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OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish any trade gossip that they may consider interesting.

Subscribers are requested to observe that, for the future, the receipt of THE CHEMIST AND DRUGGIST in a Green Wrapper indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Editorial Notes.

WE note the election of Mr. JOHN CARGILL BROUGH to the office of Principal Librarian and Superintendent of the London Institution. For more than ten years Mr. BROUGH has been the Editor of this journal, and those who have worked with him cannot think of his retirement without regret. Though he gives up the actual editorial work, his connection with the CHEMIST AND DRUGGIST will not be broken. He has promised to contribute original articles to its pages, and to aid his successor in developing various new features of the journal. His official duties at the London Institution will tend to increase his interest in scientific matters.

"Hasty and inconsiderate legislation, together with the most mischievous charlatanism, has brought the whole question of the disposal of sewage into such a frightful mess, that the public are not only loud in their complaints of the injury inflicted upon them, but are equally emphatic in their demands for a remedy." With these words Dr. LETHEBY commenced a series of papers "On the Prospects of the Sewage Question," and no one who has studied the blue-books and pamphlets devoted to the subject, will say that the present condition of the sewage question is misrepresented by the plain-speaking Medical Officer of Health. Wishing to see in practice the promising A.B.C. process for utilising sewage, we gladly accepted a special invitation to visit the Sewage Works at Hastings. We shall give a full account of these works next month, and endeavour to throw some light upon the chemistry of the process. At present we will only say that the "native guano" obtained from the sewage appears to be a very valuable manure, and that the effluent water is clear and inodorous. If the "Native Guano Company (Limited)," have not yet solved the great

problem of the day, they are going to work in the right way to obtain a practical solution.

The new Editor of the *Pharmaceutical Journal* is Dr. BENJAMIN H. PAUL. He obtained twelve votes while Dr. REDWOOD received but seven.

The Convention for revising the United States Pharmacopœia, have resolved that the measures of capacity be abandoned in the work, and that the quantities in all formulæ be expressed both in weights and in equal parts by weight.

THE Chinese, it is said, formerly burned a house down when they wanted to roast a pig; the genius who first saw his way to a more economical method is, or at any rate ought to be, enrolled among the most famous of the Celestials. In a different path, but with somewhat corresponding results, economically, we have been favoured with a suggestion from an eminent surgeon, now retired from practice. Mr. DOUGLAS FOX, F.R.C.S., of Brighton, writes us as follows, and we thank him for the idea:—

"As it is of importance in the use of lunar-caustic to have it free from all infecting matter from previous use. I took some common matches, and cut off the igniting portion, I then dipped their ends into lunar caustic, melted; by so doing, I obtained what I called caustic matches, which enabled me to use a fresh piece of caustic daily, free from infecting matter, which would not be the case if the same piece of caustic were used repeatedly and not carefully cleansed. Besides which, this plan enables a minute point of caustic to be ready at any moment when required."

BETTS AND HIS INVENTIONS.

THE readers of the CHEMIST AND DRUGGIST need not be reminded of those legal proceedings, commenced in 1865, which made Mr. Betts, the capsule manufacturer, notorious. Twenty-five bills were filed against chemists and druggists by Mr. Betts, asking for injunctions to restrain them from further infringing his invention, and for the consequential damages. The defendants had innocently offended by selling bottles of perfumery covered with metallic capsules, and the plaintiff fancied he saw a glorious opportunity for recovering, in damages, some of the money he expended in previous chancery suits. The general body of chemists and druggists was at once aroused by articles in their special journals, and at a meeting held at the House of the Pharmaceutical Society a Defence Fund was organised. Most of the defendants were customers of Mr. Rimmel who tried, in vain, to induce Betts to stay proceedings.

On the 28th and 29th of June, fifteen of the suits were disposed of by Vice-Chancellor James, and Mr. Betts, is we trust, permanently "capsuled." We have been again and again astonished at his effrontery, but we do not think he will voluntarily get into Chancery again.

Let us consider some of the points of the evidence wrung from Mr. Betts.

The alleged infringement of the patent in each case, consisted in the sale of a bottle bearing Mr. Rimmel's labels, and a capsule impressed "E. Rimmel, London and Paris, Perfumer." Now it appears that the capsules used by Mr. Rimmel were supplied by three makers, namely Dupré, Courdouzy, and Espinasse. The two former made affidavits to the effect that their capsules were not manufactured by Betts' process, and their affidavits were

consistent with the results of the chemical examinations made by Professors Odling and Redwood. Espinasse, however, made a declaration to the effect that his capsules were made by Betts's process. But now comes the strange part of the story. At the time when Espinasse supplied Rimmel with the capsules, Betts was the actual proprietor of the manufactory carried on by Espinasse! A few extracts from the plaintiff's deposition, in the cause *Betts v. Wilmott*, will show how he accounts for his reticence with respect to the existence of "Betts the Frenchman."

Question.—Did you ever before your present cross-examination disclose, in any suit, the fact that the Paris house of Espinasse was yours?

Answer.—I never denied it, and I do not think that I have ever been asked the question, and I think it was avowed in Paris in my suit there.

Question.—When you say in your affidavit, of April, 1869, that the capsules were not made by you, do you mean to swear that they were not made by your French house of Espinasse?

Answer.—I hold that those made by my French house are not made by me, as regards England, most assuredly.

Question.—Suppose capsules were made at your manufactory at Bordeaux, should you swear that they were not made by you?

Answer.—Decidedly in the sense in which I understand it. Unless they are of a certain kind they have no business to come into this country and hence would be ignored by me, and so with my Paris or any other house abroad. I explain it in this way. Betts as a manufacturer in France, is a Frenchman. I sell capsules there, to be used upon bottles, and such capsules may come into this country, but no capsules off bottles of any kind should I make or tolerate to come into England to have one set against another. There is Betts an Englishman and Betts a Frenchman; the one with English rights and the other with French rights. Those which may come into England are those which bear my patent trade mark and my legend round it, and these must come on bottles. The Betts to whom I allude is myself.

Question.—When you have spoken of foreign manufacturers have you included in that phrase yourself as a Frenchman?

Answer.—Yes, in the sense in which I used it.

As it appears that "Betts the Frenchman," through the agency of his Paris house, sent unused capsules direct to Rimmel in London, the Vice-Chancellor very properly refused to distinguish Betts the plaintiff from Betts the Frenchman.

At the close of the plaintiff's case, on the 28th ult., the Vice-Chancellor made the following remarks on the character of Mr. Betts's suits:

In this case the plaintiff, Mr. Betts, has filed his bill against Mr. Wilmott, asking an injunction to restrain the defendant from further infringing his invention, from using his invention in this country, and for the consequential damages. It is said, and said with truth, that according to the practice of this Court the *scienter* is not material, that a patentee has a right to file his bill against a person who has innocently infringed his patent, that he is entitled to take legal proceedings at all events. But I am not prepared to hold that every user of letters patent by a person necessarily entitles the patentee not to bring an action in the County Court, but to file his bill in this Court. I think one must look at the circumstances under which, and the extent to which the infringement has taken place, and the conduct of the plaintiff and defendant, before one sanctions such a bill. If it is to be carried to the strict length, it seems impossible to draw a line which would prevent a man being entitled to file his bill against every gentleman who, in this particular case for instance, has a bottle of wine accidentally covered with a capsule in his cellar; I think there is a difference between that case and the case of a person selling articles for profit. If this had been the case of a sale of these capsules for profit, it would have been a different thing, because, in that case, the person would have

been selling the metal, and I should have been disposed to interfere, or if the person were using the capsules to a large extent himself.

The proceedings were closed on the 29th inst., by the following animadversions on Mr. Betts's extraordinary admissions:

The Vice-Chancellor.—I have read the depositions carefully through, and I must say this case seems to me about the most impudent case that ever came into Court. A man says you have infringed my patent. I did not make the capsules which you sell; I am quite sure of that; they were made by foreign manufacture. Then he is asked, Do you include in the term "foreign manufacture" the goods made by your agents abroad? and he says, "I do." I am glad my attention was called to this, because it seems to me monstrous for a man to act in this way. I must say it is not creditable to the plaintiff, when he swears in his affidavit that these goods were not made by him, to divide himself into an Englishman and a Frenchman, and to say that he meant that these goods were not made by him in his English capacity, but that they were made by him in his foreign capacity. I dismiss the bill with costs.

Mr. Eddis.—That will apply to all the suits?

The Vice-Chancellor.—Yes. I am shocked at such a mode of making an affidavit; I hope never to see it again. Each bill is dismissed with costs.

THE POISON REGULATIONS.

IN commenting on this subject last month, we expressed a certain degree of satisfaction with the result of the recent discussion at the annual meeting of the Pharmaceutical Society, although that satisfaction could hardly be allowed to extend to the means by which such result was obtained. The subject had not been debated on its merits, and the discussion itself offered very slight ground for congratulating certain of our amateur senators on the liberality or catholicity of their opinions. From our own point of view, however, even as advocates of the principle of the scheme proposed, we should have regarded it as unfortunate if by a small majority at the meeting, and in the face of such general opposition as had been manifested throughout the country, such an important alteration in the business of the chemist and druggist, and his relations to the state, that is to the public, had been established. It is above all things important in such a matter as this that a fair degree of harmony should prevail among those who are to be affected by the law which is intended to be passed; and until this harmony is attained, it is quite impossible to get a thoughtful consideration of the merits of the plan suggested. But, if the year's delay is to be what it is likely enough it will be, a mere shunting of the question, perhaps, with a lingering hope that it will be forgotten altogether, we shall not feel quite so well satisfied with the course which events have taken. We can hardly complain of those who oppose the measure for their avoidance of discussion since their temporary victory; but its advocates, if they are in earnest, should certainly consider themselves responsible for its production next year, and bestir themselves with energy in order that then the members should be better able to consider the question and discuss it fairly and fully. But as yet all that we have seen in print on the subject is a bold and well-stated defence of the opposition, emanating from one of its leaders, and published in the *Lancet* of July 2nd. Our readers will have the question fully before them if we reprint without abridgment the letter to which we refer:—

Sir,—I observe with satisfaction your article upon the recent refusal of the Pharmaceutical Society to adopt the regulations for storing poisons proposed by its late Council. As an opponent of the regulations, my satisfaction arises from the certainty that when the question is pushed to its legitimate conclusion, the powerful voice of the *Lancet* will be opposed to such false safeguards as have just been rejected.

