, and holders' views are stiffening. The lowest quotation from America is now 4s. per lb. c.i.f. *Tolu* balsam reported on the move in the States in sympathy with the improvement in the demand. The lowest quotation is 1s. 3½d. per lb. c.i.f. terms. For 8 cases offered at the auctions to-day 1s. 5d. per lb. is wanted.

BENZOL firmly held at 3s. 10d. to 3s. 11d. for 90-per-cent., and 2s. 10d. for 50-per-cent.

BUCHU.—The price of this drug is still advancing, and so far the arrivals are very small indeed. Three bales good *Round* green leaves sold, with good competition, at 5¾d. to 6¼d. per lb. Another lot of three bales spurious *Long* leaves was bought in at a nominal price, not even ½d. per lb. being offered for them.

CALUMBA.—Prices remain very irregular, but the demand is well sustained. The whole of the lots offered to-day—220 bags—sold at 22s. per cwt. for medium to bold fair yellowish mixed root, 10s. to 10s. 6d. for ordinary rough wormy—both these parcels being very dear—while for some small to bold root, slightly wormy and rather grey, 10s. to 11s. per cwt. was accepted.

CAMPHOR (CRUDE).—The market remains very quiet, although a sale of 100 tubs Japan camphor, July-August shipment, at 147s. 6d. per cwt., c.i.f. terms, is reported, and it is said that 152s. 6d. has been refused on the spot. This would denote some improvement in the market, but we can obtain no confirmation of the business. At the auctions to-day 50 tubs were shown, and bought in at 8l. per cwt. It is understood that an offer of 7l. 10s. was made and refused for a lot. We notice an arrival of 364 packages this week.

CAMPHOR (REFINED).—Very little business has been done this week, though the market keeps fairly steady. Some *English* refined (bells) has been sold by second-hand holders at 1s. 11d. per lb. For *German* 1s. 7d. per lb., net terms, is asked. At to-day's auctions 50 cwt. *French* bells were

offered. A bid of 1s. 6½d. per lb. was refused, but the parcel may be had at 1s. 7d. per lb., less 2½ per cent.

CANNABIS INDICA.—Ten bales fair tops, but very stalky, were sold to-day at some decline, namely 4¼d. per lb.

CANTHARIDES.—With regard to the new crop of *Russian* and *Roumanian* flies, it is reported that the harvest is likely to be a very large one, and that prices will probably decline, the more so as a heavy stock is held over from last season. At to-day's auctions some good *China* flies were shown. They are held for 11d. per lb.

CARDAMOMS.—The supply at to-day's auction was rather moderate; it consisted of 133 packages, of which 93 sold, with very good competition, at an advance of fully 2d. per lb. all round. *Mysore*, good pale medium to bold, 2s. 7d.; smaller size, 1s. 8d.; small brownish and open, mixed, 1s. 5d.; medium long pale, but slightly mouldy, 1s. 8d.; sound, but smaller size, 1s. 9d.; and small, 1s. 4d. per lb.; good medium pale, 1s. 8d.; smaller size, 1s. 1d.; small to medium long and shelly, 1s. 3d.; small long yellow, 11½d.; and medium long brownish, 1s. 4d.; small size, 1s. per lb. *Malabar* character, medium-size brownish, round and full, 2s. 1d.; smaller size, 1s. 7d.; small brown, 1s. 5d.; medium brown *Malabar*, slightly mouldy, 1s. 6d.; small pale, but shrivelled and dull, 1s. to 1s. 4d.; mouldy pickings, 1s. 2d.; dark brown, 1s. 1d.; small to medium fair yellow, 1s. 5d. per lb.

CASCARA SAGRADA.—The English buyers are reported to have concluded heavy contracts with American houses during the last few days on the basis of 32s. per cwt. for good quality new crop, to be shipped from San Francisco. This price brings us to within measurable distance of the lowest figure which the drug has ever touched, and lends some colour to the statement that the crop may be a small one, as the gathering does not pay.

CASCARILLA.—For 17 bales medium quill, rather brown and dusty, 29s. 6d. was refused, and the whole bought in at a nominal rate.

CINCHONA.—South American barks in very small supply at to-day's sales. A parcel of *Guayaquil* bark sold at good prices; bold grey slightly mossy quill at 1s. 8d., thinner and slightly damaged ditto at 1s. 3d. down to 9d., and rusty quill at 9d. to 9½d. per lb. For good heavy cultivated Bolivian druggists' quill, *Calisaya*, 8½d. per lb. is asked. Our receipts from all parts since our last report have been 508 packages. Up to the present the following quantities are declared for sale next Tuesday:—Ceylon bark, 917; East Indian, 465; Java, 35; South American, 643; total, 2,060 packages.

COCA LEAVES.—One bale very good but rather brown *Huanoco* sold at the extraordinary price of 1s. 10d. per lb., bidding having been run up to this point from 3d. per lb. About 1,300 lbs. of Java leaves were also offered, but only one small package of fine thin green but very broken leaves, of good flavour, sold at 5½d., the rest being all bought in, greyish siftings at 3½d. per lb. These Java leaves are generally very badly harvested.

COCCULUS INDICUS.—Ninety-nine bags ungarbled sold at 8s. 9d. for sound and 8s. 6d. for mouldy.

COLOCYNTH.—Eleven cases small pale but seedy Turkey apple are held for 1s. 2d. per lb.

COPPER (SULPHATE).—Flat and decidedly lower. Good quality may be had on the spot at 21l. 10s. to 22l. Sept.-Dec. is offering at 19l. 10s. per ton.

COWHAGE.—Again 1d. cheaper to-day, which is not surprising, considering the large over-supply of this article; 3 cases good bright, but rather seedy, sold at 3d. per oz., and for another lot not so bright in colour 2½d. was refused.

CREAM OF TARTAR.—Quiet, and rather easier than last week, at 101s. to 101s. 6d. per cwt. for first white French crystals. Powdered cream may be had now at 103s. 6d. per cwt.

CUBEBS.—Still declining in value. Several lots were offered at to-day's auctions, but only 6 packages sold, fair pale mixed berries, not dusty, but of weak flavour, at 21l.; for good small shrivelled but stalky cubebs, direct import from Java, 20l. to 21l. is asked.

CUMIN-SEED.—Lower, twenty bags fair Malta selling to-day at 1s. lower per cwt.

CUTCH remains firm for good brands. To-day 150 boxes *Star B* brand are reported sold at Liverpool on the spot at 31s. 6d. per cwt.

CUTTLE FISH BONE.—In good supply, but firmly held for good quality; 10 packages medium to bold discoloured bought in at 5d. per lb., a bid of 2¾d. being refused; small white pieces sold at 2d., and ordinary dust at ¼d. per lb.; for clean medium even-sized *Mogodore* 3d. would be accepted.

DRAGON'S BLOOD.—A considerable supply was shown at to-day's auctions, and there is still more behind. Only a few lots sold, and these were of common quality; dull bricky broken finger out of reed, 87s. 6d. to 90s. per cwt. A small parcel of good bold finger without reed, of fiery colour, was bought in at 7l. 5l. 10s. being refused, and a parcel of fair bright cakes was also bought in at 5l. 10s. per cwt. For common yellow drossy lumps 37s. 6d. was refused, 40s. per cwt. being the price.

ERGOT OF RYE quiet, but without change in value for good qualities, though a few wormy parcels sold cheaply to-day; very wormy *Spanish* (without reserve) at 10½d. per lb.; another, and much better lot, at 1s. 2d. per lb. For sound *Spanish* ergot 1s. 3d. per lb. is asked, and for *Russian* 1s. 2¾d. per lb. (an offer of 1s. 1d. per lb. being refused).

EUPHORBIA PILULIFERA.—About 6 cwt. of very grey and dusty *Australian* herb were sold to-day at 6d. per lb. (a price which was refused at the last sales). Slightly better quality is limited at 9d. per lb., and a box of 90 lbs. fairly good bright *East Indian* was bought in at 1s. 9d. per lb.

GALLS.—Business both in *Chinese* and *Turkey* galls is very quiet. Blue *Bassorah* are selling slowly at 57s. 6d. to 58s. per cwt., and for green 47s. 6d. to 50s. per cwt. is quoted.

GAMBIER.—The market is quiet and rather lower again for forward delivery. *Block* has been sold at 27s. 3d. for April-May, and 27s. for July-August.

GAMBOGE.—Twenty-five cases were shown to-day, but they are all held for high prices, and the whole was bought in, 11l. 5s. being refused for blocky pipe of fairly good orange fracture.

GINGER.—*Cochin* ginger was again cheaper at yesterday's auctions, the decline since the preceding week being 1s. to 2s. on rough, and from 4s. to 5s. per cwt. on cut varieties. There is little life in the market, and the stock is accumulating. Of 510 packages about 300 sold at 15s. for cuttings, 18s. to 25s. 6d. for rough tips, 22s. 6d. for medium to small washed, and from 29s. to 56s. 6d. per cwt. for medium to bold roughly cut. *Jamaica* ginger is also slightly easier. Of 408 packages about half sold; ordinary middling rough, 72s. to 74s. 6d.; medium to bold bright washed, 75s. to 90s. per cwt.

GUM ARABIC.—Our market has been unusually quiet this week in all descriptions of gum arabic. At the auctions 20 packages *Cape* gum sold at 67s. 6d. to 82s. 6d. per cwt. for dusty small yellowish drop. Of sixteen packages *Turkey* gum nothing was sold; the owners refused 10l. 5s. for fair palish grain and small mixed, and 10l. 10s. for small dusty yellowish sorts. From Liverpool a considerable business in *Brazilian* gum is reported.

GUM BENZOIN.—Five cases *Siam* bought in at nominal prices, fine almondy hard block, brown in colour at 18l. For very pale small to medium almondy mostly block 12l. 15s. was refused. Of 61 cases *Sumatra* benzoin only 6 were disposed of, greyish seconds, fair almondy, slightly false packed 8l. 5s. to 8l. 7s. 6d. For very fine pale almondy of good flavour 9l. was refused. Twenty cases common resin sold at 6s. per cwt.

GUM EUPHORBIIUM.—One seron sold with very good competition at the excessive price of 21s. per cwt. for dull and drossy mixed drop.

GUM MYRRH.—Cheaper for sorts, of which several lots were sold to-day partly without reserve. Of 69 packages, 16 changed hands; good picked at 6l. 10s.; dusty reddish to fair pale *Aden* sorts at 73s. 6d. to 76s.; dry coarse siftings are held for 70s., and stony pickings sold at 38s. 6d.; for a lot of yellow dust 33s. was paid, and 45s. for rather dark purious mixed sorts.

HEMIDESMUS INDICUS.—The price of this has fallen very low in consequence of over-supply; 60 cwts., rather dark, in bundles, sold to-day without reserve at 1½d. per lb.

HONEY.—Rather dull of sale for all varieties except *Jamaica*; 80 barrels *Chilian*, thickish pale and fermented, were bought in to-day at 30s. to 34s., and 14 cases eucalyptus flavoured yellow *New Zealand*, in tins, at 35s. per cwt. Of 111 packages *Jamaica* nearly all sold at 30s. to 33s. per cwt. for rather watery liquid brown to fair candied yellow; a lot of good bright liquid brought 35s. 6d. The crop this season is of very inferior quality.

INSECT FLOWERS.—The new crop of *Dalmatian* flowers has now almost all arrived on the Trieste market. Prices are declining and easier, 105s. being quoted for closed, 95s. for half open, and 85s. for open flowers of the new crop, all London terms.

IPECACUANHA—Fifty packages were offered to-day, there being very little of good quality among them. Prices were about 1d. per lb. lower at the auctions, but we understand that since then higher rates are being asked again. For sound root, very lean and wiry to fair stout, 6s. 1d. to 6s. 4d. was paid; while damaged, mostly more or less mouldy, brought from 5s. 11d. to 6s. 3d. per lb.; two packages good stout picked, but apparently coloured or washed, were bought in, 7s. 3d. being mentioned as the price.

ISINGLASS.—At the periodical auctions held on Tuesday higher prices were paid for *Penang* leaf and purse, the latter variety being about 6d. dearer; medium to good, 1s. 7d. to 1s. 9d. per lb.; ordinary brownish to good leaf, 3s. 2d. to 5s. 1d.; tongue, common to fine, 1s. 7d. to 4s. 5d. per lb. *Brazil* flat and lower; fair to fine lump, 1s. 10d. to 2s. 8d. *Saigon* leaf also lower; ordinary round brown to fine, 3s. 7d. to 6s. 6d. *Bombay* pipe firmer; purse, 4d. to 5d. dearer. Common gelatinous to good pipe sold at 1s. 7d. to 2s. 10d.; ordinary to good purse, 10½d. to 1s. 7d. per lb.

JALAP.—Five bales *Vera Cruz*, very small and dull mixed, were bought in at 1s. 6d. per lb. to-day. The arrivals from Mexico in the States have been practically *nil* lately.

JAMBUL SEED—One case of the variety usually seen at the auctions, which is said to be of no therapeutic value, was bought in at 1s. 6d.

KAMALA.—Eleven cases very dusty were bought in at 7d. per lb. nominally to-day. Good quality is said to be selling at 10d. per lb., which, if true, shows a firm and higher market.

KOLA NUTS.—350 lbs. dry seeds sold at 11½d. to 1s. per lb. for fair quality, which is an advance of about 1d. per lb., and 6½d. for ordinary wormy. In Liverpool five bags were also sold by auction yesterday at 9¼d. per lb.

MATICO—Twenty five bales rather thin and broken leaf, but of fair greenish colour, are held for 4½d. per lb.

MUSK.—*Touquin* pods in fair supply to-day, but very little was sold of Pile 1, small to bold, dry, well-trimmed pods, thin blue skin and underskin. One caddy changed hands at 83s. 6d. per oz., a full price. For small to bold rather damp pods, with top and underskin rather unsightly, 75s. is asked. Third pile good-sized blue-skin pods, fine appearance, but all more or less spurious, was bought in at 62s. 6d. per oz. Of Russian *Cabardine* one tin medium to bold juicy trimmed pods sold at 23s. 6d. per oz., subject to approval. *Trimmings* brought 1s. 3d. per oz., and several bottles *Grain* musk sold at 49s. to 55s. per oz.

NUX VOMICA.—Fully up to 6d. dearer. At the auction, of 730 bags 390 sold at 10s. 6d. for medium, very silky, partly steel coloured; 9s. 6d. to 9s. 9d. for medium palish good silky; and 10s. 6d. to 10s. 9d. for a parcel of fair palish silky from Coconada.

OIL (CASTOR).—At to-day's auctions 24 cases yellow oil were bought in, the price asked being 3¾d. per lb. In Liverpool there have been rather heavy arrivals recently which brought the market down temporarily to 3¼d. per lb. for good Calcutta *Seconds*; but subsequently the market became decidedly firmer, and to-day there is not much offering, and seconds are steady at 4¼d. per lb. *French* oil is in good supply in Liverpool, and easier at 3¼d. for first, and 3½d. for second pressure. From Calcutta lower prices and a declining market are mailed.

OILS (ESSENTIAL).—*Star-anise* is in better demand and dearer, 6s. 4d. per lb. having been paid for good quality. A parcel shown at auction to-day was still limited at 6s. 3d. per lb. For 6 cases (of 36 bottles) *Cajuput* oil, imported *via* America, 3s. 9d. per bottle is asked. *Cinnamon* oil sold at 1s. to 1s. 9d. per oz. for fair to good pale but rather acrid oil. *Citronella* offering freely, ¾d. per oz. is asked for oil in tanks. *Lemongrass* held for 1¼d. per oz. At auction 38 packages *Rose* oil from Bombay, with a flavour of petroleum, were held for 3d. to 4d. per oz. For 141 cases brown *Camphor* oil from Japan 2¾d. per lb. was offered in vain. American oil of *peppermint* very quiet, H.G.H. 11s. 3d. to 11s. 6d. per lb. *Oil of Rose.*—Further reports from Bulgaria confirm the information we gave last week with regard to the crop. It will probably be some time yet before the price of the new oil is fixed by the Constantinople houses, meanwhile old oil is selling at from 18s. to 18s. 6d. per oz.

OPIUM.—Our market remains very firm, but business is restricted to one or two retail transactions. Soft shipping is held for 14s. to 14s. 6d. per lb.; good to fine *Karahisar* 13s. to 13s. 6d., and seconds, according to quality, at from 10s. 6d. to 12s. 6d. per lb. *Persian* is still quoted up to 14s. 6d. for fine. It is thought that the crop of Persian opium will be a large one, but none of it will be available here until October at the earliest, and meanwhile there is a prospect that we may have to pass through a period of scarcity, as the bulk of the London stock is in firm hands.

PATCHOULY LEAVES.—Forty-nine bales fair leaves of good flavour and not stalky, but rather brown, were bought in without mention of price.

QUASSIA WOOD.—The arrivals are rather heavy, and at to-day's auctions 16 tons logs—date of import not stated—sold at 5l. 7s. 6d. to 5l. 17s. 6d. per ton, which is certainly a decline on the prices privately quoted. For 20 tons logs from Montserrat, one year old, 6l. 10s. would be accepted.

QUICKSILVER.—Our market is steady, the principal importers still quoting 10l. 10s. In second-hand there is not much offering, but there are sellers to-day at 10l. 3s., with a rather dull market. Our imports since last week have been 5,241 bottles from Spain, and 762 from the United States.

QUINCE SEED.—For 7 bags fair quality *Cape* seed 6d. per lb. is asked.

QUININE.—The market has been dull and rather lower, with sales and resales of some 15,000 oz. of German bulk in second hands at 12½d. to 12¾d. per oz. on the spot. There are further sellers to-day at the latter quotation.

RHATANY ROOT.—In good supply, but selling at fair prices with a well-maintained demand, good bright partly chumpy root brought 5½d. to 6d. per lb. to-day.

RHUBARB.—Seventy-one packages were offered to-day. They met a languidly disposed market, and only 26 cases sold with some difficulty at barely the valuations, though there is no quotable change. *Shensi* medium to bold, round, fair coat partly unsightly, three-fourths bright pinky fracture, one-fourth dark, held for 2s. 6d. per lb. (2s. 5d. refused), ditto small size even pinky grey fracture held for 2s. per lb. Fair to good flat pickings sold at 1s. 4d. to 1s. 5d. and loose rough pickings at 10d. per lb. *Canton* bold, ¾d. pinky fracture, flat, sold at 1s. 6d., mixed sizes half pinky, half dark, round, 1s. 5d. medium ditto dull fracture 1s. 2d., pickings 8d. to 9½ per lb. *High dried* slightly wormy, flat, mixed sizes sold at 11½d. to 1s. per lb.

SANDAL WOOD.—Firmly held, in good well-flavoured logs up to 67s. 6d. and fine chips up to 45s.

SARSAPARILLA.—Grey *Jamaica* rather easier, ordinary coarse sold at 1s. 3d.; damaged at 1s. 2d.; of native *Jamaica* several packages sold, very ordinary yellow colour at 11d. to 1s.; damages at 10d. per lb. *Mexican* sarsaparilla is reported rising from New York, with scanty supplies and small stecks. The quotation for good *Vera Cruz* is given as 5d. per lb. c.i.f. terms.

SENEGA.—At the auction to-day two bales sold at a decline of about 2d. per lb. upon the prices which have been asked here until recently, although the quotations from America have been lower for some time, good flavoured bright root brought 1s. 9½d., and for common dull root, without flavour, 1s. 8d. is required.

SENNA.—Small green *Alexandria* siftings held for 5½*d.* Of *Tinnerelly* senna 244 packages were offered, nearly all lots of inferior quality. In the second hand there is no demand, and the market is dull; a few parcels only sold at 1¼*d.* to 2*d.* for small to medium dull yellowish mixed and specky.

SHELLAC.—At Tuesday's auctions a moderate supply was brought forward, the catalogues including:—

	Cases	Cases	
Orange lac ..	379	of which 310	were sold
Garnet " ..	75	" 15	"
Button " ..	293	" 159	"
	752	484	

Steady prices, as compared with private sales (equal to an advance of 2s. on the last auctions), were paid for second *Orange* lac, and *Garnet*, of which only a few cases were sold, was also firm; but fine *button* lac suffered a decline of 2s. to 2s. 6*d.* per cwt. The auctions were remarkable for the large supply of fine *button* lac offered, especially as this variety has been reputed very scarce lately. The following prices were paid:—*Orange* lac, fair to good bright red, 88s. to 90s. per cwt.; unworked ordinary livery to fair reddish, 85s. to 87s.; fine bright, 91s. per cwt. *Garnet*, unworked blocky AC, 80s. per cwt. *Button*, good bright first to fine blood lac, 100s. to 110s.; fair seconds, 98s. to 99s.: one lot common blocky Bombay lac, 25s. per cwt. Since the auctions the market has been firm until to-day, when it eased off somewhat. The quotations at the call were as follows:—

	July	Aug.	Sept.	Oct.	Nov.
Orange TN, sellers ..	89/6	90/	91/	92/	92/6
" buyers ..	88/6	89/6	90/	91/	92/
Garnet AC, sellers ..	83/	84/	85/	85/	—
" buyers ..	82/	83/	83/	83/	—

showing a practically unchanged market for orange as compared with last Thursday, but an advance of 1s. to 2s. in *garnet* lac.

SOY.—Of 13 casks China three were sold to-day at 1s. 2½*d.* per gallon.

SPERMACEIN.—Dull and lower; *American* refined is offering here at 1s. 4*d.* London terms.

TEA.—The dulness of the China market is as great as ever, in spite of the fact that for the next month or six weeks the dearness of Assams and Ceylons is bound to drive Congous under 8*d.* into consumption, and as these are the grades that show remarkable value at the present time, it is hardly likely that we shall get such value much longer. In public sale common Congou remains at 4*d.* to 4½*d.*, while useful Saryunes and Ningchous sell from 4¾*d.* to 6*d.* A chop of finest Oonfaa realised 6¾*d.*, and fine Saryune 8¼*d.* on Tuesday. Two or three ships have at last left Foochow with new Kaisous, which may be expected here about the middle of August. Reports from Hankow state that the crop of Oonfaas is the finest that has been seen for many seasons. The first cargo of new scented Capers has just arrived. Assams are no easier in price, and bidding is very eager for all the lower grades. Fine leaf teas are exceedingly scarce, but there is less demand for broken Pekoes, and the Irish trade is terribly dull. Ceylons, though offered freely, are fully up to last week's prices, and the predictions of certain prophets who have been foretelling that Ceylons would be by the end of June as low as the lowest point of last year (*i.e.* leaf tea at 5*d.*) have been somewhat falsified.

VANILLA.—Only about 100 tins were offered to-day, and brought full prices; good to fine crystallised, 6½ to 8 inches, 14s. to 17s.; dark and dry, 5½ to 8½ inches, from 9s. 6*d.* to 16s.; small to good plump, 5½ to 8½ inches, 11s. 6*d.* to 14s. 6*d.*; ordinary low foxy from 7s. down to 5s. 6*d.* per lb.

WAX (BEES').—*Mogadore* held for very high prices, 5*l.* 7s. 6*d.* to 5*l.* 10s. for fair quality, and up to 6*l.* 5s. for good bright. Pale bleached *Calcutta* wax was bought in at 6*l.* 10s. to 7*l.* 10s. per cwt.; yellow and grey mixed *Australian* sold at 5*l.* 15s. subject; and of 57 packages Jamaica, 22 sold at 6*l.* 7s. 6*d.* to 6*l.* 12s. 6*d.* for good red orange; 5*l.* 15s. to 5*l.* 17s. 6*d.* for red and chocolate mixed, which shows very little change in the prices.

WAX (JAPAN).—Fair pale squares could now probably be bought for 44s. per cwt.

CHEMICALS IN THE NORTH OF ENGLAND.

THE market for heavy chemicals has been firmer during the past week, and prices have somewhat improved. *Caustic soda* is again dearer, and in strong demand, and large sales have been made on Russian account. The Newcastle market for *Bleaching-powder* is now much stronger, and prices have risen during the last two or three days. The production of chemicals will also be considerably curtailed on the Tyne this week owing to the holidays, it being race week, and most of the chemical works are more or less idle.

THE PROPOSED CHEMICAL UNION.—Transactions on the whole continue to be for present wants. The manufacturers do not care to commit themselves to forward sales at current rates, but prefer to hold off until the question of a "Chemical Union" is definitely settled. Chemical merchants and middlemen, generally, are naturally adverse to the scheme, because, in the event of the union becoming a fact, many of the middlemen would find their occupation gone, as all sales would probably be made from one general office. Several of the Lancashire and Tyneside chemical works have during the past fortnight been inspected by a sub-committee of manufacturers appointed for the purpose, and, so far as can be ascertained, makers are well satisfied with the progress that has been made towards the formation of the union.

THE SULPHUR-RECOVERY PATENT.—A good deal of interest is manifested in the North in the sulphur-recovery patent case, brought by Mr. F. B. Rawes against Messrs. Chance Brothers, of Oldbury, to restrain them from infringing his patent for "improvements in and in an apparatus for obtaining sulphur and some of its compounds, and in the treatment thereof, and in the associated products," and which is now being tried in the Chancery Division of the High Court of Justice.

BICARBONATE OF SODA continues firm at 5*l.* 15s. per ton, less 2½ per cent. discount, in 1-cwt. kegs, f.o.b. Liverpool, prompt delivery. The manufacture of this article suitable for producing carbonic-acid gas for mineral-water manufacturers, has been commenced at the ammonia-soda works of Bell Brothers (Limited), Middlesborough. It is said to be much cheaper and to give better results than whitening in the making of carbonic-acid gas.

BLEACHING-POWDER is quiet in the Liverpool market, and is quoted at 5*l.* to 5*l.* 5s. per ton in hardwood casks, f.o.b., and 4*l.* 15s. to 4*l.* 17s. 6*d.* per ton on rails, both less 2½ per cent. discount. The Tyne market has improved, and is quoted from 4*l.* 13s. 9*d.* to 4*l.* 17s. 6*d.* per ton in softwood casks, net cash, f.o.r. or f.o.b. Tyne. Glasgow market quiet at 4*l.* 10s. to 4*l.* 15s. per ton on rails. Delivery ex ship Thames, 5*l.* 5s. per ton, net cash.

CAUSTIC SODA is scarce for prompt delivery, and there is but little offering for July; 60 per-cent. white offers at 7*l.* 10s. to 7*l.* 15s. per ton; 70-per-cent., 8*l.* 12s. 6*d.* to 8*l.* 15s. per ton; 74-per-cent., 9*l.* 5s. to 9*l.* 10s. per ton, f.o.b. Liverpool, less 2½ per cent. discount; 77-per-cent. white has been advanced to 9*l.* 10s. per ton, net cash; ground and packed in 3-4-cwt. casks, 12*l.* 10s. per ton, net cash, f.o.b. Tyne.

CREAM CAUSTIC in better demand, at 6*l.* 17s. 6*d.* to 7*l.* per ton on rail, and 7*l.* 2s. 6*d.* to 7*l.* 5s. f.o.b. Liverpool, less 2½ per cent. discount.

CHLORATE OF POTASH quiet, at 4½*d.* to 4¾*d.* per lb., according to makers' ideas, delivered Liverpool, Glasgow, or Newcastle, less 5 per cent. discount.

HYPOSULPHITE OF SODA brisk, and moving off freely. No change in price.

SODA ASH.—Steady, and quoted 1¾*d.* to 1½*d.* per degree for carbonated, and 1¼*d.* to 1¾*d.* per degree for caustic, f.o.b. Liverpool. For export, in strong 3-4-cwt. barrels, 1¾*d.* f.o.b. is quoted; all less 2½ per cent. The Tyne market is unchanged in price—viz., 1¼*d.* per degree, less 5 per cent. discount.

SODA CRYSTALS.—Firm at 3*l.* per ton on rail, and 3*l.* 5s. per ton f.o.b. Liverpool, in 3 cwt. barrels, net weight. Tyne prices: 2*l.* 10s. 6*d.* per ton gross weight, and 2*l.* 10s. 6*d.* and 2*l.* 13s. per ton net weight, packed in casks and 2 cwt. and

1-cwt. bags respectively, f.o.b. Tyne. Ex ship Thames, 2l. 17s. per ton, gross weight, in cases.

SULPHATE OF COPPER.—Easier and little doing. 21l. 10s. per ton has been paid for prompt, and 21l. per ton for first quarter of next year.