Prima facie, the opponents of the measure had a strong case in the fact that at no public meeting called to consider the question had the regulations found a single advocate beyond the members of Council who framed them. Such meetings are reported by the press from fourteen of the leading towns of England and Scotland, and they expressed unanimous and strong condemnation. If our body is fit to be entrusted with its present representative government, its members must be competent to offer an opinion on the probable working of the proposed regulations.

No decision has been expressed upon the general question whether it is desirable or not to regulate the storing of poisons. A definite code was proposed, considered, and rejected on its own merits. The regulations took as a basis the legal "poisons" of the Pharmacy Act of 1868, comprising arsenic, acouite, belladonna, hydrocyanic acid, opium, strychnine, etc., etc., and their preparations—a list which has been computed to include about two hundred articles. It was ordered that each of these should be labelled "Poison"—a rather clumsy way of cautioning the dispenser, and inducing a patient to decline a dose which he had seen drawn from three or four bottles with such ominous labels. It was further ordered that "dangerous" or "poisonous" articles must be kept in one of three ways, viz., in a special compartment, in a bottle of distinctive shape, or in one distinctively fastened over. One of the weakest points of the regulations came out in the discussion, when their advocates admitted that every chemist was to decide for himself what was "dangerous," the legal schedule of poisons being coolly ignored by an ex-President, who said that he did not treat tinct. camph. eo. as being a preparation of opium! Finally, all lotions and liniments were ordered to be issued to patients in distinctive bottles, having peculiarities perceptible to touch. The objection to this clause bore especially upon the practice of the medical profession; for it was argued that in the provinces more medicine came from surgeries than from the pharmacy of the chemist; and to compel the chemist to use special bottles for lotions, etc., under a penalty of £5, whilst the surgeon issued any bottle he chose, would create gross confusion in the public mind, and cause more accidents than it prevented.

Every chemist who does much dispensing adopts for himself some system of storing poisons; but he need not as a consequence accept a very faulty code under the penalty of £5 for every breach, and the chance of ruin as the further consequence of a public conviction. Beyond this, such a system necessarily involved inspection by a State police, and to this point our body has not yet been "educated."

Permit me, Mr. Editor, to conclude by saying, *De te fabula narratur!* If the medical press demands, in the interest of the public, such regulations for the control of one class of legally qualified dispensers, what plea can the medical profession put in for exemption from the same regulations, penalties, and inspection? Clearly, the answer is, None. I therefore claim that those who have defeated the regulations have served the best interests of the medical profession, as well as those of the public and themselves.

Yours respectfully,

Briggate, Leeds, June 13th, 1870.

RICH. REYNOLDS.

Now what we complain of chiefly in this letter is that it leaves but a vague impression of what the writer's real opinions are. It is so expressed that one might presume that Mr. Reynolds approved of the principle involved in the scheme, but objected to the proposed details. If so we have nothing at present to discuss with him. We wish to see suggestions from practical men who would make the code more simple, more perfect, or in any way more efficient. But we have gathered from Mr. Reynolds's former utterances on this subject that it is the principle rather than the details of the scheme to which he objects; that he hopes to prevent altogether any enactment, the object of which shall be to compel a chemist to store and dispense his poisons in any particular manner. If this be so the letter quoted above is hardly such an exposition of his views as we should have looked for from the writer, for to comparative outsiders like the readers of the *Lancet* it would appear, as we said before, that Mr. Reynolds is at heart really as desirous for some legal enactment of the sort as they can be. It may be a pure accident that Mr. Reynolds's opinions are expressed in this manner, but the letter would have carried more weight if the author had distinctly indicated his own position. In the dark, therefore, as to his real views we must content ourselves with animadverting on one or two points in the letter, in order to present the full face of the discussion.

First, then, we take exception to the sentence "that at no public meeting called to consider the question, had the regulations found a single advocate beyond the members of the Council who framed them." Granting the literal accuracy of this statement, though we had the impression that at least, at the London meeting (and we hope London will be admitted among the fourteen leading towns), certain members *not on the Council* did signify their approval of the regulations. We wish to ask whether this is exactly how Mr. Reynolds would have put the case if his design had been simply to explain matters to the *Lancet*, and not rather to

gain a mere victory of words? Would he not have added the somewhat important sequel that at the London meeting, which was the only one where both sides were really represented, the division of opinion was so nearly equal that even now there are some who doubt whether the amendment was actually passed by a majority? Again, there occurs a little further on what may, perhaps, be best described as another stolen run. This is in the reference to Mr. Sandford's declaration that he had never labelled paregoric poison. Here Mr. Reynolds's words are very carefully chosen, but whether with intent or not, they may mislead some careless readers, as we can quite imagine some one quoting from memory his statement that an ex-President of the Pharmaceutical Society had said that tinct. camph. eo. was not a preparation of opium. The fact is Mr. Sandford was perfectly justified in what he said, in a legal sense, and, as every one will admit, he gave expression to the common sense of the question. We can only hope that every chemist will follow his example and accept the support of the counsel's opinion, which was quoted on the same occasion to the effect that he is not required by law to make an ass of himself by calling a thing "poison" in print, and telling his customers at the same time that the terrible word means nothing. Lastly, we come to the *tu quoque* argument which Mr. Reynolds puts with an evident confidence, not to say relish. It is a pity to descend to considerations of self-interest such as we are now about to put; but somehow such arguments seem to tell with quite as much force as more ethical ones. Far be it from us to save the dispensing surgeons one atom of trouble which we can legally burden them with, when they directly interfere with our rightful business as chemists; but does not Mr. Reynolds see that one of the heaviest blows which could be aimed at these trespassers, would be to induce the Legislature to recognise us as dispensers of medicine, and to leave them out in the cold.

FREE TRADE IN SURGICAL INSTRUMENTS.*

THE last annual meeting of the respectable Pharmaceutical Society presented so unusual a scene as to be best described by the words of one of the influential speakers—"a bear garden." The uproar was occasioned by the President being asked whether his firm supplied the co-operative stores? It would appear that the co-operative movement has proved so injurious to chemists and druggists that the trade is determined to resist. We can quite understand that injury to business may make men forget the principles involved, and even blind them to palpable facts. Still, we think the Pharmaceutical Society should scarcely be turned into "a bear garden" because one of its members is accused of co-operative tendencies. The Society is not a trade union, and as soon as it turns itself into one we hope it will be deprived of its present functions. Medical men have a vital interest in it, and we therefore act nationally in referring to this explosion. We should indeed have thought less of it but for some other incidents, which, like straws show the course of the stream. We are particularly struck by the vexation that some petty-minded individuals have expressed against Messrs. Maw, Son, and Thompson, for sending their catalogue of surgical instruments to the surgeons of the kingdom; and we are more than usually surprised that the *Pharmaceutical Journal* should report that great indignation was expressed by a meeting of the Nottingham Chemists' Association. It would appear that our friends the chemists think they

* From the Medical Press and Circular, June 22nd 1870.

have a vested right to supply us with our instruments at a profit. We never heard anything more absurd, and any attempt at such a trade union against practitioners must be met by most determined opposition. Everyone knows that Maw's old catalogue was priced to allow chemists a profit on everything. We have ourselves bought from chemists Maw's articles at prices much below the list. As medical men we claim to be supplied at the same rates, and Messrs. Maw, in the distribution of their new catalogue to the Profession, offer to supply us. It is on this account that some chemists have objected; they would compel us to buy through them and so pay more than we need. Of old we employed the natural remedy and went to other makers; now we can open an account with Maw direct. To imagine the Profession will buy through chemists is absurd. There are many strong objections to such a plan. Few country practitioners would order uterine instruments from the local chemist, even if he sold them cheaper; while, as he has no legitimate need to keep them, he has no more right to supply them than the grocer to sell drugs. If the public can be combined against, the Profession cannot, and if chemists push us so hard we can retaliate. Let them prevent one house supplying us and we will go to others; let them lay an embargo on our instruments and we can very easily endanger their regular trade. We would gladly see the Profession emancipated from the practice of pharmacy, but any attempt to form a trade union against us will bring more evil to chemists than merely delaying that consummation. We observe from an article in the *Chemist and Druggist*, May 14th, a Journal that we are glad to see takes a liberal view of the question, that Messrs. Maw, Son, and Thompson declined to supply co-operative stores, which fully proves that they have the greatest respect for and claim upon the chemists and druggists of the kingdom. It is, therefore, more unjust still, to ask such a firm to decline to supply surgeons and general practitioners. We trust the enlightened and respectable pharmacutists will repudiate the grasping and unjust conduct to which we have alluded, and that the Profession will sufficiently support Messrs. Maw, Son, and Thompson in the course they have taken.

ON SLEEP AND DREAMS.*

FROM ancient times sleep and dreams have been regarded by philosophers and students of nature with the deepest interest. It is, therefore, the more remarkable that until very recently one of the most important questions in connection with the theme, namely, the cause of sleep and the reason of its periodical return has been but very imperfectly answered. Two years ago Professor Pettenkofer, of Munich, a gentleman widely celebrated for his researches into the cause of cholera, in the course of his experiments upon the exchange of gases in the human system gave a perfectly satisfactory reply to the inquiry.

It has long been known that the oxygen, taken in during the act of breathing, plays a very important part, inasmuch as through its union with the substance of our bodies the vital forces are generated. In every process of life, however insignificant, a certain quantity of oxygen is consumed. It is, in a sense, the steam power by which the living machine is driven, and the amount used can be measured by the quantity of carbonic acid generated and set free in the act of expiration. For this purpose Pettenkofer, assisted by Voit, has contrived an apparatus, and has thereby brought

to light the unexpected fact that during the day, even with the slightest efforts, we give forth proportionately much more carbonic acid or in other words consume much more oxygen than we receive during the same period.