SULPHATE OF SODA.—A little easier, owing to the settlement of the labour dispute and to larger quantities being put on the market. Sales at 27s. 6d. per ton in bulk, on rail, at makers' works, Widnes or St. Helen's. Sales reported at 28s. per ton over the remainder of the year. The Newcastle market is quiet, at 30s. per ton in bulk and 41s. per ton, ground, in casks, f.o.b. Tyne; or would probably be shaded for large shipping orders.

MISCELLANEOUS CHEMICALS.—*Blanc Fixe*: 7l. 10s. per ton, f.o.b. Tyne. *Carbonate of Magnesia*: 37l. 10s. per ton, f.o.b. Tyne. *Chloride of Barium*: 8l. per ton, f.o.b. Tyne, and 8l. 7s. 6d., f.o.b. Liverpool. *Chlorate of Baryta*: 8d. per lb., f.o.b. Liverpool. *Chloride of Calcium*: 2l. 2s. 6d. and 2l. 7s. 6d. per ton, in iron drums and wooden casks respectively, f.o.b. Liverpool. *Nitrate of Baryta*: in crystals, 18l. 15s. per ton; ground, 19l. 5s. per ton, f.o.b. Tyne. *Nitrate of Soda*: 8l. 5s. to 8l. 7s. 6d. per ton, Liverpool or Garston. *Sal Ammoniac*: 37s. and 35s. per cwt. for first and second quality, f.o.b. Liverpool. *Silicate of Soda*: 140 tons, 4l. 5s. to 4l. 7s. 6d. per ton, f.o.b. Liverpool, and 4l. per ton, f.o.b. Tyne; 100 tons, 3l. 7s. 6d. per ton; and 75 tons, 2l. 10s. per ton, f.o.b. Tyne. *Sulphate of Alumina*, 5l. 2s. 6d. to 5l. 5s. per ton, f.o.b. Liverpool, and 4l. 10s. per ton, f.o.b. Tyne. *Sulphate of Ammonia*: 11l. 7s. 6d. to 11l. 10s. per ton, f.o.b. Liverpool. *Sulphur (recovered)*: 4l. 7s. 6d. to 4l. 10s. per ton, f.o.b. Liverpool; 4l. 5s. to 4l. 7s. 6d. per ton on rails, Widnes or St. Helen's; and 4l. 5s. per ton, f.o.b. Tyne.

THE DUTCH MARKET.

AMSTERDAM, June 25.

CINCHONA BARK.—The sales at Amsterdam, July 10, 1890, will consist of 3,697 bales, 108 cases, about 318 tons, *Java Bark*, viz.: From Government plantations, 392 bales, 29 cases, about 36 tons; from private plantations, 3,305 bales, 79 cases, about 282 tons. The bark is classified as follows:—*Druggists' barks*: *succiruba* quills, 108 cases; broken quills and chips, 351 bales; broken root, 149 bales; C. *Schuhkraft* root, 23 bales; *lancifolia* broken quills, 8 bales. *Manufacturing bark*: *Officinalis* broken quills, 30 bales; *Ledgeriana* broken quills, 2,486 bales; root, 568 bales; hybrids broken quills, 60 bales; root, 22 bales. The analyses are not yet quite completed.

THE GERMAN MARKETS.

HAMBURG, June 24.

THE quiet condition of trade which has been prevailing here of late has remained undisturbed during the week now under review, and no alterations of any note in the drug and chemical markets require to be reported.

ANTIMONY (CRUDE JAPANESE).—Held firmly at its value, and not obtainable under 95m. on the spot or 92½m. for delivery.

BALSAMS—*Copaiba*: Reported cheaper from New York. The recent direct importations from Brazil into Hamburg are held at firm prices by the owners. *Peruvian*: While it is true that several parcels of this article are still being offered at low prices, a somewhat firmer feeling for the drug becomes apparent, and more than one lot has been quietly bought up for investment; genuine quality is scarcely obtainable to-day under 8½m. to 8¼m. *Tolu* unchanged at 2.80m.

CAMPHOR (REFINED).—Speculative demand is entirely dead. Small lots for consumption have changed hands this week at 3.30m.

JALAP.—The price here remains firm at 2.70m. Importers have received advice of small parcels of the article which are coming forward.

OILS (ESSENTIAL).—*Star-anise* firmly held at 13½m. *Cassia* slightly easier at 8¼m. *Peppermint oil*: H.G.H. unchanged at 11m.; *Japanese* is being offered rather freely at from 7¼m. to 9m., according to quality.

SANTONIN.—The agents of the *Russian* santonin works have for some time been holding the article firmly at 12m., and this quotation, considering the present high prices for wormseed still appears a very low one. The reason why these works some time ago suddenly refused to sell any more, which at the time was quite inexplicable, is now becoming plainer, and it seems that those firms who at that time gave it as their opinion that this policy was without any foundation were not all well placed with regard to the position of the article, and are probably not behind the scenes even to this day.

WAX.—All varieties of *Bees'-wax* are in demand, and higher prices have been paid. *Carnauba wax* is also dearer.

BRITISH AND FOREIGN CONSULS' REPORT.

BRAZIL.

The Brazilian Extract of Meat and Hide Factory, Limited, of London, have purchased a cattle-killing establishment at Paradao, near Porto Alegre, and are turning out very fair quantities of extract of meat and tinned provisions. The company, which promises to do well, is paying a 10-per-cent. dividend, and, if properly managed, ought to add considerably to the commercial importance of the State.

BRITISH WEST INDIES.

The production of arrowroot in the island of St. Vincent remains almost stationary, the value of this export having been as follows: 1884, 23,941l.; 1885, 34,966l.; 1886, 21,672l.; 1887, 26,277l.; 1888, 23,552l.

FRANCE.

The imports of oleaginous seeds into Marseilles for the year 1889 amounted to 314,265 tons, against 278,527 tons in the previous year. The crops of ground-nuts in the French Colonies (Coromandel coast) were very large, about 110,000 tons, and the imports of this article alone attained 97,374 tons, against 73,061 tons in the previous year. Likewise of coprah (produced chiefly in the South Sea Islands, Straits Settlements, and Java) Marseilles received 46,000 tons, against 35,500 tons in the preceding year. The whole 314,265 tons of oleaginous seeds have been crushed by the local mills, and the oils produced met with a ready and remunerative sale to local soap-makers, as well as for export, showing a very prosperous condition of this great industry.

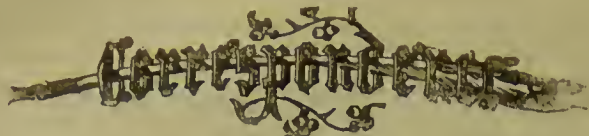
The coprah and palm-kernel trade continues to increase steadily, and the quantity of coprah and palm-kernels crushed in Marseilles in 1889, excluding the old stocks lying over from 1888, exceeded 80,000 tons, yielding upwards of 40,000 tons of concrete oil, chiefly consumed by local soap-mills. Imports of palm oil amounted to 12,039 tons, against 11,551 tons in 1888. The French Government has granted a large subsidy to one of the leading companies of steamers to run a regular line to and from the different ports on the West Coast of Africa, which is a further facility in the way of extending the direct imports of palm-oil and palm-kernels, the chief articles exported from that country.

The oil-seed crushers also had a sound and profitable trade throughout the year, their export trade having attained 43,110 tons against 36,783 tons in 1888.

In soap also there was an increase of 1,700 tons, the year's exports being 10,184 tons, against 8,470 tons in 1888. The quantity of candles exported from Marseilles amounted to 4,400 tons, against 3,967 tons in the previous year. This industry is very prosperous, and tends to increase further.

WESTERN AUSTRALIA.

The exports of Sandalwood from the colony in 1889 were 4,470 tons, valued at 33,525l.



The Index this week presses on our space, and we are consequently obliged to hold over a few letters.

MISCELLANEOUS INQUIRIES.

A large number of correspondents ask us for formulæ and other information already published in this journal. It is not fair to more careful readers that we should frequently repeat such information, and so long as the back numbers containing the formulæ or replies required are in print we must decline to do so. Back numbers of our weekly issue can be obtained from the publisher at 4d. each.

Correspondents who have made inquiries regarding the following subjects will find the information in the numbers indicated.

78/4. *Reproe.*—Carbolic Tooth-powder.—August 11, 1888, page 202.

73/30. *Hypo.*—Soda Developer. No. 1. Pyrogallic acid, 1 oz.; nitric acid, 20 drops; water to 6 oz. Mix. 1 oz. of this to be mixed with 19 oz. of water. No. 2. Common washing-soda, 6 drachms; water, 1 pint. Dissolve. Equal parts of Nos. 1 and 2 form the normal developer. To prevent blistering of the film you must use the alum bath.

73/34. *Subscriber* (Birmingham).—To make Clear Mucilage you must use the best picked gum, and dissolve in the water with as little agitation as possible. A good plan is to enclose the gum in a muslin bag and suspend it in the water. At the present time you cannot expect to get gum which does not contain some insoluble matter.

73/14. *W. H. S.*—We have never found any difficulty in dissolving the half-ounce of powdered soap in $3\frac{1}{2}$ oz. of water. If your soap forms a translucent jelly, we expect that it contains resin.

72/63. *J. A. H.*—To get rid of the worms in the clock-case, brush the unvarnished part of the wood with a solution composed of corrosive sublimate, 1 drachm; naphthalin, 2 drachms; and methylated spirit, 10 oz.

73/12. *Grapho.*—You cannot quite obliterate the ink-marks on the graph, but that is not necessary. Your ink would need to be stronger if you wish more than twelve copies. Violet gives the most and the best copies.

69/20. *Nostril.*—We are afraid that the best remedy for hay fever has not been discovered yet. What is best for one is worthless for another. See our issue of June 29, 1889, page 879, and other back numbers.

100/14. *Branch Manager.*—For particulars regarding the procedure in all minor surgical operations see Pye's "Bandaging," published by J. Wright & Co., Bristol, 1s. 6d.

71/2. *J. Bentley.*—(1) Paraffin oil is abhorrent to ants. Sprinkle it near their haunts, and follow by an application of insect-powder. (2) Boracic acid is the best preservative powder.

73/67. *Civ.*—Crushed common salt is what is used along with ice for ice-cream machines. Sal ammoniac is more effectual, as well as more expensive. Perhaps you will find a judicious mixture of the two suit your customer.

73/29. *East Courteous.*—Liquid Soap.—The most simple way for making this in small quantities is to take good soft soap (say, the Chiswick's Company's "finest pale"), and bring it down to the proper degree of fluidity with rectified spirit; to this add 10 per cent. of glycerine, and a suitable perfume.

74/43. *Naphthol* asks us where and by whom Saccharin was discovered? Dr. Fahlberg claims that he was the discoverer in Germany four years ago; but Professor Ira Remsen, whose assistant Dr. Fahlberg used to be, asserts that a dozen years or more earlier saccharin was discovered in his laboratory in America in the course of a research directed by him. There seems to be some truth in what Remsen says, but Fahlberg undoubtedly has the credit of having worked out the process for manufacturing saccharin in a state of comparative purity.

74/50. *R. A. T.*—(1) The young lady who wishes to prevent her reddish-brown hair from becoming darker cannot do better than sponge it occasionally with lime-water. Give her the following Hair-wash:—

Saccharated solution of lime	.. ..	1 drachm
Glycerine	.. ..	$\frac{1}{2}$ oz.
Jockey Club	.. ..	2 drachms
S.V.R.	.. ..	$\frac{1}{2}$ oz.
Water, to	.. ..	10 "

Mix.

The hair to be sprayed with this every morning, and afterwards well brushed.

An occasional shampoo would be beneficial. (2) For Smoker's Tooth-powder one containing salicylic acid and thymol is the best deodorant. We find the following a good formula:—

Powdered cuttle-fish bone	.. ..	2 drachms
" white soap	.. ..	2 "
Precipitated chalk	.. ..	2 oz.
Salicylic acid	.. ..	30 grains
Thymol	.. ..	10 "
Camphor	.. ..	10 "
Otto of rose	.. ..	2 drops

Rub the thymol and camphor together in a mortar until liquid; then triturate for five minutes with the cuttle-fish bone. Triturate the otto with the chalk for ten minutes (the longer it is triturated the fewer is the odour); then add the soap and salicylic acid, and, lastly, the other ingredients.

The powder may get a suspicion of a blue shade by means of a few drops of a solution of Prussian blue.

74/46. *Subscriber* (Birmingham).—You will find full particulars regarding the medical Preliminary, in relation to the pharmaceutical Preliminary and Minor, in our issue of February 9, 1889, page 202. You should also read our last educational number, and, if you find that you still require information, let us know what.

75/3. *Sulphonal.*—Liquid Glue.—Le Page's is said to be made from salt-fish skins by dissolving them in water (after washing away the salt), and preserving with boric acid. We presume that you cannot get such raw material as is used in this case, so you must fall back upon pale glue. Dissolve this in a sufficiency of acetic acid 1 part, and water 2 parts, and to each pint add 1 oz. of methylated spirit, and 20 grains of powdered alum.

74/23. *J. Williams.*—See the article on perspiration of the feet published three weeks ago.

73/12. *A. G. G.*—By Mercury Stone corrosive sublimate is meant in various parts of the country.

73/64. *Hull* asks for a method for rendering a polish containing shellac, resin, benzoin, and methylated finish clear and bright. Filtration through paper does not suit because the filter soon clogs. We have explained on several occasions that the **Opacity of Varnish and Polish** containing shellac is due to fatty matter. It is obviously wasteful to attempt to filter the whole of a batch, since the greater part of the polish may be obtained clear by subsidence and decantation. To assist in that add for every ounce of shellac $\frac{1}{2}$ oz. of sand, and 20 grains of slaked lime. Dissolve the resins by agitation in the usual way; then set aside for a few days, when the greater part of the polish will be clear. Decant this, and filter the remainder.

74 18. *R. W.* (Preston).—**Seltzogene Charges**.—Three-pint, tartaric acid, ʒxviiij.; bicarbonate of soda, ʒxxij. Five-pint, acid, ʒx.; soda, ʒxij.

75/54. *E. D.*—The general impression is that Alexandrian senna gripes less than the Tinnevely, but we are not aware of any well-established facts which go to prove this. The supposition doubtless rests on the fact that Alexandrian senna, as sold retail, being more carefully picked than the Tinnevely, its action is milder; but the latter is certainly more active, owing probably to its containing more cathartates.

75/55. *Indelible Ink*.—You may find something to suit you in the **DIARY**. It is a good logwood ink which you really want.

75/59. *Lotio*.—Wear blue spectacles, and, if your eyes become worse, consult a medical man. We expect that you are troubling yourself a little too much about them.

75/67. *Sp. Terebinth*.—**Soluble Varnish Colours**.—*Yellow*—Picric acid. *Red*—Brazil wood. *Brown-red*—Dragon's blood.

75/17. *J. H.* wants to go in and win a Bell scholarship, but he has to **Learn Virgil without a Teacher** before he gets that length. He should in that case read the *Key to Virgil*, published by Cornish at 1s. 6d.

75/63. *Zolo*.—For **Polishing Combs** the manufacturers use a wheel composed of many circular pieces of cotton cloth, the virtue of which lies partly in its softness, but chiefly in extreme rapidity of motion. We do not think that you could succeed in polishing dulled combs by hand.

75/28 (*J. S.*) and 76/72 (*D. H. D.*) send samples for analysis which are devoid of general interest. Our only object in examining samples which are sent to us is to see if they are likely to furnish novel formulæ; and, if not, no report is made upon them.

76/49. *Somnus*.—Any sedative property which **Aqua Flor. Aurantii** may possess (and that is considered doubtful by therapeutists) is probably due to certain ethers which are believed to be present in the water distilled from the flowers. These ethers are not found in oil of neroli.

72/27. *Vaseline*.—Caustic soda is the best thing for making crude carbolic acid miscible with water, but it decreases its antiseptic power.

77/19. *D. J. Clarke*.—We have asked the agent to send you the information. See page 364 in this year's **DIARY**.

77/71. *Foaminc*.—Infusion of quillaia preserved with spirit.

77/6. *Assistant*.—To free turpentine from red colour caused by iron, the only thing we can suggest is to shake it with a little hydrochloric acid diluted with its own volume of water. Allow to settle, decant, and wash with plain water.

77/35. *T. W. C.*—A good **Beetle Powder** is made of borax, 6 oz.; wheaten flour, 2 oz.; sugar, 1 oz.; and Epps's cocoa, 1 oz. This is to be sprinkled near their haunts. The "Demon" beetle-trap offered by Fordham & Sons is the most effectual thing of the kind we have seen.

77/59. *Flannel*.—Consult Proctor's "Manual of Testing" for all tests for Pharmacopœial chemicals. Copper pyrites is what is principally used in the manufacture of sulphuric acid. Obviously the sulphur in it is useless to the copper-smelter, but he gets something for it, though not much, and that is why sulphuric acid is so cheap now. There is no means of making the distinction you hint at. Sulphuric acid is not made from barium sulphate.

77/46. *Antipyrin* asks what is "the best method for preserving butter"? Why, salt it, adding 5 per cent. of boracic acid to the salt; and to ensure that it will keep as long as possible, be careful, cleanly, and keep it in a cold place with a damp cloth over the surface.

77/74. *Cayenne*.—(1) There are forms for **Children's Powders** in almost every volume. See September 28, 1889, page 480. (2) **Form-improving Medicines** used by ladies are tonics, so far as we have seen them, with very little virtue and much bunkum. Chiretta was the principal ingredient in one which we examined, and it also contained some aromatics.

Testing for Acidity.—Mr. Isaac W. Thomson, Edinburgh, writing in regard to Mr. Stokes's method for testing the acidity of milk in cheese-making, and the provisional patent granted thereto, says "the 'invention' is merely a slight modification of the process described by me in a paper read before a meeting of the Pharmaceutical Society in Edinburgh" (**THE CHEMIST AND DRUGGIST**, February 22, page 248). He adds that the use of pellets had also occurred to him, and had actually been put in practice by a friend.

DISPENSING NOTES.

The opinions of practical readers are invited on subjects discussed under this heading.

Pro re natâ.

74/5. *Boracis* asks how the words "pro re natâ" came to be translated "occasionally." To this we may reply that "when required" is the better rendering. The transition from the literal "for the thing born" to "for the thing arising," "for the occasion arising," and "when required" or "occasionally," is obvious.

Homœopathic Prescription.

76/61. *A Twenty Years' Subscriber* (New Zealand).—(1) **Tinctura Lycopodii**.—Lycopodium, 1 oz.; soak in ether over night, then pour off the ether, dry and macerate the lycopodium in 10 oz. of rectified spirit for seven days, and filter. (2) Our correspondent also sends the following prescription:—

Iod. B.H.P. ʒ	..	..	..	..	3ss.
Spir. ʒ	..	..	..	..	3ss.
Aque dest. ad	..	..	..	..	ʒiv.
ʒj. ter die.					

He rubbed the iodine with absolute alcohol, ʒss.; poured off the clear solution, and rubbed the residue with warm distilled water, but could not get it all in solution. Can it be dissolved as written? Is not the dose abnormal? Is the

3j. intended to be taken undiluted? Our correspondent dispensed the mixture after dissolving as much as he could of the iodine, and throwing away the balance. He also told his customer to dilute with water when taken. Was he right?

[The prescription is a homœopathic one, and according to the Pharmacopœia "Iodine θ " represents the crude substance. We are inclined to think that the prescriber was thinking of a mother-tincture when he wrote the prescription, for as it stands it is impossible to send out a complete solution of the iodine without the addition of a solvent, such as potassium iodide. Instead of pursuing the course which our correspondent adopted, we should have dispensed the strongest tincture (1x), which would have formed a clear mixture, and would have been a fair dose of free iodine. The dose provided of "iodine θ " is excessive, and obviously can neither be dispensed nor swallowed as written. The safest plan in all cases of doubt is, of course, to consult the prescriber; but we understand that in the present instance that was not possible. Perhaps our homœopathic prescribers will favour us with expressions of their opinions.—ED. C. & D.]

An Iron Mixture.

SIR,—The following prescription was returned to me as not being correctly made up. What had been sent previously had a brown sediment, half to an inch deep, at bottom of bottle. I sent it out perfectly clear. Which is right?

Calci chlorid.	..	..	..	..	gr. xij.
Tr. ferri perchlor.	..	..	..	..	ʒij.
Syrupi ..	..	..	..	..	ʒiij.
Aq. ad ..	..	..	..	..	ʒiij.

M. Ft. mist.

A. P. U. (77/8.)

[The mixture should be clear. If the calcium chloride were impure—*i.e.*, alkaline—the precipitate of ferric hydrate can be accounted for. Surely the first dispenser did not use calx chlorinat.? We have heard of that being done.—ED. C. & D.]

77/6. *Assistant*.—We have not been able to trace the reason why some potassium bromide mixtures explode even with so simple a vehicle as chloroform water. The subject is briefly discussed in "The Art of Dispensing," which please consult.

LEGAL QUERIES.

77/55. *W. H. B.*—We should consider that circular B and label might be used without necessitating a medicine-stamp. If you get these up and send the thing complete to Somerset House, they will say liable or not liable. They will not, however, as you see, point out to you wherein the liability exists.

78/4. *Repose*.—The words "prepared only by" are taken to indicate a claim of proprietorship, and if applied to a medicine would render it liable to stamp-duty.

76/69. *Ajax*.—The assistant's certificate of the Apothecaries' Society is not a qualification which entitles a person to sell poisons.

76/10. *Annual Subscriber*.—The poisons added to the schedule since 1868 have been: On December 21, 1869, preparations of prussic acid (1), of cyanide of potassium, and of all metallic cyanides (1), of strychnine (1), of atropine (1), of corrosive sublimes and of morphine, red and white precipitate, vermin-killers if containing a poison within the meaning of the Pharmacy Act, 1868, and the tincture and all vesicating liquid preparations of cantharides. On December 14, 1877, chloral hydrate and its preparations. On July 28, 1882, nux vomica and its preparations. Those marked (1) are deemed to be poisons within Part I. of the schedule.

75/63. *Zola*.—Inspectors are authorised under the Weights and Measures Act to test steelyards as well as other kinds of weighing-machines. Local authorities can disallow such as seem to them faulty in construction. The inspector has to test them notch by notch, and he should stamp not only the steelyard, but the sliding-poise and any loose counterpoises, with some mark indicating that the machine and the poises are only to be used together.

77/53. *Dubious*.—An unlicensed person may not sell any quantity whatever of methylated spirit. The Commissioners of Inland Revenue allow chemists to sell up to 8 oz. of pure spirit of wine to medical and scientific persons for medical and scientific purposes, without requiring them to take out a spirit licence.

78/30. *H. A. B.*—The competent but not registered assistant who manages the sale of a scheduled poison renders himself liable to a penalty, as in the Wheeldon case, if the Pharmaceutical Society should find reason to prosecute. No doubt the penalty is often incurred, and prosecutions do not seem likely to be frequent.

112/32. *Shah*.—The window cases would probably be trade fixtures, removable or saleable by the tenant, unless the landlord himself put them in. You had better ascertain.

77/25. *Chemist* (Nottingham) asks whether it is compulsory for a retailer of methylated spirit to affix a notification over the door that he is licensed to sell it. We understand that the Excise officer of Nottingham has called the attention of retailers to the requirement. We believe this is legal. The Act 24 and 25 Vict., c. 91, which provided for licences to retail methylated spirit, made such licences subject to the regulations of the Act 6 Geo. IV., c. 81, and the notification by sign-board was one of the regulations thus provided. The section which thus applied these regulations was not repealed by the Consolidating Spirits Act, 1880. A penalty of 10*l.* for the first or 20*l.* for any subsequent omission of notice may be imposed, but this is quite within the discretion of the magistrates.

113/16. *W. D.*—The trade-marks applied for and granted are all published officially, and can be examined at the Patent Office Library, Southampton Buildings; or a search in a classified list can be made at the office for a fee of 1*s.* per $\frac{1}{4}$ -hour. Or you can apply for registration of any mark, and, if it has been previously registered, your application will be refused. The fee for this experiment is 5*s.*

Information Wanted.

[*Replies to the following requests are solicited by correspondents of THE CHEMIST AND DRUGGIST.*]

74/71. Address of maker of bird-lime.

74/57. What is "solution of gum amber" used in dentistry?

74/12. Makers and prices of ringed salad-bottles, green flint, 8 and 12 oz.

74/29. Galvanic batteries, such as used by hawkers for penny shocks—where obtainable?

76/26. Where to obtain tamarinds dried, prepared, and packed in boxes, exactly like figs.

CHORALAMIDE.—Dr. S. A. K. Strahan, of the County Asylum, Northampton, has given particulars in the *Lancet* of 23 cases of insomnia which he has treated with chloral-amide. All the patients but one suffered from mania or melancholia. As the result of the observations in all these cases Dr. Strahan is strongly impressed with the value of chloral amide; it is "a very effectual hypnotic," he says.

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J. Hurley, M.D., Queen Camel, reports very successful treatment of **Sciatica, Lumbago, Neuralgia, Locomotor Ataxy, Gout in the hand**. W. Paley, M.D., Ripon, of **Sciatica**. B. Walker, M.D., Kirkby Stephen, of **Facial Neuralgia**. J. J. Meacham, Surgeon, Manchester of **Angina Pectoris and Neuralgia**. Geo. R. Gordon, M.D., Manchester, of **Henneronia and Neuralgia**. J. Young, M.D., Edinburgh, of **Neuralgia**. A. W. Martin, L.R.C.P., Manchester, of **severe Neuralgia**.

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By authority of the Medical Council, the compilers of the British Pharmacopœia have adopted and made OFFICIAL Nitroglycerine Tablets, as Manufactured by W. M. during the last ten years.

The Nitroglycerine is in a perfectly fixed solution in Chocolate. The Tablets are palatable, and weigh ONLY 2½ grains each. They are sold at the following prices:—

In Boxes, Retail 2s. 6d. and 4s. 6d. each.

For export to hot climates, corresponding quantities are supplied in bottles.

For Hospitals and Dispensing, in Bottles, 2 oz., 4 oz., 8 oz., and 16 oz. in each

Also CAPSULES OF IODIDE OF ETHYL, covered with Silk, 8 in a Box, Retail, 2s. 6d.

“ “ NITRITE OF AMYL, “ “ 12 “ “ 2s. 6d.

W. MARTINDALE, PHARM. CHEMIST, 10 New Cavendish St., Portland Place, W.

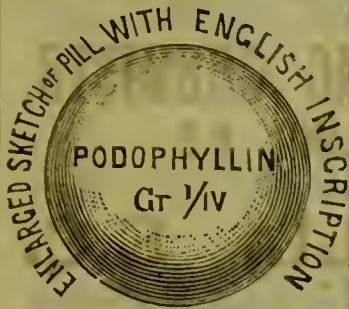
PRINTING & DOSING

PILLS & GRANULES

BY **L. FRERE, 19 Rue Jacob, PARIS.**

Received the only Gold Medal given to Pharmaceutical Products at the Paris Universal Exhibition, 1878.

Also awarded at the International Exhibitions of **Gold** MELBOURNE, 1880; AMSTERDAM, 1883; SYDNEY, 1888; **Medals** PARIS, 1889.



The names and weights of the active substances are printed very clearly on each pill or granule. The object of an easily read inscription, such as this, is to obviate those errors which may so easily occur in handling ordinary granules. The seriousness of such mistakes is a direct consequence of the action of the substances employed. The inscription gives every security both to the invalid and the doctor. The process of manufacturing printed pills and granules makes it possible to obtain absolute homogeneous masses, in which the active principles are uniformly distributed and mathematically dosed. The covering is of a nature which preserves the most changeable medicaments, such as iodide of iron, in all climates. All our various pills and granules are further distinguished by the colour of their covering. The printing is done by means of lampblack, and the colouring matter employed for the coverings is entirely of a vegetable nature.

EXTRACT FROM PRICE LIST FRENCH PHARMACOPŒIA.