From this interesting fact there naturally arises the important inquiry, by what means is this daily deficiency supplied? Here, also, Pettenkofer's researches furnish us with a satisfactory answer. Sleep is the prudent minister of finance who every night, by a wise economy, makes up the losses of the day, for in sleep we not only consume half as much less oxygen as we do in the day, but we take in twice as much as we do when we are awake. During sleep we lay up a store of oxygen which enables us without fear to look forward to the deficiency of the morrow. Is not this arrangement truly worthy of our warmest admiration? Many a State might congratulate itself if its financial administration were conducted on similar principles. Once more we find that Nature is the best teacher, giving us a lesson in national economy from the philosophy of sleep.

We have laid down the principle that in every process of life, no matter how trifling it may seem, we consume a certain proportion of oxygen. Every motion, every sensation, even every thought is such a process: if we shake hands with a friend, if we look at him, or affectionately think of him, our heart beating quicker at the thought, we suffer the loss of a definite quantity of oxygen; a certain portion of our body is consumed and changed into carbonic acid. All this sounds horribly material, but it is, nevertheless, perfectly true, and is sustained by the best possible proofs, namely—those arising from the economy of the human system. During sleep its task is to be sparing of oxygen, and like a wise householder, who avoids all useless and luxurious indulgence, and limits himself to such expenditure as is necessary for his subsistence, it faithfully performs it.

But what are these things which we may regard as the luxurious expenditure of our organism? Above all we must include in this category the whole range of the activity of the senses, since such activity is not indispensably necessary for the maintenance of life. In sleep we may strike off with comfort the charges connected with sight. The muscles of the eyes first refuse their service. A peculiar feeling of pressure and heaviness in the upper eyelids informs us that they are preparing for sleep, and the impossibility of fixing the eye steadily upon any object betrays to us the fact that the muscles which cause the convergence of the axis of sight can no longer perform their part. With the closing of the eyelids the excitement of the retina ceases, and the nerves of the eye sink into repose.

The next organs which cease their activity during the process of falling asleep are the ears. Possessing no closing apparatus like the eyes, they do not so easily enter into a state of rest. Here, so to speak, sleep has to struggle for its rights. The best example of this we may find in our own experience, if we have been so unfortunate, or shall I say fortunate, as to fall asleep under a tedious lecture or sermon. After we have gradually lost the thread of the discourse, and our eyes are enjoying their well-earned rest, the words still continue to sound in our ears, but we are no longer in a condition to recognise and understand them. Gradually they become more confused, and at length end in a dull and inarticulate murmur which seems to withdraw itself farther and farther from us, until at last it is entirely lost.

In the meantime, the sensitiveness of the skin begins to be lessened. In vain our friendly neighbour wearies himself to save us from the annoyance of falling asleep, by gently pushing us, and treading upon our toes. All his efforts fail. Sensation, if not altogether lost, is so materially lowered

* Translated expressly for the CHEMIST AND DRUGGIST from the German of Ewald Hecker, published in the "Gartenlaube."

that it will respond only to strong provocation. The sense of smell and taste cease their activity, and so at length we are pretty well relieved of all our five senses.

At last the muscles controlled by the will sleep also. When we sleep in a comfortable bed we are hardly conscious of this, and the best opportunity for observing it is when wearied by an uninteresting discourse, we must sleep sitting. Who has not been grieved to find the impertinent muscles of his neck suddenly refusing to carry his head upright? And as long as the struggle between sleeping and waking is continued, there is exhibited to the mischievous spectator the highly amusing, but treacherous nodding of the head.

Thus the body, has like a frugal housekeeper, discharged its obligations, and unsparingly reduced all expenditure for mere pleasure and luxury. But this is not enough; it materially curtails the charges for the nourishment of its tissues and the renewal of its substance. The action of the heart is diminished to a speed varying from three to ten strokes; the blood comes less often into contact with the general structure, and, therefore, imparts to it less oxygen. Naturally, therefore, the functions of the bodily organs generally are limited, and, above all, suffers that very important organ the brain, of which we must further speak.

The brain is that organ by which we discharge our mental functions. Whether our views are materialistic or spiritual, we must adhere to the principle that mental activity is inseparably connected with the brain. It is the instrument by which the soul manifests its activity, and as from an imperfect instrument the most skilful performer can produce only imperfect music, so the capabilities of the mind are dependent upon the state of the brain. As in sleep its nourishment is considerably lowered by the diminished supply of blood, so also, as Durham's experiments upon sleeping animals, whose skulls he partially opened, have shown, the arterial, that is, the oxygen-bearing vessels, are more contracted and less abundantly filled than in the waking condition, and, consequently, the capability of the brain is much less. Mental activity is reduced to a minimum, and especially must all complicated processes, above all things the judgment, come to a pause. Still our thoughts and ideas continue to spin themselves out even in sleep, according to the same indestructible law as they do when we are awake, but they lack the regulating and limiting conduct of the judgment and the understanding. This partial activity of the brain is to dream.

The dream is not a dark and inexplicable something of whose origin we are ignorant; it is a product of the same brain function which is active in our waking state. Our thoughts in dreaming depend as much upon the association of ideas as they do when we are awake. In accordance with this law, every idea immediately on its rise calls up a series of other ideas connected with it by resemblance of circumstance, similarity of sound in the words which express it, or agreement in the order of time, etc. If, when we are awake, we surrender ourselves to the influence of the law of idea association, and do not voluntarily interfere with it, it comes to pass that when we hear a shot we think of the hunt, and then occurs to us the newspaper report that the king has gone to indulge in the pleasures of the chase, and the similarity in sound probably leads us to think of King, the natural philosopher.

In the waking state, the judgment always exercises a restraining influence upon the play of our fancy, and prevents us from joining together the unusual and incongruous; but in sleep our ideas are associated in the lowest manner. When we are awake, one idea follows another; but when we are asleep, several ideas simultaneously present themselves

and, uniting together, form themselves into one complex whole; or, from the rapidity with which they follow each other, and the indistinctness of their connection, one idea unobserved takes the place of another, and then we see in the above illustration not the king at the hunt, but King, the philosopher, and thus are originated the most wonderful dream combinations, the source of which we seldom succeed in discovering.

In the waking state, we can, as I have already said, call up ideas by an effort of the will. We can think of what we wish. This, however, is not always the case. Very often it happens, as if by accident, that ideas spring from the treasure of our memory to which we voluntarily give further entertainment, or by which we are unwillingly led to other ideas distasteful to us. So also in dreams, where the voluntary calling-up of any given idea is impossible, the mind is led to involuntary activity by means of ideas stored up in the memory. Most frequently the first impetus to a series of dream-pictures is given by some marked and striking impression which has been made upon us during the day, or by thoughts which have occupied our minds shortly before falling asleep. These ideas are often uninterruptedly continued; but not less often we are rapidly led to other ideas, and we are then unable to detect the connection between the two.

When we are awake the impressions of the senses are by far the most prolific source of mental activity. But in sleep, as we have seen, the senses have ceased to exercise their functions, though still, to a certain extent, capable of excitement. Under strong impressions the sense of hearing and of feeling are susceptible even in deep sleep, but the resulting idea is almost always confused, and often an entirely different image is presented; just as in the twilight we sometimes take the trunk of a tree for a man sitting by the wayside. The indistinctness of the impression made upon the senses allows the fancy to fill it up in its own colours, and so it comes to pass that any excitement of the sense of hearing or feeling in sleep gives occasion for dreams, of which only the most general outline originates in external conditions. There are many examples of this on record. Meyer narrates that he once dreamed that he was attacked by robbers, who laid him full length on his back upon the ground, into which they drove a stake, passing it between two of his toes; but on awaking he found that those two members were only separated by a straw!

Another relates that, having a bottle of hot water placed at his feet, he dreamed that he had reached the top of Etna, and was treading on burning lava. In a similar manner, if we are uneasy in bed and throw off the covering, we dream that in the cold of winter we are wandering half-clad through the streets; or, if there is a strong wind blowing, we dream of storms and shipwreck; or a knocking at the door produces dreams of an attack by thieves. It is very seldom that words spoken in sleep are distinctly understood, and equally seldom that they call up in the mind of the sleeper the idea they represent. I may mention an instance or two in which dreams could be controlled in this way. Dr. Abercrombie relates that an English officer who accompanied the expedition to Ludwigsburg in 1758 dreamed, to the great delight of his comrades, any kind of dream they chose, according to the words they whispered in his ear. Another example is given by Kluge:—A rejected lover, who had secured the favour of the lady's mother, obtained permission to whisper his name in her ear while she slept. Very soon there was a remarkable change in her conduct towards him, and at last she gave him her hand. On being questioned about the change, she replied that she had become attached to him in vivid and oft-repeated dreams. For the truth of this story

we cannot vouch; at the same time we do not deny its probability; and anyone who pleases may, as a last resort, try its effect upon the heart of his beloved.

The excitement of the internal susceptibilities gives occasion for dreams almost more frequently than the external senses. By internal susceptibilities I mean those sensations which indicate to us the position of our internal organs, and which are usually known as general feelings, and to which belong the condition of being well and unwell. In perfect health we are not anxious of the action of our various organs. We do not feel that we have a stomach or a heart, or muscles, etc.; but as soon as there is any functional disturbance of these members, to say nothing of the pain by which it is sometimes accompanied, we are made aware of their existence by a certain undefined sense of uncomfatableness. These sensations come within our consciousness during sleep, but, as might be expected, darkly and indistinctly. Connected with them, in a similar manner as with the impressions of the external senses, are certain symbolic dream-pictures, the most common of which is nightmare. This originates in a cramped condition of the respiratory muscles, and a consequent difficulty of breathing. Similar results will follow if the stomach be overloaded, for it then presses upon the diaphragm, and thereby confines the lungs. When we are awake we trace this disordered respiration to its correct cause—namely, a local affection of the organs of the chest—and there it ends; but in sleep we are incapable of this reasoning, and therefore, in harmony with the law of association, there arises from the feeling of oppression the idea of weight and the image of a superincumbent object. We also dream of heavily-laden waggons passing over us, or of dark, shadowy apparitions emerging from the ceiling, and gradually settling down upon us.

Not unfrequently we find that, instead of this, we dream of some great trouble or sudden fright, for in the waking state such experiences often render respiration difficult. We then dream, for example, that we are attacked by robbers; and when we endeavour to secure our safety by flight, we find, to our consternation, that our feet refuse to serve us, and we remain, as it were, rooted to the ground. We try to call for help, but find that we are unable to produce a single sound, until, at last, after long struggling, the muscles of respiration are released from their restraint, and we awake—sometimes with a loud cry.