NAMES OF SUBSTANCES	Weights			NAMES OF SUBSTANCES	Weights			NAMES OF SUBSTANCES	Weights		
	French Milligram	English Grains	Bottles of 100, viz. 84 doz.		French Centigram	English Grains	Bottles of 50, viz. 42 doz.		French Centigram	English Grains	Bottles of 50, viz. 42 doz.
Amorphous Aconitina ..	1/2	1/120	8	Acetate of Morphia ..	1	1/6	1 3/4	Codeina	1	1/6	1 8
Crystallised Aconitina ..	1/10	1/600	8	Salicylic Acid	10	1 2/3	0 7	"	2 1/2	5/12	2 0
Arsenate of Soda	1	1/60	8	Aloes	10	1 2/3	0 7	"	5	5/6	2 10
Arsenate of Strychnia ..	1/2	1/120	8	"Anderson's" or "Scotch Pills"			0 6	Ergotina	1	1/6	0 10
Bi-chloride of Hydrargyrum	1	1/60	6	Benzoate of Lithina ..	1	1/6	0 8	"	5	5/6	0 10
Bi-iodide of Hydrargyrum	1	1/60	6	Bromhydrate of Quinina ..	5	5/6	1 3	"	10	12/3	0 10
Colchieina	1/2	1/120	8	"	10	1 2/3	1 8	Extract of Belladonna ..	1	1/6	0 7
Acetate of Morphia	1	1/60	7	"	15	2 1/2	2 0	Amorphous Quassina ..	1	1/6	0 8
Hydrochlorate of Morphia ..	1	1/60	8	Bromide of Camphor ..	1	1/6	0 7	"	2	1/3	0 10
Phosphoric Acid	1	1/60	8	"	5	5/6	0 8	Santonina	2	1/3	0 7
Phosphuret of Zinc	1	1/60	8	Caffeina	1	1/6	1 3	"	5	5/6	0 8
"	2	1/30	8	Calomel	1	1/6	0 7	Sulphate of Quinina ..	5	5/6	1 3
"	4	1/15	8	"	5	5/6	0 7	"	10	12/3	1 8
Picrotoxina	1	1/60	8	Hydrochlorate of Quinina ..	5	5/6	1 3	"	15	2 1/2	2 0
Crystallised Quassina	1	1/60	8	"	10	1 2/3	1 8	"	20	3 1/3	2 5
Extract of Strophanthus ..	1	1/60	10	"	15	2 1/2	2 0	Sulphate of Sparteina ..	2 1/2	5/12	0 10
Sulphate of Strychnia	1	1/60	8	"							

The preceding list comprises only a very small portion of the Pills and Granules prepared by the Firm of L. Frère. Their complete Catalogue contains the various formulæ of the French Pharmacopœia, also the leading ones of the British Pharmacopœia, as follows:—

BRITISH PHARMACOPŒIA				PRICES			BRITISH PHARMACOPŒIA				PRICES			
		Per Gross	Per lb.	Per Bottles of 50 pills			Per Gross	Per lb.	Per Bottles of 50 pills			Per Gross	Per lb.	Per Bottles of 50 pills
Aloes Barb.	P. B. gr. 17.	1 0	10 0	4	Ferri Carb.	P. B. or "Female Pill"	1 0	8 0	4					
Aloes and Ferri	P. B.	1 2	10 4	5	Blue Pill	P. B.	1 0	10 0	4					
Aloes and Myrrh.	P. B.	1 7	12 0	6	Rhel Co.	P. B. or "Compound Rhuharh"	1 4	12 0	5 1/2					
Asafetida Co.	P. B.	1 4	10 4	5 1/2	Aperlens	or "Antihillous Pill"	1 0	10 0	4					
Calomel Co.	P. B. or "Calomel Pill"	1 2	10 0	5	Podophyllin	gr. 1/4 6,000 per lb.	1 2	20 0	5					
Colocynth Co.	P. B. or "Colocynth Pill"	1 8	16 0	6	Acid. Arsenios	gr. 1/60	1 0	10 0	4					
Coloc. and Hyos.	P. B.	1 7	13 0	6 1/2	Atropia	gr. 1/60	1 4	32 0	5					
Ferri Iodid.	P. B. gr. III.	1 8	16 0	6 1/2	Digitalia	gr. 1/60	1 4	28 0	5					

The above are the principal pills in daily use, and those P. B. are made in strict accordance with the formulæ of the British Pharmacopœia. In proportion with the demand, other kinds will be added to our list, at equally low prices.

NOTE.—Beyond the pills and granules mentioned in our price list, we manufacture to order any kind of pill or granule of which the formula may be confided to us, with whatever inscription the client may select. These special orders cannot be undertaken for a less quantity than two kilogrammes (4 lb. 7 oz.). It is also necessary to give (1) the colour selected for the covering, (2) the inscription written very distinctly. This lettering cannot occupy more than 18 European letters. The spaces between the words count as a letter. For the Hindoo languages the number of letters may vary according to the form of type. The price for manufacturing is 18 francs (14s. 4d.) per kilogramme (2 lb. 3 oz.) of pills covered. Our customers can have the raw materials sent to us by a wholesale drug house, or we will undertake to supply them. It is hardly necessary to add that an absolute discretion is guaranteed. The Granules comprise the doses of active principle for 1/2 milligramme, up to one centigramme exclusively. The Pills comprise all the other doses. Each bottle of Granules contains one hundred granules, viz. : 8 doz. 1/2. Each bottle of Pills contains fifty pills, viz. : 4 doz. 1/2.

A Complete Catalogue is forwarded Free on Application.

SHARLAND & CO.

ESTABLISHED 1870.

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Lambton Quay, Wellington, and
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Buying Agencies undertaken on the best terms. Special Rates to Wholesale Houses.
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MANUFACTURERS OF

MORPHIA and its SALTS, CODEIA and its SALTS,
AND ALL PRODUCTS FROM OPIUM.

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ANSWERING ALL THE TESTS OF THE BRITISH PHARMACOPŒIA.

Antiseptic Dressings and Appliances used in the Listerian System of Surgery

MAY BE HAD FROM ALL THE WHOLESALE HOUSES, AND AT

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The increasing demand for these celebrated Smelling Salts has induced the Proprietor to bring them out in a more portable and elegant form than hitherto supplied. The New-shaped Bottles will be found well worth the attention of the Trade.

WHITE FLINT GLASS, Handsomely Cut, 4 Sizes, Retail 6d. 1/6, 2/-, 2/6
" " " Watch Shape, for the Pocket, 3 Sizes, Retail.. .. . 1/-, 1/6, 2/-

ALFRED ALLCHIN'S PHARMACEUTICAL PREPARATIONS.

SMELLING SALTS.—The MONOCARBONATE OF AMMONIA, manufactured by ALFRED ALLCHIN, is the Neutral Salt so much valued for the preparation of Smelling Salts. It retains its pungency as long as any Salt remains. 1-lb. bottles, 2s. 8d. each.

LIQ. AMMON. ODORIF., or VOLATILE ESS., for Allchin's Ammon. Monocarb. In Stopped Bottles, 4-oz., 1s. 8d.; 8 oz. 3s.; 16-oz., 6s. each.

PUNGENTS, with handsome Cut Stoppers, filled with Allchin's Smelling Salts, 8s. per doz.; retail, 1s.

OL. ROSÆ. CONCENT.—One ounce of this Concentrated Solution of Anchusine, mixed with two pounds of Oil, will give it the usual colour; it is also admirably adapted for colouring Pomades, Lip Salve, Camphor Balls, &c. 4s. per lb.

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SELECTED DRUGS, PURE CHEMICALS, & PHARMACEUTICAL PREPARATIONS.

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OPPENHEIMER'S CREAM OF MALT

(REGISTERED),
WITH COD-LIVER OIL,
AND THE
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Works at DENAIN and WALLERS (Nord).
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Ethylalcohols Pure and Absolute. Propyl, Isopropyl, Butyl, Isobutyl, and Amyl-
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METALDEHYD CRYSTALLISED FOR MEDICAL PURPOSES.
Formiates, Acetates, and Butyrates of Methyl, Ethyl, Isobutyl and Amyl, &c.

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MANUFACTURERS OF

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PURE WOOD NAPHTHA, SULPHURIC ACID, & CHARCOAL

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Manufacturers of all Pharmaceutical Preparations on the best and most improved principles. Quotations on Application

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Special Agents for Sicilian Sublimed Sulphur in 2-cwt. bags, and Rolled Sulphur in 3-cwt. casks. Most Favourable Quotations can be given on application.

CARBOLIC POWDER, £6 TON.

1-ton lots and upwards.

CARBOLIC PINK POWDER, 5/-, 7/8, and 10/- per cwt., in bags or casks.
WHITE CARBOLIC POWDER, 10 %, 15 %, and 20 %, equally cheap.
HANDSOME LARGE DECORATED BLACK AND GOLD TIN BOXES,
 Holding 1½ lb. (usual 1/- size), 4/8 doz. Ditto, **LARGE SIZE** (usual 1/6 size), holding about double quantity, 8/- doz.
PALE CARBOLIC ACID, 99 per cent. (No. 5), and **CHLORIDE OF LIME** below market prices
GRUDE CARBOLIC ACID (Brown), 1/-, and 1/6 Gallon; also in patent stoppered bottles, labelled.
SANITARY FLUID or **CREOSOL** (to be used with 100 parts of water, making a *milky fluid*), half usual prices.
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SOLE AGENTS FOR DR. WARLONMONT'S CALF VACCINE.

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in vials, 5s.
HUMAN VACCINE, from healthy children only, microscopically examined and source quoted. Tubes, two-thirds full, 1s. 8d. each; Tubes one-third full and Lan-
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 source), in quantities for export, £5 per 100 Tubes. Pin-points uncharged, 1s. per
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 The Cheapest and Best Family Medicine.
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| Antibilious | Hamilton |
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Other varieties can be had if required.
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Aromatic Cichous, Chlorate of Potash
 Pellets and other varieties, put up as
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CYANIDE OF POTASSIUM,
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If any Chemist advise me of the fact that he Stocks it (no
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It is USED and RECOMMENDED by **HOLBEIN, KEEN,**
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Improved Soda Water and Ginger Beer Powders. Genuine Medicines in Stopped Bottles. Essence of Jamaica Ginger, Chamomile and Ginger, and Peppermint. Celebrated Jamaica Pomatum in Fancy Pots.

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Should be stocked by every Chemist. Guaranteed absolutely pure; prepared from the finest Malt only; neither ferments nor crystallises, and is by far the Cheapest in the end. In 2-cwt. casks, 28-lb. tins, 7-lb. tins and bottles.

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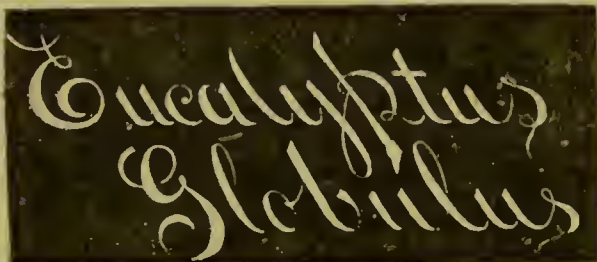
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Copalba Capsules, No. 0.....	1/ 8
" " No. 1.....	1/ 8
" " No. 2.....	1/
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Compound Ferruginous.....	1/ 6
Male Fern Oil.....	8/
Cod Liver Oil.....	1/ 6
Castor Oil.....	1/ 6
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OXY-IODINE COMPOUNDS.

AS SUGGESTED BY DR. HUGH WOODS.



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Liq. Potassæ Iodinatæ—A solution of Hypiodite of Potassium. An extremely powerful, safe, and unirritating antiseptic. Useful in same diseases as above. Cures parasitic and other skin diseases. Dose—M. v to x. Price, 4-oz. bottles, 1/4; 8-oz., 2/4; 16-oz., 4/.

Red Oxyiodide of Bismuth.—Very superior to Iodoform. Odourless and unirritating. Powerfully antiseptic. Cures wounds, sores, eczema, intertrigo, chapped hands, sweating feet, &c. Price 1/6 per oz.; ointment (1 in 10), 3/6 per lb.

Yellow Oxyiodide of Bismuth—An excellent antiseptic application to the throat, nose, &c. Very valuable for internal use in cancer of the stomach, gastric ulcer, dyspepsia, vomiting, &c. Dose—5 to 20 grains. Price, 1/4 per oz; ointment (1 in 10), 3/ per lb.

Leaflets descriptive of above, and monthly price current, on application.
Special terms to Hospitals and Public Institutions.

WILLOWS, FRANCIS & BUTLER, WHOLESALE AND EXPORT DRUGGISTS,
ESTABLISHED 1751,
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GILTSPUR STREET, LONDON, E.C.

Be glad to inform their friends and the Trade generally that, having purchased the Business of

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and also the various Formulæ of the Special Preparations of
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they are prepared to execute orders for the same, and pledge themselves to supply them in all their integrity.

Specimens of these Preparations have remained in the Museum of Kew Gardens during 23 years without deterioration.

Fox's "PALATABLE" CASTOR OIL, 6d., 1/. In use 20 years.
Both Medicines will stand any Climate. Terms unaltered, and specially liberal to Shippers. Consigned to Agents unstamped.

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MEDICAL STAFF,**
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His formula for Fox's "KIDNEY AND BLOOD MEDICINE" is one of the best Blood Medicines known, and has been largely used for last 30 years. Half-pint bottles, 2/6. Send trial order. Fox's "PALATABLE" CASTOR OIL is recommended by all the leading Physicians in England. See their opinions. Dr. Garret Horder, National Sanatorium, says, "It is particularly recommended for children and delicate females, and owing to its really pleasant taste is very easily administered." Patients can take it when all other kinds are rejected.

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CELEBRATED

GOUT

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PILLS.

THE SAFEST and MOST EFFECTUAL CURE for

Gout,
Rheumatism,
Rheumatic Gout,
Lumbago,
Pains in the Head
Face, and Limbs, &c.

They require neither confinement nor alteration of diet, and in no case can their effect be injurious.

Prepared only by GEORGE EADE, 72 Goswell Road, London, and sold by all Chemists, in bottles, 1s. 1/6; thr. in one, 2s. 9d.

NOTICE!

TOWLE'S PENNYROYAL AND STEEL PILLS

Mr. E. T. TOWLE, of Dryden Street, Nottingham, Chemist and Druggist, begs to inform the Trade and the Public that he is possessed of the sole right to manufacture and sell Towle's Pennyroyal and Steel Pills, and no other person or firm is intrusted in such business.

All orders to be addressed to Mr E. T. TOWLE, or to his recognised Agents.

(Signed)

EDWD. T. TOWLE,
Nottingham.



CAUTION.

Immediate proceedings will be taken against all persons purloining the Title, Name, or Trade Mark.

PARIS EXHIBITION, 1889.
PRIZE MEDAL AWARDED TO



"SALVO PETROLIA"

(VASELINE).

Absolutely Genuine Paraffinum Mollis of the very Purest Form, and we claim that it is superior to Vaseline.

Packed in Tins, 1, 4, 10, 14, 28, 56, and 112 lbs.

"OLEUM DEELINÆ"

(REGISTERED).

Universally adopted by the Medical Profession FOR

OPHTHALMIA, SCURVY, RINGWORM, ECZEMA, SKIN DISEASES,

FOR

EXTERNAL & INTERNAL IRRITATION OF EVERY KIND.

PACKED IN CASES—

One Doz. 1s. 6d. Bottles; One Doz. 2s. 6d. Bottles or half of each.

TESTIMONIALS MAY BE HAD UPON APPLICATION.

"EDIBLE SALVO PETROLIA"

For Public Speakers, Actors, & Singers.

1s. 6d. per Tube.

The above are Manufactured Solely by the Proprietors,

THE DEE OIL COMPANY, LIMITED.

Works—SALTNEY, CHESTER.

OFFICES:

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Liverpool, Dublin, Manchester, Glasgow, Hull, Cardiff,

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H. P. TRUEFITT'S SPECIALITIES FOR THE HAIR.

Floral Extract, 3/6, 5/-,
10/6, 21/-

Egg Julep, 2/-, 4/-.
CONCENTRATED

Egg Julep, 2/6,
5/-, 10/6.

Golden Fluid,
10/6, 21/-.

EUXURON,
1/6.

&c.

Stimulating Lotion, 5/-
10/6.

Astringent and Tonic
Lotion, 5/-, 10/6.

Quinine and Arnica
Hair Wash, 3/6,
5/-, 10/6, 21/-.

Arnica Wash
3/6, 5/-,
10/6.

&c.

EUCHRISMA.
Combines in one clear Fluid every valuable component both of a Hair Grease and Wash.
EAU RACINE.
For renewing the original colour of Grey Hair, superior to all other Restorers, being perfectly simple in its Components. Price 6/-.

An elegant Preparation for the Hair and Beard.
Price 2/6, 3/6, 5/-, 10/6, 21/-.

BRILLANTINE.

H. P. TRUEFITT'S TONIC TOOTH BRUSH

(BY ROYAL LETTERS PATENT.)

PRICE ONE SHILLING.

20 & 21 Burlington Arcade; 13 & 14 Old Bond St., London.

BEST AND SAFEST

DENTIFRICE

RETAIL—

No. 0 Loose... 0s. 8d. each.
" 1. In tins 1s. 0d. "
" 2. Glass ... 2s. 6d. "

Wholesale of all the leading houses throughout the world.

OVER 2,000 TESTIMONIALS



EWEN'S LARD

IS

GUARANTEED PURE.

EVERY GENUINE PACKAGE BEARS THEIR LABEL Trade Mark.



EWEN'S

Clarified Fat Works,

Perfumery and

Toilet Soap Factory,

5 HATFIELD STREET, LONDON, S.E.



Facsimile of Label

ARTIFICIAL MUSK

("MUSK BAUR")

PATENTED IN ALL COUNTRIES.

A NEW AND INVALUABLE DISCOVERY.

As used with great success by the principal Perfumers and Soap Makers in the world, replacing with great advantage the Natural Musk.

For any information concerning Price, Samples, Directions for Use, &c., apply to Sole Vendor—

ANTOINE CHIRIS,

Distiller and Manufacturer of Essential Oils, Pomades, &c.,

GRASSE, FRANCE.

"THE SCENT of the LILIES" & "THE SCENT of the HAYFIELDS."

(Registered 87090.)

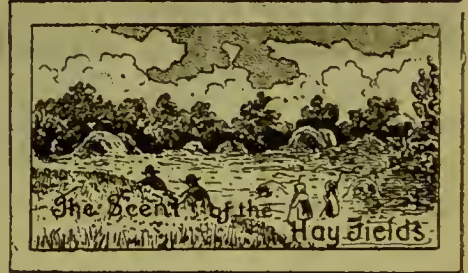
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THE SUCCESS OF THE SEASON!

In 1, 2, 4, 8 and 16 oz. bottles to retail at 2/-, 3/6, 6/6, 12/- and 21/- each.

Artistic Advertisements given with each first order.



ORDER THROUGH YOUR WHOLESALE HOUSE OR DIRECT FROM

G. VOGT & CO., 19 Laurence Pountney Lane, LONDON, E.C.
TELEGRAMS—"ALSACE, LONDON."

R C TREATT

Dunster House Mincing Lane
LONDON

IMPORTER OF

Musk Civet Ambergris Attar - of - Rose

ESSENTIAL OILS



Wholesale
and
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only.

APPLICATION

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WRIGHT'S MYRRH TOOTH SOAP.

8- PER DOZEN.



The Most Elegant Dentifrice on the Market. Removes Tartar, Preserves the Enamel, Prevents Decay, Gives Pearly White Teeth, Hardens and Strengthens the Gums, Cures Offensive Breath, a Gem for the Toilet.

Put up in an attractive manner for show case-display, and contains in a modified form the medicinal properties of Myrrh. It is an elegant sapo-aceous Dentifrice, absolutely pure, containing no mineral or acid substance, and no ingredient entering into its composition is in the least degree harmful or unwholesome.

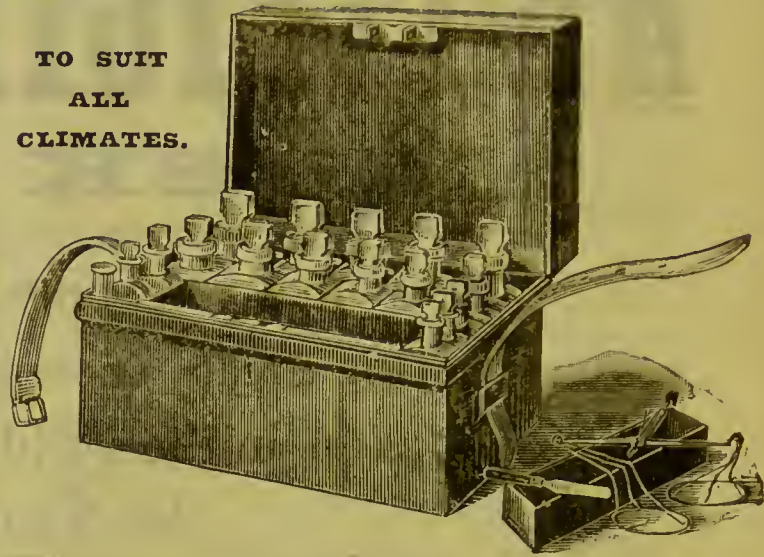
CAN BE OBTAINED OF

H. A. GOODALL & CO.

Bartlett's Buildings, Holborn Circus, LONDON, E.C.

BENTLEY'S COLONIAL MEDICINE CHEST

TO SUIT
ALL
CLIMATES.



The above is made in Black Japanned Tin, size 10x6 3/4 x 5 1/2, fitted with Lock, Key, and Strap; contains 5 4-oz., 6 2-oz., and 5 1/2-oz. stoppered bottles, Scales, Knife, and Measure, space for Plaster, &c. Price 16/6.

E. BENTLEY & SON,
Exporters of Bottles, Druggists'
Sundries & Medicine Chests.
14 TABERNACLE STREET, LONDON, E.C.

M. BAILEY & CO.
MANUFACTURERS OF DRUGGISTS' SUNDRIES.

M. B. & Co. beg to call the attention of the Trade to the following articles manufactured by them:—
Glass Syringes, Nipple Shields, Breast Exhausters, Fittings for Feeding Bottles, Tubes, and Tube Work in all its branches, &c., &c.

Sole Proprietors and Manufacturers of J. Brooks & Co.'s celebrated Specialities:—Winter Cream, Lip Salve, Solidified Camphor Cream, Glycerine Jelly, Perfumery, &c., &c.

Buyers are cautioned against imitations of these World-renowned preparations. None are genuine unless bearing our Registered Trade Mark.



MAY BE OBTAINED THROUGH ANY OF THE WHOLESALE HOUSES. WHOLESALE AND EXPORT ONLY FROM
M. BAILEY & CO., 32 and 34 Buckingham Road, KINGSLAND, N
BY ROYAL LETTERS PATENT, NO. 16,713.—DECEMBER 20, 1886.

GODFREY'S CHLORIDE of AMMONIUM INHALER

Catarrhal Throat and Ear Affections, Loss of Voice, Bronchial Asthma, and Hay Fever.

The **SIMPLEST FORM** of INHALER.

VERY PORTABLE. CONTAINS NO WATER.

Silver Medal, Brussels Exhibition, 1888. Yields a plentiful cloud of Neutral Vapour, with little or no effort on the part of the patient.

SHIPPERS & LARGE BUYERS SUPPLIED ON LIBERAL TERMS.

PRICE 7s. 6d. RETAIL.

May be obtained through **S. MAW, SON & THOMPSON, London.**
Illustrated Prospectus, with the "History of Chloride of Ammonium as a Remedial Agent," free by post. **SOLE MAKERS—**

GODFREY & COOKE, 30 Conduit Street, LONDON, W.



BUNTER'S PREPARATIONS FOR THE TEETH

Are the PUREST, SAFEST, and BEST that can be used, containing nothing of a deleterious nature. They are strongly recommended by Drs. E. Smith, M.R.C.S., Prof. W. Wilson, M.D., Gordon Stables, M.D., B.N., Geo. H. Jones, D.D.S., F.R.S.L., F.R.M.S., &c., Andrew Wilson, M.D., F.R.S.E., &c., &c., J. Hounsell, F.R.C.S., and many others.

BUNTER'S NERVINE FOR TOOTHACHE, gives permanent relief by Painless constriction of the Nerve in Decayed Teeth, forms a Stopping, arrests Decay, saves Extraction, Sleepless Nights prevented, Neuralgic Headaches and all Nerve Pains relieved. As a NERVE TONIC it gives strength to the nervous system, invigorates the entire frame, affording relief and effecting a cure in many complaints over which the nerves exert control. Invented by G. B. BUNTER, Surgeon Dentist, Maidstone. Price 1s. 1½d. and 2s. 9d.

PURILINE TOOTH WASH for the TEETH, GUMS, and BREATH. A pure, perfect, and refreshing Fluid Dentifrice. A few drops in water used daily will thoroughly Cleanse, Beautify, and Preserve the Teeth, polish the Enamel, prevent Tartar, destroy all living "Animalculæ." It is Absolutely Pure and Harmless to the youngest child or most delicate constitution. Used as a Tooth Wash after each meal will keep the mouth in a delicious condition of comfort, health, purity, and sweetness, for ever. 1s. and 2s. 6d.

BUNTER'S DENTINE, a Permanent Stopping for Decayed Teeth. One can easily prepare and place it in the cavity of the Tooth in a soft state, and in a short time it becomes a perfectly hard and white Enamel, forming, as it were, a part of the original substance of the Tooth. Price 1s. 6d.

PURILINE TOOTH POLISH, a pure and perfect article for Cleansing the Teeth Will Purify and Beautify the Teeth with a Pearly Whiteness, polish the Enamel, prevent Tartar, and destroy all living Germs (Animal or Vegetable), which are the most powerful source of decay to all Teeth. It is not a Powder or Soft Paste that will scatter over clothing and soil the toilet: it is a Dental Paste of stiff consistency, non-gritty, and Absolutely Pure and Harmless to use. It is neatly put up, forming a sightly Toilet Article, or may be carried in the pocket in any climate of the world, without injury or losing its virtues. Price 1s.

Proprietor—A. WILSON, 422 CLAPHAM ROAD, LONDON, S.W.

TURNED METAL FLASK & BOTTLE CAPS

For Spirits, Oils, Perfumes,
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COOK'S ANTISEPTIC SOAP

(THOMSON'S PATENT),

Has been tested in a Physiological Laboratory as a Germ Destroyer, and proved to be more efficient than any other experimented with. (See "Journal of Chemical Industry, 1888, No. 3.) Of great value in CASES OF

ECZEMA, RINGWORM, SCABIES, FAVUS
AND OTHER SKIN DISEASES.

See "The Lancet," 12 May, 1888, page 936.

Price in 3-Tablet Boxes, per doz. 12/-; Selling Price, 1/6; in ¼-gross Boxes, 10/6 per box.

GOLD MEDAL, PARIS EXHIBITION, 1889.

Can be obtained through MESSRS. S. MAW, SON & THOMPSON, LONDON, or of

EDWARD COOK & CO., HOUSEHOLD and TOILET SOAP MAKERS, LONDON, E.

F. SCHUTZE & CO.



Beg to call attention to their Special Lines in

BATH and FRICTION GLOVES, BATHING CAPS, SPONGE BAGS.

ILLUSTRATED PRICE LIST SENT POST FREE.

36a ALDERSGATE STREET, LONDON, E.C.

Silver Medal and Diploma of Honour, Highest Awards Fisheries Exhibition, 1883.
Silver Medal and Diploma of Honour, Highest Awards Health Exhibition, 1884.

SPONGES.

HENRY MARKS & SONS, LIMITED

IMPORTERS, EXPORTERS, AND MERCHANTS,

45 & 46 HOUNDSDITCH, AND 5 GORING STREET, LONDON, E.

Hydra and Syra. Symi and Calymnos. AND AT Key West. Nassau. Caibarien.
GREECE. TURKEY. FLORIDA. WEST INDIES. CUBA.

ESTABLISHED 1810.

Telegraphic Address—"SPONGE LONDON."

Detailed Price List will, on application, be forwarded direct or through Shippers.

No BATH ROOM or CARRIAGE is fully Equipped without RANKIN'S CORK MATS.

RANKIN'S CORK MATS

RECOMMENDED BY
MEDICAL MEN:

Warm, Soft,
and Dry. Easily
Washed, Clean,
and Durable.

BATHERS! Step from the Bath
on to Rankin's Cork Mats. They
Prevent Chills in Bathing, and keep
the feet warm and comfortable.

Mr. GLADSTONE pronounces them to be very useful, and Lord SALISBURY
and many of the Nobility and Gentry now use and appreciate them. They prevent
cold feet in Driving, in Church, in the Counting-house, in Stone-floored Apartments.
Used by Housemaids for kneeling on. Numerous testimonials to their use-
fulness in a great variety of ways. Sizes: 1 ft. square to 20 x 45 in. Prices: 3/, 5/
7/6, and 10/6 each. Special Mats up to 21' each.