In a similar manner is experienced the dream of falling from a great height. It usually happens while we are falling asleep, and depends upon the circumstance that the gradual relaxing of the muscles caused by sleep is, by some momentary excitement, reversed, and the result is a shrinking back of the body similar to that experienced in falling from any lofty position. Somewhat different from this is the dream of flying. According to Scherner, it depends upon our consciousness of the action of the lungs; their rising and falling motion giving to us in our dream the notion of flight. There are a great many more conditions of the body which, if they come into our consciousness during sleep, awake in us, in harmony with the law of the association of ideas, a certain kind of dreams. The emotions also produce a definite impression upon their character. "Great joy," some one has written, "originates a different class of dreams than great sorrow; and ardent love gives rise to dreams not produced by hatred, deep repentance, or an accusing conscience."

If we accustom ourselves attentively to notice our dreams, we shall easily perceive the confirmation of the law laid down. But we shall also find that it is exceedingly difficult to reproduce a dream correctly. It is so for two reasons. The imagery of dreams, in by far the greater number of

cases, is so indistinct and shadowy, and in its particulars so inadequate, that, by the effort to recall them, we involuntarily bring to our help the imaginative power of our waking moments, and thereby give to them definite colour and outline. The other reason is, the innate tendency of the human mind to look at all things in their logical connections. When our dreams consist of a series of pictures, often connected only by the very loose bond of the association of ideas, we bring to them by their reproduction, unintentionally, of course, a logical connection, and correspondence with real life which originally they did not possess.

During the period of deepest sleep, the function of the brain is so weakened that we retain no recollection of it, and sound sleep has, therefore, come to be called a dreamless sleep. Sometimes we know that we have dreamed, but are wholly unable to recall a single trace of that which has engaged our sleeping thoughts. But shortly before we awake, when the oxygen stored up in the blood-corpuscles begins to bring the process of waste and repair in the brain into more energetic operation, our dreams become more lively and connected, and, for this reason, are more easily retained by the memory. The cases are very few in which dreams are so vivid that we are unable to distinguish them from real events. Professor Jessen, a celebrated physician to the insane, gives a striking example, in the following words:—

"One winter morning, between the hours of five and six, I was awoke, as I believe, by the head-keeper, who informed me that the friends of a patient had come to remove him, and, at the same time, he inquired whether anything required mention. I replied that he might permit the patient to depart, and immediately lay down again to sleep. I had no sooner done this than it occurred to me that of the intended removal of this patient I had heard nothing, but that it was of the departure of a woman of the same name I had been advised. I was compelled, therefore, to seek further information, and, having hastily dressed myself, I went to the dwelling of the keeper, whom, to my astonishment, I found only half clad. Upon my asking him where the people were who had come to fetch away the patient, he replied, with surprise depicted in his countenance, that he knew nothing of it, for he had only just risen, and had seen no one. This reply did not deceive me, and I rejoined that it must have been the steward who had visited me, and I would go to him; but, as I was descending the steps which led to his house, it struck me that the whole affair was a dream—a fact, however, which I had not until that moment suspected."

This example is particularly interesting from the length of time which elapsed after the professor awoke, and during which he had been thoroughly aroused by the act of dressing and going to the keeper, yet the delusion which regarded the dream as a reality continued, and, at last, without any apparent cause, suddenly vanished.

Proportionately more frequent are the cases where the awaking is imperfect, but still sufficient to induce a course of action corresponding with the supposed realities of the dream. There are instances on record where people, deceived by the alarming imagery of a dream, have committed acts of violence for which they could not be considered responsible.

An interesting example of insubordination during heavy sleep is related by Büchner, in Henke's *Journal of Medical Jurisprudence*:—

"Christian Jünger, a soldier of the guards, two-and-twenty years of age, and who had been three years in the army, a man of good character, fell asleep about noon upon a bench in the guard-house. The corporal endeavoured to awake

him, in order to sweep out the room. Jünger arose, and, without saying a word, seized the corporal by the breast, then drew his sabre and made an attack, which the corporal succeeded in parrying. He repeated the attempt, however, and did not desist until disarmed and arrested by the soldiers present; he then sat down quietly upon the bench. On the preceding day, and on the morning of the deed, he had kept guard at an exceedingly cold and exposed situation, the intervening night he had spent in playing at cards, but had drunk little, and in the morning, from sheer weariness, he fell asleep in the heated guard-house. On the examination, it appeared that he dreamed he was on guard, when a fellow seized him by the hair, and took his rifle, upon which he drew his sabre and made an attack upon him. Of that which really passed he knew nothing. He could not understand that he, who had always been obedient to his superiors, should have been guilty of insubordination. The medical evidence showed it to be a case of 'sleep-drunkenness,' and he was acquitted."

In explanation of this case, something further may be said. Similar results might be brought about by toil of any kind; but here, by keeping guard, and the consequent excessive exhaustion, the deficiency of oxygen was brought to an abnormal height, and the small quantity taken in during the short sleep was not sufficient to restore the brain to its full activity. The oxygen still remaining was needed to supply the demands of the comparatively insignificant activity of the impulses of the will, so that the deliberative faculties and the voluntary thoughts could not come into play. We frequently see this confirmed when we wish to awake anyone out of sleep. Before he comes to perfect consciousness, he throws himself about in bed, and stretches his limbs, until at last free thought again asserts its authority over the brain, and consciousness is fully restored.

But we sometimes have phenomena presented to us which are the opposite of this. As Aristotle has already remarked, we are often in a position during sleep to recognise a dream as such. An interesting self-inspection of this kind is related by Beattie. "I once dreamed," he says, "that I was upon the parapet of a very high bridge. For what purpose I had come thither I could not perceive, and when I consider that I had not been inclined to such performances, I began to think that it was only a dream. Wishing to be free from this disturbing and tormenting illusion, I threw myself down, in the expectation that I should be brought back to reason by the fall, which indeed happened." In this example the dream occurred shortly before awaking, and the store of oxygen had manifestly reached such a height that the organ of thought could act in a limited manner, while at the same time the association of ideas produced in the dream continued.

The same thing has been observed by almost every one in the voluntary effort to prolong a pleasant dream just before waking. In this case, also, the organ of thought is fully capable of exercising its function, but we are in a position to control it a little longer, and to permit the fantastic association of ideas commenced in a dream to continue itself. But when once the activity of free thought has broken in upon this play of the fancy all is over with the dream, and we are irrecoverably awake.

We are restored to the waking state when the supply of oxygen has reached its highest point, and the exchange of substance again comes into full operation. It is possible, however, as everyone well knows, to be awake before this by external influences. Any strong excitement affecting either the nerves of hearing, or of feeling, or of seeing, by the propagation of that excitement, places the brain in a condition which promotes a more plentiful flow of blood, and in conse-

quence of this an accelerated change of substance, which, on reaching a certain stage, results in perfect wakefulness. Sleep requires, as we have observed above, that the arterial blood-vessels should be but sparingly supplied, and everything which increases the supply of blood to the brain not only prevents falling asleep, but disturbs the sleeper. Therefore, all passion and agitation of the mind, all anxious pondering, or bodily or mental excitement—in a word, everything which drives the blood to the head drives away sleep; on the other hand, whatever takes blood from the brain and contracts its vessels is favourable to sleep. It is in this way that cold bandages applied to the forehead are often successful, for cold causes a contraction of the blood-vessels.

In this connection we must not forget the so-called sleep-producing medicines, especially opium and its alkaloids, among which morphia and narcine take the first rank. From certain experiments it has been concluded—and with great probability of correctness—that opium acts upon the vessels of the brain as an astringent, and thus diminishes its supply of blood. But by such means as these we can secure only a smaller consumption of oxygen in the brain; we cannot at the same time cause more oxygen to be taken in and laid up in the blood-corpuscles for future use, for just in those circumstances in which we are compelled to resort to such methods of procuring sleep, the capacity of the blood-corpuscles for storing up oxygen, as Pettenkofer's researches in cases of sickness have conclusively shown, is diminished. And so it comes to pass that sleep obtained by means of an opiate is never so refreshing and invigorating. In ordinary circumstances, the avoidance of the above-mentioned condition inimical to sleep will suffice to procure it. Here habit plays a very important part. Usually we do not wait for the complete exhaustion of the oxygen of the system, but fall asleep, if we have been accustomed to do so, when it has reached a certain limit. For the same reason we are capable of being awake at any moment. There is always a reserve fund of oxygen, which makes waking possible. In those cases in which, through excessive watching, the exhaustion of oxygen has reached its extreme limit, the sleep following is so deep that before a certain time has elapsed it is hardly possible to disturb it.

It is not always in our power to avoid these things which hinder sleep, and above all it is only seldom that we can exercise complete control over our mental states. To do this requires either a good deal of stoicism, or an uncommon strength of will and power of self-government. It is said that Napoleon I. could sleep at any time he chose, and did so even during the battle of Leipzig. He had the gift not only of controlling his feelings, but also of suspending thought at pleasure. That the last achievement is by no means an easy one, almost everybody has experienced. If some thought or plan occupies the mind we cannot sleep, and we must then endeavour to direct our thoughts to those things which excite but little interest; in other words, we must endeavour to become tedious to ourselves. For this purpose there exists the greatest variety of ingenious methods, and as it does not come within my plan to increase the number of them by this paper, I will here close with the hope that it has awakened in the reader an interest in the phenomena of life as manifested in sleep and dreams.

THE "CHEMIST AND DRUGGIST" PRIZE
DISPENSING COUNTER.

WE briefly announced last month that we intended to offer a prize for the best design that should be sent us for a dispensing counter, the competition to be open to all comers. We promised then to give further particulars

and conditions in this impression, which we now proceed to do. First of all, however, we have much pleasure in assuring all intending competitors that they may entrust their ideas to us with the utmost confidence that the best will win; and we guarantee that assurance by mentioning the names of the gentlemen who have kindly consented, in the midst of many other avocations, to act as judges in this matter, and to whom all designs sent in will be submitted. These are:—

Mr. T. H. HILLS.