CAUTION.—Each Genuine Mat branded "Rankin's Cork Mat."

Wholesale terms on application to

WM. RANKIN & SONS, Cork Importers, GLASGOW & LISBON.



WM. RANKIN & SONS, Cork Importers, GLASGOW & LISBON.

Of All leading Chemists & Furnishing Houses

A REAL COMFORT.

Wholesale Chemists' Agents: S. MAW, SON & THOMPSON.

BATH AND FLESH GLOVES

(A selection of between 40 and 50 tasteful patterns).

CHEST PROTECTORS

Of every description.

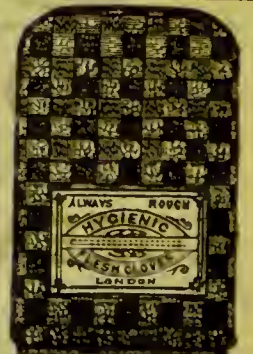
CORN AND BUNION PLASTERS.

WHOLESALE ONLY OF

SOLPORT BROTHERS,

Manufacturers,

68 Shaftesbury St., New North Road, LONDON, N.



SHIRLEY'S "A1" MENTHOL CONES.

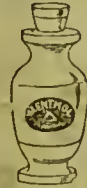
NEW AND SALEABLE PATTERNS.



No. 34.

No. 34. — 6d. Apple Shape ... No. 35. — 6d. Pear Shape... 3/9 doz.
 „ 34L.—1s. „ „ „ 35L.—1s. „ „ 6/6 „
 Above can be had assorted, 1 doz. in glass-top box, and are very pretty and attractive goods.

BOXWOODS.		1d. Lines. 3 dozen on Card.	
No. 112.—Draughtsman	3/3	No. 110.—Bottle Shape...	6/6 gross.
„ 113.—Cartridge	3/6	„ 110V.—Vase „	7/- „
„ 8P.—6d. Acorn	3/6	„ 110R.—Reversible Shape	7/- „
„ 111.—1s. „	6/6	„ 110PV.—Pedestal „	7/- „
„ 17F.—1s. Flat Shape	5/-		2d.
„ 9CR.—1s. Reversible	5/-	No. 114.—Varnished Vase..	16/- gross.
		„ 114P.— „ Pedestal	16/- „
			3d.
		No. 115.—Draughtsman ..	20/- gross.
		„ 23.—Barrel.....	20/- „



No. 35.

SPECIAL QUOTATIONS TO LARGE BUYERS.



THE BEST 2/6 SPRAY EVER OFFERED TO THE TRADE.

No. 32.—This Spray is in assorted coloured glass, with sprays of grass and flowers thereon, and is fitted with a double black ball, making it altogether a splendid 2/6 line. Price per dozen, 22/-. Please order at once to secure immediate delivery.

No. 4.—Cut-glass Globe, double ball	39/- dozen.
„ 30.—Assorted Coloured Glass, double ball, with butterfly and flowers, and gold mount	39/- „
„ 19.—Plain Glass, vulcanite mount, double ball	14/- „
„ 26.—Moulded Glass, vulcanite mount, double ball, larger	21/- „

A LARGE AND VARIED ASSORTMENT IN STOCK.

EVERFRESH SALTS.

INEXHAUSTIBLE READY SCENTED, 2/2 per lb.



Nos. 188-9.

Nos. 168-9.—In Cut-glass Watch Bottles	4/- dozen	45/- gross.
No. 188.—In Peacock Blue Globe Stoppered Bottles	3/9 „	40/- „
No. 189.— „ „ „ „	7/- „	72/- „



Nos. 168-9.

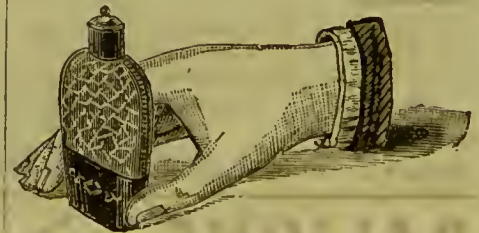


No. 187.

No. 187 is a China Bottle, flask shape, the china being coloured in imitation of Crocodile Leather. It is fitted with a china stopper, silvered over, making a very saleable line.

Filled with "Everfresh" Salts	4/- dozen	40/- gross	} Empty 3/3 dozen 32/- gross
„ Ammonia and Sponge	3/9 „	37/- „	

In order to assist sales, a China Hand, as per illustration, is given away to buyers of 6 dozen No. 187 Bottle. The hand is holding a sample bottle of No. 187, filled with "Everfresh" Salts, which can be placed on the counter or in the window. These hands could also readily be sold to the public as an ornament to the table or mantelpiece, and to buyers of "Everfresh" Salts would be supplied at 6s. dozen filled, to non-buyers 9s. dozen.



"A1" FLEXIBLE GELATINE CAPSULES.

Guaranteed to contain Perfectly Pure Drugs.

No. 25. Copalba Balsam	3 doz. in oval box	6/-	These Goods are well put up and attractively labelled, and bear no name beyond the "A1" Trade Mark.
No. 25A. „	1 1/2 „ „	3/6	
No. 49. English Santal Oil	2 „ round „	15/-	
No. 5. Cascara Sagrada	2 „ „	8/-	
No. 32. Copalba, Cubeb, and Matico	3 „ oval	12/-	

SEND FOR COMPLETE LIST SHOWING STRENGTHS, PRICES LOOSE, &c., &c.



ARTHUR W. SHIRLEY, 55 FARRINGDON ROAD, LONDON, E.C.



COMFORT
FOR THE **FEET.**

Corns and Bunions may be removed, and enlarged Toe Joints reduced, by using *Thompson's New French Corn Plaster*. Sole Proprietor, M. F. THOMPSON, Homoeopathic Chemist, 17 GORDON STREET, GLASGOW, from whom the Plaster may be had in Packages, by post, for fourteen stamps. Those who are troubled with the discomfort of Corns or Bunions will be glad to have attention called to this remedy, as it removes pain very speedily. It is a simple Plaster, thin as silk, and comfortable to the foot.

Ask your Chemist for it, and take no Substitute.

Wholesale 9/6 per dozen, cash with order, post free.
May also be obtained through London Wholesale Houses.

Walking is now really a pleasure to me. It is put up on Cards. "Very saleable."

43 Highest Awards over all Competitors throughout the World.

SEABURY & JOHNSON,
Original Manufacturers of
PHARMACOPŒIAL AND SURGICAL PLASTERS

IN RUBBER COMBINATION.

Antiseptic Dressings and Absorbents, Bandages Oiled Silk and Muslin, and Surgical Dressings of every description.

Supplies may be obtained through any Wholesale Druggists and Dealers in Surgical Appliances, or from the Proprietors,

SEABURY & JOHNSON,
46 Jewin Street, London, E.C.,
NEW YORK & HAMBURG.

POMIES' OPTHALMIC POWDERS AND MEDICINES.



OPHTHALMIC INSTITUTION & LABORATORY,
32
EUSTON SQUARE
LONDON, N.W.

POMIES' OPTHALMIC POWDER AND MEDICINES.

For the rapid cure of diseases of the Eye without operation.

ALL CHEMISTS SHOULD KEEP IT.
PRICE LIST SENT ON DEMAND.

New method of curing diseases of the Eye without operation, by E. POMIES, Occulist, late Surgeon in the French Army, &c., sent on demand to all Chemists for distribution.

Sold by Wholesale Agents in London.



The only preparation for the Hair recommended by leading Physicians for the removal of Scurf, allaying irritation, preventing greyness and baldness, and producing a

LUXURIANT HEAD OF HAIR.

In Bottles to retail at 1s. 6d., 2s., 2s. 6d., 3s. 6d., 5s.
Revised Wholesale Prices, 12s. 6d., 16s. 6d., 20s., 30s., and 42s. per dozen
Supplied by all Wholesale Sundry Houses,

OR FROM THE DEPOT—

OSBORNE, GARRETT & CO., 51 Frith St., Soho, London, W.

"EUREKA" ELECTRICAL BATTERY BELTS
For Re-invigorating the Nervous System.

LADIES' or GENTLEMEN'S, 1 Power, 8 Batteries 8 each
" " " 2 " 16 " 12/ " "
" " " 3 " 24 " 18/ " "

Retailed at 1, 2, and 3 Guineas.

IN ORDERING SEND MEASUREMENT NEXT SKIN.
Also a SPINE BAND, containing 8 small Batteries 24/ doz.
which retails at 5/6.

SPECIAL TERMS FOR LARGE QUANTITIES.

Obtainable from all Wholesale Houses. Manufactured by

VINCENT WOOD
(ESTABLISHED 1840),
SURGICAL APPLIANCE MAKER,
3 ST. ANDREW STREET, LONDON.
Telegraphic Address—"ACME LONDON." Telephone No. 6757.

G. B. KENT & SONS

Have been awarded the ONLY



A.D. 1777.

GOLD MEDAL



At the Paris Exhibition, 1889, for
ENGLISH BRUSHES

See Advt. pp. 374 to 377 in "C. & D. Diary," 1890.

SALVINE.
THE SCIENTIFIC DENTIFRICE.

OF ALL WHOLESALE HOUSES.

This Preparation has been especially designed by an eminent London Dental Surgeon, after a long series of careful experiments, to Prevent Decay of the Teeth in addition to beautifying them.

SALVINE is the only Dentifrice that is an Ant-Acid and Anti-Parasitic Put up in a novel and attractive manner. Price 1/, 1/6, and 2/6.
LIBERAL TERMS.

A handsome, valuable Showcard of an exceedingly tasteful and high-class design, now ready. Transparencies and other attractive Advertising matter.

SALVINE DEPÔT, 3 Oxford St., LONDON, W.

ESCHMANN BROS. & WALSH,
Inventors and Manufacturers of the
SOFT SILK FLEXIBLE CATHETER,
GUARANTEED WITH WOVEN EYES.



To be had of all Surgical Instrument Makers and Wholesale Houses.

WILLIAM TOOGOOD'S

WAREHOUSE AND SHOW ROOM,

BURLINGTON BUILDINGS,

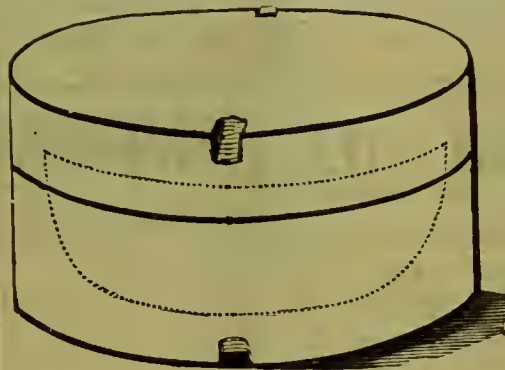
HEDDON STREET, REGENT STREET, LONDON, W.

TOOGOOD'S

IMPROVED PATENT

EARTHENWARE COVERED POTS

Are claimed to be the most perfect and convenient yet offered to the Trade.



Owing to the increasing demand for our Patent Pots, we have introduced a Special THIN Series for Dispensing.

These Pots are beautifully glazed and finished, and, being very light, are specially adapted for sending by post.

ORDINARY THICKNESS—										
1 dr.	2 dr.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	8 ounces.
1/6	1/6	1/6	1/8	1/10	2/	2 3	2/10	3/6	4/6	5/6 per doz.
THIN FOR DISPENSING—										
$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	8	ounces.	
1/7	1/9	2/	2/2	2/5	3/	4/	5/	6/	8/ per doz.	

THE LACTOTHERME

(REGISTERED TRADE MARK) OR

INFANTS' PORTABLE MILK STOVE,

Patented in England and Abroad.

ADVANTAGES.

- The Lactotherme heats milk exactly to the proper temperature at which it should be given to Infants, viz., 98 degrees Fahrenheit, this being the temperature of the milk from the mother's breast.
- The Lactotherme does not cause the milk to turn sour.
- The Lactotherme greatly benefits the health of Infants, as by giving food at a proper temperature, Colic, Diarrhoea, and Convulsions are guarded against.
- The Lactotherme is portable, and may be as effectively used in a Railway Carriage as in the Nursery.
- The Lactotherme will be also found a boon to Invalids for keeping warm Beef Tea, &c., during the night.
- The Lactotherme is safe, cleanly, and effective, and burns without smell.

WHOLESALE PRICES.

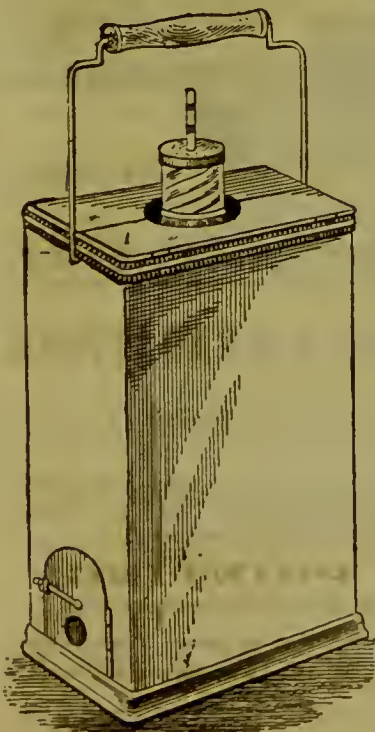
- No. 1. Japanned Iron, 6/- each. No. 2. Polished Brass, 8/6 each.
- No. 3. Nickel Plated, 10/- each.

Each Apparatus is furnished complete with Thermometer, Box of Prepared Carbon, Box of Wicks, and Float.

TOOGOOD'S PATENT BRONCHITIS AIR KETTLE,

51/- per dozen.

SOLE AGENT FOR DR. LEE'S STEAM DRAFT INHALERS.





R. H. BARRETT,

Flint Glass Bottle Works,

THE OVAL, CAMBRIDGE HEATH, LONDON, E.

THE HEART SCENT BOTTLE (Reg.), for Salts or Perfume.

Is most admirably adapted for pocket use, combining great beauty of design with the maximum of convenience.

Price, Plain or Fluted (in 5 GROSS lots):—Assorted WHITE and COLOURED, 12/6 per gross. N.B.—The Caps for these will be fitted, if desired, with indestructible washers, to resist the action of ammonia, which destroys cork in a short time.