Mr. JOSEPH INCE.

Mr. C. H. SAVORY.

No word of ours is necessary to call attention to the fact that in this trio we have as perfect a representation of gentlemen who know what practical dispensing is, as it would be possible to obtain, but we cannot avoid the expression of our thanks to each for the readiness with which, in each case, our invitation was accepted. As we wish to secure the best design that can be had, we ask for a free competition; we place no limits whatever, nor will any consideration be shown to youth, or age, or want of opportunity. The best design will win, and win on its merits alone. All the more honour to its author if it comes from one whose opportunities have been but slight. All designs must be sent in before the 10th of August, and should be distinguished by a motto, and accompanied with a written description as concise as possible. It is requested that the real name and address be sent to the Editor separately. The arrangements of the counter are left entirely to the fancies of the designer, simply presuming that, for the sake of uniformity, it should be shown for one dispenser only, and should show separately the front and back of the counter. The whole drawing should be on such a scale that it will not overflow one of our pages. The successful and unsuccessful designs will remain the property of their respective authors. The prize will be some article of about the value of five guineas, but will not be given in money, as we should prefer to give something which should be a lasting memento. A list of objects will be published next month, from which selection can be made. We shall also hope in that number to announce the name of the successful competitor, and with our next issue (September) shall publish with every copy of our paper a lithograph of the design, uniform with the series of portraits which we are now publishing. We now leave the matter in the hands of our readers, and hope that we shall receive many designs hard to beat, and that the best will be a credit to the genius of pharmacy in Great Britain and Ireland.

SYRUPS FOR SODA WATER.*

BY GEORGE M. HAMBRIGHT.

SIMPLE SYRUP.

TAKE of White Sugar, 14 pounds (com.)
Water, 1 gallon.

Dissolve with the aid of a gentle heat, strain, and when cold add the white of two eggs, previously rubbed with a portion of the syrup, and mixed thoroughly by agitation. [The egg albumen is added to produce froth.]

LEMON SYRUP.

Take of Oil of lemon, 25 drops.
Citric acid, 10 drachms.
Simple syrup, 1 gallon.

Rub the oil of lemon with the acid, add a small portion of syrup, and mix.

ORANGE SYRUP.

Take of Oil of orange, 30 drops.
Tartaric acid, 4 drachms.
Simple syrup, 1 gallon.

Mix as above.

VANILLA SYRUP.

Take of Fld. Ext. vanilla, 1 ounce.
Citric acid, $\frac{1}{2}$ „
Simple syrup, 1 gallon.

Rub the acid with a portion of syrup, add Ext. vanilla, and mix.

GINGER SYRUP.

Take of Tinct. ginger, 4 ounces.
White sugar, 7 pounds (com.)
Water, $\frac{1}{2}$ gallon.

Heat the sugar and water until the sugar is dissolved, raise to the boiling point, then gradually add the Tinct. ginger, stirring briskly after each addition.

SYRUP SARSAPARILLA.

Take of Simple Syrup, 1 gallon.
Comp. Syr. Sarsap. *ad. lib.*
Powd. Ext. licorice, 1 ounce.
Oil sassafras.
Oil wintergreen, aa, 15 drops.
Oil anise, 10 „

Rub the oils with powdered licorice, add a portion of syrup, rub smoothly, and mix the whole together by agitation.

ORGEAT SYRUP.

Take of Cream syrup, $\frac{1}{2}$ pint.
Vanilla syrup, 1 „
Simple syrup, $\frac{1}{2}$ „
Oil bitter almonds, 5 drops.

Mix.

COFFEE SYRUP.

Take of Ground roasted coffee, 4 ounces.
Boiling⁺ water, 2 pints.
Sugar, 4 pounds (com.)

Infuse the coffee in the water until cold, strain, add the sugar, and make a syrup.

STRAWBERRY SYRUP.

Take of Fresh, ripe strawberries, 10 quarts.
White sugar, 24 pounds.
Water, $\frac{1}{4}$ gallon.

Spread a portion of the sugar over the fruit in layers, let it stand four or five hours, express the juice, strain, washing out the marc with water; add remainder of sugar and water, raise to the boiling point, and strain.

SYRUP OF RASPBERRY.

Proceed as for Strawberry Syrup.

PINE-APPLE SYRUP.

Take of Ripe pine-apples, No. 2 or 3.
White sugar, 16 pounds.
Water, q. s.

Cut the fruit in thin slices, spread sugar over them, let stand 12 hours. Pour off juice and sugar, and set aside. Express the fruit, adding a little water. Then take water, q. s., to make, with the above liquid (juice and sugar), 1 gallon. Form a syrup with the sugar and water, and boil the pieces of the fruit already expressed. When the syrup is nearly completed add the fluid, and boil a few minutes to clarify. Remove scum and strain. These three fruit syrups should be bottled when warm, corked tightly, and when wanted for use add equal parts of the fruit syrup and simple syrup. They will keep a year without a change.

* From the *Pharmacist* (Chicago).

NECTAR SYRUP.

Tako of Vanilla syrup, 5 pints.
Pineapple syrup, 1 pint.
Strawberry or Raspberry, 2 pints.

Mix.

CREAM SYRUP.

Take of Fresh cream, $\frac{1}{2}$ pint.
Fresh milk, $\frac{1}{2}$ pint.
Powdered sugar, 1 pound.

Mix by shaking. Keep in a cool place. The addition of one-half drachm bicarb. soda to this syrup will prevent rapid change.

BRITISH PHARMACEUTICAL CONFERENCE.

WE have much pleasure in calling attention to the following letter, addressed to the members of the Conference:—

“26, St. George's Place,
“Hyde Park Corner,
“July 12, 1870.

“To the Members of the British Pharmaceutical Conference.

“GENTLEMEN,—I am anxious to exhibit a collection of old books relating to Chemistry, Pharmacy, or Materia Medica, at the Liverpool Conference. I will take every care of the volumes, having myself not a bad selection. Any reaching me before August 6th will be noticed in a descriptive pamphlet.

“JOSEPH INCE.”

Our Foreign Correspondence.

FRANCE.

PARIS, July.

PHARMACEUTICAL progress in Great Britain is watched with much interest in France. The Liberal and Free-trading party are deploring the gradual sliding of our pharmaceutical liberties into the grooves of Governmental education. A stormy meeting of the Paris “*Société de Prévoyance*” was held last month, to which no reporters were admitted; one, however, had hidden himself under the President's bureau during the night, and from that awkward position witnessed a scene even more exciting than that of the late meeting at Bloomsbury-square. The subject was, as usual, the heartburnings between first and second-class pharmaciens.

I assisted the other day at an examination of herbalists, amongst whom were several young ladies, whose quick, able, and ready answers contrasted formidably with the slow, pompous questions of the examiners.

Since the question of establishing a distinct College of Pharmacy is mooted, it is to be hoped that lucrative professorships will be open to men who have the gift of imparting knowledge, as well as that of possessing it, and that lecturers like Orfila, and demonstrators like Bunsen, will conduce to raise English Pharmacy to its due position. It would seem natural that a lecturer or teacher of such subjects as chemistry, materia medica, or botany would, by the constant repetition of the same old theme, become at least fluent, not to say eloquent; but to hear the mumbling, disconnected phrases, the jerky reiterations apparently produced by some thumb-squeezing process, generally addressed to the black board of the lecture theatre, is enough to disgust an intelligent student, and to send him to books, nature, and his own thoughts, to rear an edifice on his own foundation, and crown it by passing a successful and honourable examination.

Corporally in Paris, but mentally in London, an odd reflection has struck me by discovering some mouldering relics in an old trunk—a dozen mystic, wonderful white aprons! In France one would be taken for a *garçon de café*, if venturesome enough to don the white samite. Let us trace their origin. The transition of the fig-leaf into the apron is less incomprehensible than that of gourds into Frankish hats. With knowledge came aprons. The learned apothecary blushing hides his lights behind a white cotton pinafore, and eclipsing himself and his apron behind his smiling show-cases, contemplates the analogy between aprons, fig-leaves, and knowledge, and concludes the apron to be an old, very old badge of an inner consciousness of superior wisdom. Now, if aprons were of some peculiar shape or colour, distinctive emblems of pharmacy, mystically embroidered like a chasuble, with pestles and mortars or other heraldic devices woven by fair hands, might not the youthful knights of the order feel proud of their craft; might not the grand master and the past grand masters of Pharmacy be decorated with elaborate aprons of divers colours; might we not appear on conversazione nights in magnificently jewelled resplendencies, the envy of freemasons and household troops, and the admiration of nursemaids and little boys? The great houses who keep up the traditional apron we can't directly blame, they fought well for pharmacy, and deserved the thanks of the younger craftsmen; yet why should they, who once behaved so liberally, force their peculiar ideas upon those who, by example and precept, may become the future beacons of pharmacy? To compel an educated man to wear a humiliating badge, and at the same time expect him to have the attainments of a scholar and a gentleman, is so utterly out of place, so ineffably ludicrous, and such an absurd anachronism, that common sense revolts at the fact. In these days of progress, let intelligent men do as they like, wear aprons and moustachios if they like, but don't compel them to clothe themselves in what is a visible lie to their mental qualifications. I have seen them worn in Paris by the hospital dispensers; but even they are free to do as they choose, and living as it were in a little world of their own, like frogs in a pumpkin, are not amenable to the criticism of external *sublimcs*, or would-be Utopians.

All your readers are aware that the cesspool system obtains in France, and that the splendid drainage works, subways for the telegraph wires, water, gas, and pneumatic tubes of Paris are only utilized for the clearest of waste water. An interesting trip is that made in cars in the subway from the Place du Châtelet to the Madeleine, where the main outfall sewer commences, and the journey to the outlet at Asnières is continued in a boat. The periodical emptying of the cesspools, and the frequent stench pervading even the best streets of Paris after midnight, have often taxed the Sybaris-like brains of the Paris genius, and as a result we have sundry systems of carrying off these faecal superfluities. None, however, surpasses that of the ingenious *Compagnie Barométrique*, whose immense iron cylinders, holding 5,000 litres each, are to be seen all over Paris after midnight. These cylinders are emptied by powerful air-pumps, and I am assured that a nearly absolute vacuum is obtained. Half-a-dozen of these enormous iron barrels line the side-walk of the house where the operation is to be conducted, each drawn by two horses; a mighty hose about a foot in diameter is adapted to each cylinder, and reaches to the bottom of the cesspool, the cock is turned on, a mighty rushing sound is heard for one second only, Nature has overcome her abhorrence, the hose is unscrewed, another cylinder on wheels draws up, and in less than ten minutes the cesspool is emptied without the loss of an atom of the precious article which is a source of

fortune to so many. From Paris it is conveyed to Bondy, and there covers a plain as far as the eye can reach, is desiccated, mixed with lime, and sold to farmers and market-gardeners as "poudrette," thanks to which we obtain our early peas, potatoes, and asparagus. The journals are accusing this plain of producing all kinds of epidemics; and the fact is, that when the wind is blowing from the north-east in hot weather, the stench is plainly appreciable to one's olfactory nerves. The indefatigable Mr. Calvert, who has been reading papers before the *Académie des Sciences*, the *Académie de Médecine*, and the School of Pharmacy, on the subject of carbolic acid, has requested permission of the Emperor to disinfect this plain with his acid.

A terrible accident occurred the other day at the School of Pharmacy. A student named Tronçay was heating a solution of sodic hyposulphite with nitric acid in a test-tube. Applying his nose to it, in order to recognise the smell of the disengaged sulphurous acid gas, a sudden ebullition lanced the whole of the burning liquid in his eyes. Notwithstanding the praiseworthy promptitude with which water was applied, the cornea of both eyes was destroyed. Dr. Gosselin, who happened to be present, could do nothing to relieve this horrible misfortune, which has deprived of sight a promising young man aged 24. When hurt, he shouted, *au robinet!* which one man construed as a call for the eminent professor of materia medica, and ran off to fetch M. Robinet, instead of taking his comrade to the water-tap.

Pharmaceutical Society of Great Britain.*

MEETING OF THE COUNCIL, June 1st, 1870.*

Present—Messrs. Abraham, Atherton, Bottle, Bourdas, Brady, Brown, Deane, Dymond, Edwards, Evans, Groves, Haselden, Hills, Reynolds, Sandford, Savage, Stoddart, Sufton, and Woolley.

Mr. Henry Sugden Evans was called to the chair, and took the same accordingly.

The minutes of Council on the 4th and 18th ultimo were read and confirmed.†

This being the first meeting of the Council after the Anniversary, the election of Officers for the ensuing year was proceeded with by ballot.

ELECTION OF PRESIDENT.

Ballot 1.—Sandford	5
Evans	4
Hills	4
Haselden	3

Mr. Sandford begged to be excused from accepting the honour of the Presidency, in consequence of feeling unable to devote the necessary time to its duties.

Mr. Evans also expressed his inability to resume the office; whereupon a second ballot was taken, with the following result:—

Ballot 2.—Sandford	6
Hills	6
Haselden	3
Bourdas	1

Mr. Sandford and Mr. Hills being equal, a third ballot became necessary.

Ballot 3.—Sandford	10
Hills	6

Mr. Sandford was therefore declared President, and took his seat accordingly.

* From the *Pharmaceutical Journal*.

† In reference to the minutes of the meeting of Council on the 18th May, prior to the Annual General Meeting, it was

Ordered—That the following proceedings at that meeting should be recorded and published in the next number of the Society's Journal and Transactions.

"The subject of the proposed regulations for the keeping and sale of poisons having been brought under consideration, it was

"Moved by Mr. Abraham, seconded by Mr. Mackay—

"That, considering the memorials which have been presented against the proposed regulations, and the difficulties which are alleged to exist against their universal use, this Council, whilst still believing that the regulations in question are good, and that the objections against them are not well-founded, nevertheless recommend that, for the present, their adoption shall not be compulsory, and that their further consideration be deferred for a year."

"Moved by Mr. Edwards, seconded by Mr. Ince—

"That this Council pass on to the Annual Meeting.

"Mr. Edwards's motion having been put, the following voted:—

"For—Messrs. Bottle, Bourdas, Carteghe, Deane, Edwards, Haselden, Hills, Ince, Morson, Sandford, Stoddart, and Williams.

"Against—Messrs. Abraham, Brady, Mackay, Randall, and Savage.

"The Chairman declared the motion carried, and the Council passed on accordingly."

VICE-PRESIDENT.

The ballot was then taken for the election of Vice-President, with the following result:—

Haselden	3
Hills	2
Savage	2
Bourdas	1
Brady	1
Reynolds	1

Mr. Haselden was then declared Vice-President for the ensuing year.

Thomas Hyde Hills was unanimously elected Treasurer.

Elias Bremridge was elected Secretary and Registrar.

Richard Bremridge was elected Assistant-Secretary and Deputy-Registrar.

The following Committees were appointed:—

General—The whole of Council.

Finance—Messrs. Abraham, Bottle, Bourdas, Dymond, Evans, Hanbury, and Stoddart.

Library, Museum, and Laboratory—Messrs. Abraham, Bourdas, Brady, Edwards, Groves, Hills, Mackay, Reynolds, Sufton, and Woolley.

House—Messrs. Bourdas, Deane, Edwards, Hanbury, and Hills.

Benevolent Fund—Messrs. Abraham, Bottle, Bourdas, Dymond, Evans, Hanbury, and Stoddart.

Parliamentary—Messrs. Abraham, Atherton, Bourdas, Brown, Edwards, Evans, Hills, Hanbury, Mackay, and Savage, with power to add to their number.

Publication of Council Minutes—The President, Vice-President, and Mr. Edwards.

Moved by Mr. Brown, seconded by Mr. Deane, and—

Resolved—That the attendances on Committees for the past year be reported in the ensuing number of the Journal, and that in future such attendances be published annually.

On the motion of Mr. Brady, seconded by Mr. Dymond—

That a ballot be taken for the appointment of Examiners for the ensuing year.

The following twelve Pharmaceutical Chemists were elected and appointed for England and Wales, for the ensuing year, subject to the approval of the Privy Council:—

Allehin, Alfred	London.
Bird, Augustus	London.
Carteghe, Michael	London.
Cracknell, Charles	London.
Davenport, John T.	London.
Deane, Henry	Clapham.
Edwards, George	Dartford.
Gale, Samuel	London.
Garle, John	Bickley, Kent.
Hanbury, Daniel	London.
Ince, Joseph	London.
Southall, William	Birmingham.

The following six Pharmaceutical Chemists were appointed Examiners for Scotland for the ensuing year, subject to the approval of the Privy Council:—

Ainslie, William	Edinburgh.
Aitken, William	Edinburgh.
Brown, David Rennie	Edinburgh.
Buchanan, James	Edinburgh.
Kemp, David	Portobello.
Young, James Robert	Edinburgh.

The President and Vice-President are on all Committees *ex officio*, and on the respective Boards of Examiners in London and Edinburgh.

The Report of (Messrs. Evans, Haselden, and Bourdas, who acted as) the Finance and House Committee in auditing the accounts for the past month was presented, showing on the General Fund account a balance in the Treasurer's hands of £2,219 12s. 5d., and submitting for payment accounts amounting to £864 18s. 5d.; and on the Benevolent Fund account a balance of £449. 19s. 1d.

Resolved—That the Report be received and adopted, and payment s made.

Resolved—That the Finance Committee be requested to take into consideration the Funded Capital of the Society, with a view to its more advantageous investment, and that they be requested to report to the Council thereon.

Resolved—That the Reports of the Library, Museum, and Laboratory Committees of the 11th and 17th ult. be received and adopted.

Resolved—That free Laboratory instruction be given to the Jacob Bell Scholars for the session 1870-71.

Moved by Mr. Deane, seconded by Mr. Brady, and

Resolved—That Mr. G. F. Schacht be requested by the Council to deliver the Introductory Address to the students at the formal opening of the Session in October next.

Resolved—That the Reports of the Conversazione Committees of the 11th and 17th ult. be received and adopted.

Resolved—That the best thanks of this Council are due, and are hereby offered, to their Lordships the Committee of Council on Education for the use of the South Kensington Museum on the 18th May for the purpose of holding the Society's Conversazione.

Resolved—That the Secretary be requested to convey to the Official Staff of the South Kensington Museum the best thanks of this Council for the prompt and energetic manner in which the whole of the arrangements for the Society's Conversazione on the 18th ult. were carried out.

Resolved—That it is expedient to elect two Annuitants on the Benevolent Fund in October next, and that the Secretary be requested to announce in the usual channels the intention of the Society so to do.

The Secretary reported that from nearly one-third of the places to which nomination papers for Local Secretaries had been sent no return had been made; whereupon it was

Moved by Mr. Hills, seconded by Mr. Deane, and

Resolved—That the Report of the Scrutineers in reference to the Nominations of Local Secretaries for the ensuing year be referred

to the Parliamentary Committee for consideration, and that the Committee be also authorised and empowered to arrange for the Nomination of Local Secretaries in those districts from which no return has been made, and report to the Council at their next meeting.

RESIGNATION OF MR. W. DICKINSON.

The Special Report of the Scrutineers was read, and the following resolution, passed at the adjourned Annual General Meeting, held on the 24th of May, was taken into consideration:—

"That the Council be requested to take the Special Report of the Scrutineers into their earliest consideration, with a view to erasing the name of Mr. William Dickinson from the Register of Members."

The Secretary presented the following letter which he had received from Mr. Dickinson, accompanied by his Certificate of Membership:—

"London, May 25th, 1870.

"To the Secretary of the Pharmaceutical Society of Great Britain.
Sir,—I beg leave to tender my resignation as a Member of the Pharmaceutical Society of Great Britain.

"I am, Sir, your obedient servant,
"Wm. Dickinson."

Resolved—That inasmuch as the resignation of Mr. William Dickinson relieves the Council from the unpleasant duty of expelling him from the Pharmaceutical Society, his resignation, now tendered, be accepted, and that his name be erased accordingly from the list of Members.

Resolved—That the Treasurer be requested to pay to each of the Scrutineers who attended the second scrutiny on the 23rd ult., the sum of Two Guineas, for his services on that day.

JOURNAL.