METAL SCREW-CAPPED LIMES, in White Flint, Actinic Green, or Amber
The Best Bottle for Glycerine or Pills. Prices: 1 oz. 13/6, 2 oz. 15/-, 3 oz. 18/-, &c. per gross.

Chemists' and Perfumers' Bottles in great variety, Plain or Stopped.

Orders may be sent to the PRINCIPAL WHOLESALE HOUSES.

TELEGRAPHIC ADDRESS—"FOREFRONT LONDON."

[3]

GLEDHILL'S PATENT AUTOMATIC CASH TILL.

The Largest, Cheapest, and Best Variety of Cash Tills in the World. Hundreds in use.

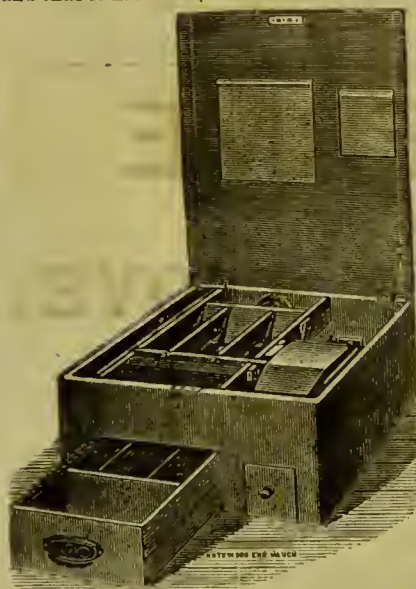
Acknowledged by those who have bought them to be the most perfect Tills ever invented.

SOLID MAHOGANY, IN FOUR SIZES.

No. 1 .. £8 8 0 } 1 and 2, to admit paper 3 1/4 wide; 3 and 4, to admit
" 2 .. 4 15 0 } paper 2 in. wide. The paper is supplied 65 yards
" 3 .. 4 4 0 } long, in one continuous length, and ruled to any
" 4 .. 2 17 0 } pattern.

1,500 customers can be served on the narrow paper for **One Penny**. Nos. 1, 2, 3 are fitted with a Special Check Action. This is a very ingenious invention for preventing the drawer being carelessly or wilfully left partly open.

This is a feature, besides many others, which no other till possesses—and thus it has been pronounced the Till of Tills.



TESTIMONIAL.

After thoroughly testing several Check Tills, we unhesitatingly say that the one you supplied us with, and which we have had in use for several months, is the best for Chemists' use.

The wide width of your paper is a great advantage, and forms a permanent record of business, as well as a perfect check.

Contrary to our fears, the use of the Till does not delay the quick serving of customers.

WILSON & SON,
Pharmaceutical Chemists,
Harrogate.

Send for particulars to the
INVENTOR,

G. H. GLEDHILL, 41 & 43 Northgate, HALIFAX.

DISPENSING BOTTLES & PHIALS

The following are our present Greatly Reduced Prices for not less than 3 gross of assorted sizes:—

	Per Gross.		Per Gross
6 & 8 oz., Plain or Graduated	8/6	1/2-oz. Phials ..	.. 3/6
3 & 4 oz. "	7/6	1-oz. " ..	.. 3/9
12-oz. "	12/-	1 1/2-oz. " 4/6
		2-oz. " 5/3

Packages, 1/ each, allowed for if returned.

I. ISAACS & CO.

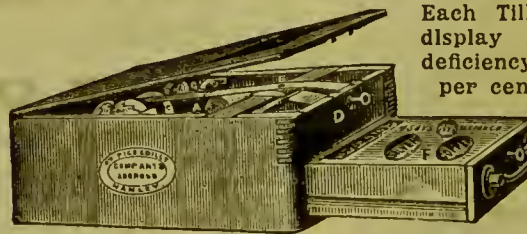
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A SOUND INVESTMENT.



Each Till has only to display 2d. per week deficiency to return 15 per cent. on outlay.

30,000

Sales Checked for
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Special Mills for Laboratories, Mortar-mills, Sifting-machines, and Grinding-machines. Pill-making Machines, Silvering-machines, Coating-machines, Pill-printing Machines. Sugar-coating Pans. Machines for preparing and for cutting Pill-masses. Machines for manufacturing Lozenges. Machines for making Pearls and Gelatinous Capsules. Laboratory Presses, Mixing-machines, &c.

PILL COATING & PRINTING.

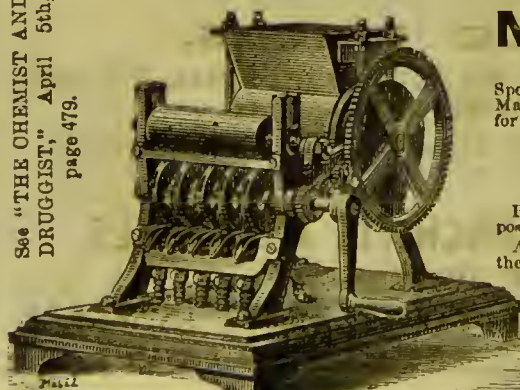
Pill-printing has long been considered a luxury, and remained in the hands of a Paris house, which alone possessed a proper coating process.

As a matter of fact, the coating was the unique difficulty to the extension of the process. This no longer the case, and we are in a position to offer our clients communication of a means of coating pills. This coating serves as a protection to the substances composing the pills; also, it is absolutely soluble in the gastric juices, and a clear impression is obtained by printing.

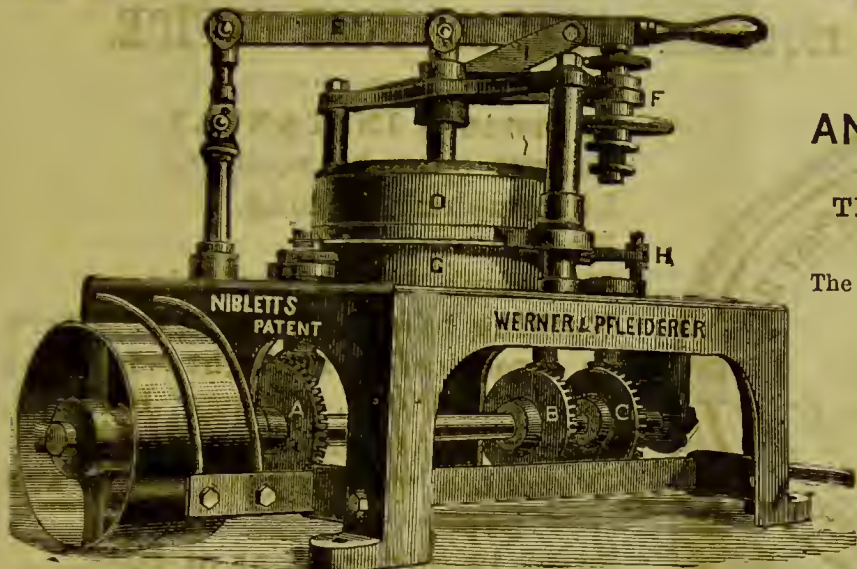
The coating effectually protects the pills from alteration from whatever cause, in any climate or temperature. It is less costly than silver or sugar coating.

Thus, by our means, pill and granule printing has become quite practicable. It gives a superior appearance to the goods, besides which the printed-inscription has the advantage of advertising the manufacturer's name, or of indicating the nature of the active principle.

See "THE CHEMIST AND DRUGGIST," April 5th, page 479.



WERNER & PFLEIDERER'S PILL-MAKING MACHINERY.



**PILL ROUNDING
AND FINISHING MACHINE**

(NIBLETT'S PATENT).

**THE ONLY PERFECT MACHINE
FOR THIS OPERATION.**

The Pill Plate takes $\frac{1}{4}$ lb. of Pills at once, and these are rounded in less than one minute. Can be worked either by hand or power. Used most satisfactorily by some of the best firms in the trade.

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KNEADING & MIXING MACHINE
FOR PILL MASS MAKING.

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Reduces lumpy powders,
sifts and mixes faster,
and makes a more perfect
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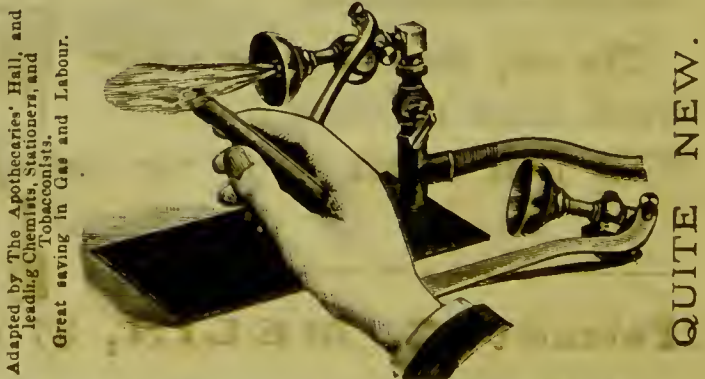
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In round cakes in 2-lb. parcels, or in oblong cakes, loose } in cases of 54 lbs
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FIT FOR ANY PURPOSE.

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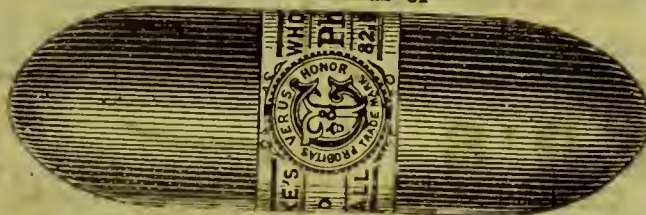
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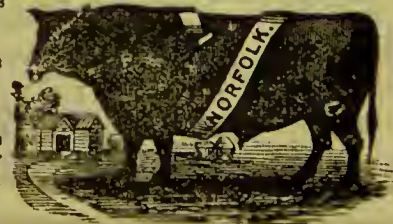
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ON FINE SHIRTING, 16 IN. WIDE.
6s. per Dozen net cash.
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Put up in square red and gold pedestal cardboard boxes. Retail price, 6d. and 1s each. This article sells well, is of superior quality, bears a good profit, and maker's name does not appear on label.
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Favourably noticed in "British Medical Journal," December 18, 1879; in the "Lancet," January 8, 1880; and in "British Medical Journal," September 30, 1882.

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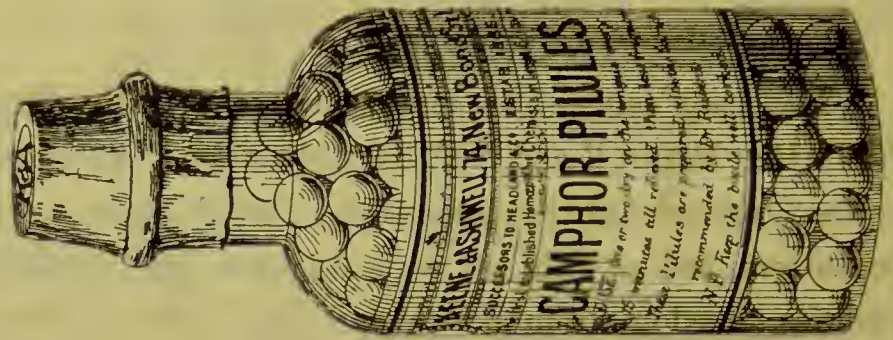
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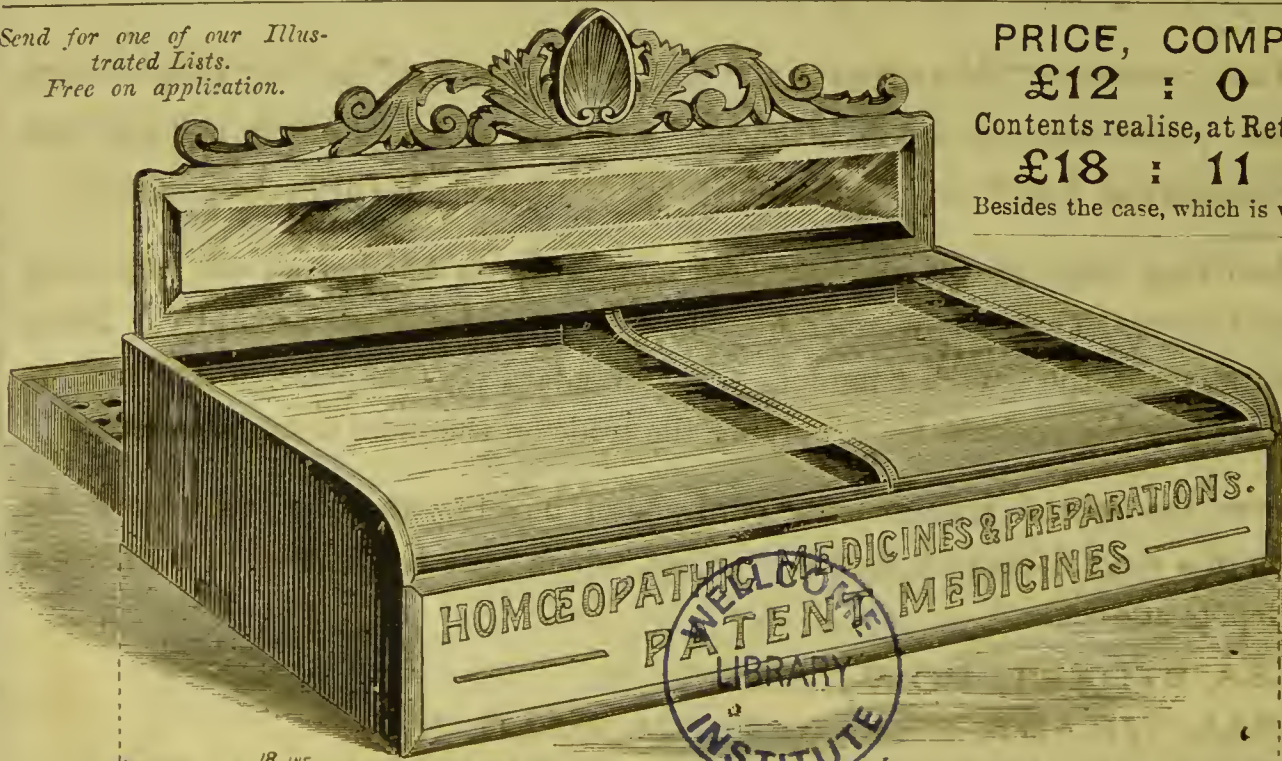
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