Moved by Mr. Brady, seconded by Mr. Dymond—

That in view of the impending change in the mode of conducting the *Pharmaceutical Journal*, and in order to introduce the New Series under conditions the most favourable for commanding literary and financial success, the Secretary be instructed to insert advertisements forthwith in the *Times*, *Athenaeum*, *Chemical News*, *Scientific Opinion*, and *Nature*, inviting applications from gentlemen capable of undertaking the duties of Editor and Sub-editor respectively. All applications to be forwarded to the Secretary on or before the 18th June.

Amendment—Moved by Mr. Groves, seconded by Mr. Abraham—

That the question of advertising for applications to fill the post of Editor be postponed for six months from this date.

On a division taking place, Mr. Savage demanded that the voting should be by ballot. Ballot—For the Amendment, 9. Against, 10.

The Amendment was therefore lost.

The original Motion was then put, and the voting was again taken by ballot.

Ballot—For the Motion, 13. Against, 5.

The Motion was therefore carried.

Moved by Mr. Brady, seconded by Mr. Dymond, and

Resolved—That a Special Committee be appointed to arrange for the due publication of the Journal until the Editor of the New Series enters on his duties, and to meet on the 21st June to select from such applications as may have been made for the Editorship and Sub-editorship, a limited number for the consideration of the Council.

Resolved—That the following gentlemen constitute the Special Journal Committee: The President and Vice-President; Messrs. Dymond, Edwards, Mackay, Reynolds.

Moved by Mr. Dymond, seconded by Mr. Stoddart,

That it is desirable on the New Series of the *Pharmaceutical Journal* that the proceedings of this Council be more fully reported in that and other Journals, and that, under regulations, Reporters be admitted to the meetings of the Council.

Amendment—Moved by Mr. Abraham, seconded by Mr. Edwards,

That this Council is of opinion that no periodical publication would afford space for the publication of the speeches and proceedings which occur at its meetings; that the adoption of the Motion would lead to partial reports, which would not afford the information desired; and that the presence of Reporters would lead to the suppression of inquiries and discussions which are now common, with the result that such matter would be left to Committees, in which the country members could only partially share.

For the Amendment—Messrs. Abraham, Atherton, Bottle, Bourdas, Deane, Edwards, Evans, Groves, Haselden, Hills, and Sandford.

Against—Messrs. Brady, Brown, Dymond, Reynolds, Savage, Stoddart, and Woolley.

The Amendment was therefore carried.

The Amendment was then put as a substantive Motion.

For—Messrs. Abraham, Bottle, Bourdas, Deane, Edwards, Evans, Haselden, Hills, and Sandford.

Against—Messrs. Brady, Brown, Dymond, Reynolds, Savage, Stoddart, Sutton, and Woolley.

The Chairman declared the substantive Motion carried.

Moved by Mr. Abraham—

That this Council is not disposed to object to the admission of Reporters during the discussion of questions which greatly interest the members, and is of opinion that such questions should not be decided until the members have been fully notified that they are under the consideration of the Council.

The Motion was not seconded.

Moved by Mr. Sutton, seconded by Mr. Brown—

That the shorthand-writer of the journal be employed to take down the proceedings of the Council at their meetings, and that the matter so obtained be placed on record for reference, and for the use of the Publishing Committee of the Society's journal or other public papers, at the discretion of the Council.

For—Messrs. Brown, Sutton, and Woolley.

Against—Messrs. Abraham, Bourdas, Deane, Edwards, Evans, Haselden, and Hills.

The Motion was therefore lost.

Chemistry and Pharmacy.

ON A VARIETY OF DEXTRINE INSOLUBLE IN WATER.

M. MUSCULUS describes, in the *Journal de Pharmacie et de Chimie*, a variety of dextrine insoluble in water. He had prepared this substance by heating starch grains with glacial acetic acid, the product retaining the organisation of the starch grains from which it was obtained, although chemically altered. This insoluble variety may be rendered soluble by heating for ten or twelve hours to 202° Fahr. By evaporation, a yellow powder analogous to ordinary dextrine is obtained. By stopping the evaporation when a syrupy consistence has been attained, and allowing the concentrated solution to strain for some days, an insoluble matter is deposited, which may be washed with several quantities of water, and which consists of insoluble dextrine, having, however, lost the structure of the starch grains, examination indicating nothing more than an amorphous powder.

ON THE ACTION OF SUGAR ON CINCHONA BARKS.

In the *Union Pharmaceutique* an article occurs which draws attention to a proposed modification in the method of preparing quinine wine. In a note on the action of sugar in the preparation of cinchona bark, M. F. Defresne confined himself to proving the easy solubility of cinchona red in saccharine fluids. The present article sets forth the interest which would be attached to a study of the solvent action of sugar on the compounds of the alkaloids. It is proposed that quinine wine be prepared by the simple maceration of powdered cinchona in a dilute syrup, and subsequent filtration. With rapidity of execution this process unites the advantage of avoiding the addition of alcohol to the wine. The quantity of sugar may be so small as to be unnoticed; the bitterness equal to that of ordinary quinine wine. A sample exposed for fifteen days experienced no alteration. The comparative analysis of samples of wine prepared by each process furnished sufficiently accordant results.

ON THE PREVENTION OF MOULDINESS IN SOLUTIONS OF TARTARIC ACID.

Mr. W. H. Wood has made experiments with the view of discovering a method of preventing the mouldiness which occurs in aqueous solutions of tartaric acid, shortly after their preparation; he communicates a preliminary note on the subject to the *Chemical News*. The author found that a single drop of creosote effected the preservation of an ounce solution of one part acid and two parts water. In Bowman's "Practical Chemistry" a similar method is mentioned, where it is stated that the mouldiness "may be prevented by adding a very minute quantity of carbolic acid. . . ." Mr. Wood further discovered, that if a solution of tartaric acid in water, whether mouldy or not, be filtered, and then boiled for a short time (say ten minutes) it will not afterwards become mouldy, whether corked or stoppered up in a bottle, or left exposed to the air. Further experiments are promised.

PRODUCTION OF SULPHATE OF SODIUM FROM GYPSUM.

H. Remoch describes a method by which he has succeeded in preparing sulphate of soda from gypsum. He mixes two parts of sulphate of lime or gypsum with one part of carbonate of ammonia; on pouring water over this mixture, complete decomposition of the gypsum ensues, sulphate of ammonia and carbonate of lime being formed. The sulphate of ammonia is, in its turn, decomposed by means of common salt, the result being the formation of sulphate of soda and chloride of ammonium, the latter salt

being reconverted into carbonate of ammonia by treatment with chalk.

CLARIFYING OF MUDDY WATER BY SMALL QUANTITIES OF SALINE SOLUTIONS.

Dr. C. Schlössing states, in an article in the *Comptes Rendus*, that waters contaminated by floating particles of clay may be readily clarified by small quantities of salts of lime. It is well known that the water of rivers after a heavy fall of rain or snow, and sometimes throughout the winter, does not become quite clean by deposition, even if left undisturbed in large reservoirs for a long space of time. The author recommends the addition of 1-1000th part of chloride of calcium for one part of water (or 70 grains to the gallon), a quantity which effects clarification in a moment. The precipitated substance can be readily separated by filtration. Other salts of lime, such as the nitrate and bicarbonate, and caustic lime, effect the same object.

ON SOLUBLE OXIDE OF IRON.

The preparation of soluble oxide of iron is the subject of a communication to the *Journal de Chimie Médicale* by M. Liébert. The author prepares this oxide of iron by dissolving sugar in a cold solution of pernitrate of iron, and adding a diluted solution of ammonia and sugar. The clear liquid thus obtained is mixed with four or five times its volume of strong alcohol, and the separation thus determined of yellowish-brown flakes which are washed with alcohol. This precipitate, when dry, was found to contain 43.59 per cent. of oxide of iron. It is a compound of sugar and iron, of a brown colour, inodorous, tasteless, easily soluble in water, and is precipitated from its aqueous solution at the temperature of ebullition.

Dissolved in waters, it does not give the usual reactions of iron, neither with ferrocyanide, nor with sulphocyanide of potassium; tannin causes a precipitate after some time; sulphhydrate of ammonium causes an immediate precipitate; and even the more feeble decompose it immediately, and then ferrocyanide of potassium causes a precipitate of Prussian blue. A syrup can be prepared with this compound of a beautiful reddish-brown colour without disagreeable taste. This manner of administering iron presents real advantages.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

STOMACH STAGGERS.

THIS disease, sometimes called "Grass Staggers," is a disease in which the brain is affected functionally, dependent upon impaction of the stomach. Though horses fed in the stable on dry indigestible food may be affected, the most common victims are young animals at grass in the autumn. The predisposition in autumn to its production may be accounted for by the rainy weather common at that time and by the extra quantity of withered herbage.

The symptoms are—dullness, disinclination to move, fullness of the abdomen, perhaps distension and constipation. There is not, apparently, much pain: whether standing or lying, the animal is moderately still. The breathing is slow and heavy, and the pulse below the usual standard, beating only thirty or thirty-five times in a minute, instead of about forty. Another disease, known as sleepy staggers, is somewhat similar in its symptoms, but it is a true brain disease. Whereas stomach staggers occur suddenly, and soon ends in death or recovery, the other comes on gradually and runs a slower course. The former,

again, though attended by sluggish movements of the intestines, does not present the marked fullness and constipation of the latter.

A *post-mortem* examination of a case of stomach staggers shows that not only is the food in the stomach undigested, but that it is there collected in such quantity as to have distended and paralysed the coats of the organ. There is no appearance of inflammation.

The stomach of a horse distended with food offers a difficulty not met with in other animals. The contents must pass on into the intestines; the animal cannot vomit. There are a few exceptional instances on record where vomiting has occurred in horses, in cases of ruptured stomach, disease of the gullet just at its entrance into the stomach, and in cases of distension. In stomach staggers, however, vomiting is only an aggravation, not being powerful enough to do good, and hindering the administration of medicines.

Our treatment, then, must aim entirely at getting the mass of food into the intestines, for which purpose we rely on purgatives and stimulants.

The condition of the stomach is not favourable to the solution and absorption of solid matters; we should then not give balls or powders, but trust to solutions, and these as strong as possible—I mean in as little water as is necessary to dissolve the medicament.

As purgatives, we may give aloes in six or eight drachm doses, with, if a bad case, ten or fifteen drops of croton oil. Stimulants are necessary to rouse the stomach to action, and to excite the nerves. As such we may give

Ether Sulph. ℥ss.

Tinct. Zingib. ℥j.

every three or four hours, or a wineglassful of any spirit may be given with two drachms of carbonate of ammonia at similar intervals. Should a change for the better take place, stop all the medicines for a time, and allow no food for at least twelve hours. Should the symptoms remain urgent, and the head symptoms increase to blindness, give larger doses of carbonate of ammonia and repeat the croton oil.

As in all cases attended by constipation, the use of enemata is a useful adjunct to other means.

RABIES.

The term canine madness is not expedient, as it leads persons to form a wrong idea of the disease—they are apt to look upon it as something similar to the condition known as madness amongst men. The term hydrophobia is also objectionable, as rabid dogs have no fear of water.

It is not my intention to enlarge on the pathology of rabies, but merely to point out the symptoms, correct one or two popular errors, and indicate the means to be adopted in case of an animal being bitten by a supposed rabid dog.

Symptoms.—The first noticeable change is a restlessness and disregard of familiar things; a capricious appetite, with a partiality for tearing up and swallowing all sorts of things, as sticks and all kinds of filth. The animal takes to howling, and snaps at anything approaching him; there is a peculiar wild look, the eyes steadily following anything moving in front, and also moving as if fixed on imaginary things; the nose and mouth are dry, there is intolerance of light, and difficulty of swallowing, which ends in paralysis and convulsions. Death occurs in about three or four days from the advent of an attack. There is what is called "Dumb Rabies," a form of the same disease, though characterised by different symptoms. It is more rapidly fatal, and is accompanied by a paralysis of the lower jaw, and a considerable discharge of saliva.

The barking, running, and foaming at the mouth often seen in dogs subject to convulsions, must not be mistaken for rabies. There are no specific lesions to be found in the bodies of rabid dogs; the most suggestive sign is the presence of rubbish and filth in the stomach.

Animals bitten by rabid dogs show symptoms of the disease in from about twenty days to three months: this period of incubation has been known to last as long as twelve months.

In case of a person being bitten by a doubtful dog, the only sensible plan is to cauterize the part and lock up the dog for a time. The custom of destroying the dog is founded upon the ignorant idea, that should the animal become rabid at some future time, the person bitten would suffer. The animal should always be kept alive so as to be certain whether or not it was affected. I believe many persons suffer great anxiety from an innocent bite, which would be prevented by the positive proof of the animal showing no bad symptoms.

Now, as to the best way of destroying the poison of a bite. It must be remembered that rabies is a disease due to a specific poison, and that the saliva of an affected animal is charged with it. It never, even in dogs, arises spontaneously; it is communicable to all warm-blooded animals, and may thus be carried by wild ones. By a bite, the poison-bearing saliva is introduced into the wound caused by the teeth; from this it passes into the blood-vessels, and the disease follows. Various substances destroy the virus, as carbolic acid, nitrate of silver, caustic soda and potash, and the actual cautery.

The difficulty is in at once applying the agent before absorption has taken place. Should no medical man or chemist be at hand, a ligature, as a handkerchief or piece of string, should be tied tightly between the wound and the heart so as to stop the circulation; of course, this can only be done on a limb. The part may be sucked if the operator's mouth have no abrasions. No fluid caustic should be used, as it cannot be certainly applied to the bottom of the wound. No superficial caustic should be used as the tissues should be destroyed to some depth; for this reason I look upon nitrate of silver as practically useless. To the actual cautery there can be no objection, save the difficulty of finding a proper shaped instrument to fit the wound often caused by the long, thin canine tooth. Caustic potash and caustic soda are specially indicated, as they destroy and penetrate the tissues to a considerable depth. As was long since suggested, the best way of applying it is to keep on hand one or two small probes tipped with the caustic. They are made by melting the caustic and dipping in the probes till sufficiently covered, then keep them in an air-tight bottle ready for use. Perhaps I ought to except nitric acid from what I said against liquid caustics.

I do not think that excision of the part is expedient, unless in such a position as a finger or ear, capable of being removed *in toto*. The cutting out of a part leaves a surface most favourable to the absorption of any virus which might be left. Excision would require a skilled operator; anyone with a good nerve and steady hand could apply the caustic.

Homœopathy.

HOMEOPATHIC PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

THE second annual meeting of the above Society was held at the rooms, 445, Strand, on the 21st ult., and we are indebted to the *Homœopathic World* for the following report of the proceedings:—

The President read the annual report, which was of a

most encouraging nature. During the sessions two lectures had been delivered—one by Dr. Madden, on the Distinguishing Characteristics of Homœopathic Pharmacy, and one by Dr. Hamilton, on Botany. The latter will be printed (by kind permission) and circulated among the members. Five papers have been read by members, of which three—those by Messrs. Ross, Turner, and Parsons—have, by request, been printed and circulated among the members.

Besides other progress, the nucleus of a library has been formed, consisting of several excellent American and English chemical, pharmaceutical, and homœopathic standard works, which, with a microscope, will at all times be at the service of members.

The treasurer read his financial report, which showed that after paying printing, postage, and other charges—not omitting the £25 which was voted for the purchase of books and microscope—there yet remained a capital balance in hand. Votes of thanks were passed to the medical men and other friends of the Society, also to the retiring officers for the efficient way in which they have transacted the business of the year. The result of the election was—Mr. F. Ross, President; Mr. H. S. Ashton, Secretary; Mr. H. Turner, Treasurer. In consequence of the *bonhomie* which characterized the annual dinner last year, it was resolved to celebrate the termination of the second session in a similar manner, and Messrs. Turner and Parsons were requested to make the arrangements, and endeavour to induce country as well as London homœopathic chemists and their friends to join them at St. James's Hall at a date subsequently to be fixed.

HOMEOPATHIC LITERATURE.

Most homœopathic practitioners are very industrious in a literary as well as a medical sense. They read and write in support of their opinions with the utmost energy, and perhaps in proportion to their numbers they support more publications than any other special class or sect. For it must be remembered that though they are an increasing and a most respectable body, their numbers are still very limited. It would be hardly fair to give statistics, because we have no means of knowing how far their journals circulate outside the profession and the trade. In acknowledging the receipt of the current month's serials, we may be allowed to go a little beyond our usual practice to give a mention of their contents and features to those of our readers who, though they may not be absolutely homœopaths, are still sufficiently free from the homœopathophobia which seems to have afflicted a few (fortunately a very few) members of the trade. First comes the *British Journal of Homœopathy*, a quarterly journal of considerable bulk, containing, as a quarterly should, articles of solid value, with no attempt at frivolity, and, we should presume, commanding the services of the best men in the profession, and obtaining a very select class of readers. This is inevitable, from the price (5s.), and from the fact that the book is not exactly suited to the readers of railway literature, who constitute, perhaps, 99 per cent. of English readers. Nevertheless, the articles in it are often well worthy of study, and we observe that a sentiment of something like calm confidence in the absolute correctness of their own opinions seems to pervade the more polemical contributions, which, however, only occasionally appear. In the last number (which, by the way, has the respectable figure cxiii. on its title-page), the best article is one on a subject which, though it does not immediately affect homœopathy, is well introduced into this class of publication. It is a powerfully argumentative article in opposition to the Contagious Diseases Acts, by Dr. Acworth, and is the most complete statement of the arguments against these well-intentioned measures that we have yet met with.

After a laudatory review of the *Pharmacopœia*, the journal ridicules with much humour the seal of the Homœopathic Society which is stamped on the crown. The journal and the Society do not seem from this to be quite on friendly terms, but whether in this case, either, and, if so, which, has offended against the laws of heraldry, our attainments in that art will not permit us to decide. The *Monthly Homœopathic Review*, which (like the last), is published by Messrs. Turner and Co., of Fleet-street, is also supported by many of the chief of the profession, and besides being always ready to fight with any one who would discredit the system of medicine which it advocates, contains also a good share of medical articles and reports of what is called "drug-proving"—that is a course of experiments to which we presume any one of us will always be liable to whatever system we may submit to, in case we should be unfortunate enough at any time to become the victims of what the profession would regard and report as an "interesting" case. In the last issue, the *Homœopathic Review* quotes the article on "Snake Poison and its Antidote," which appeared in our columns last month, and which certainly affords some peculiar evidence of the existence of a natural law very much like that of "similia similibus curantur." The notabilia and correspondence pages of the *Monthly Homœopathic Review* generally provide some interesting matters. The *Homœopathic World* (Jarrold and Sons) is cheaper than either of them, being 4d. per month, and seems less specially addressed to the profession than to the public. It is always readable, and homœopathic information is carefully collected and selected for its pages. Thus we have shown that English homœopathy is well looked after, and will certainly not die out for want of trumpeters. Abroad, it is even more popular as a literary subject, and we may probably, at a future time, refer more particularly to foreign homœopathic literature.

DOMESTIC HOMŒOPATHY.

A correspondent of the *Homœopathic World* has carried his faith in the principles of the system to its logical conclusions, and is quite satisfied with the result. He is evidently one of the believers in the doctrine that trituration develops power, and this gentleman has tried the experiment on tea. He finds that 60 grains triturated to a fine powder, will yield a better infusion than 75 grains treated in the usual manner. As a matter of course, too, the tea is more promptly prepared by using the leaves in powder; but as the trituration would occupy some time, we cannot see much economy in this. The important discovery is the saving of 20 per cent. of material. The weather has been too hot lately for such violent exertion as trituration, but after next winter we warn the Chinese Chancellor of the Exchequer to look carefully to the resources of his country, as 20 per cent. off the tea exports will make a serious deficiency.

Dentistry.

BY W. E. DRISCOLL, BEDFORD, IND.*

CORRECT ARTICULATION.

IT is natural for a person to throw the lower jaw forward in biting with the front teeth, in order to bring the points of the incisors together. Some persons' inferior maxillæ have a play in this way of about one inch, and they are more apt to protrude the jaw to its utmost when taking a bite as a gauge for articulating artificial teeth, than to close the jaws as when at rest. It is useless to instruct the

patient to close the lower jaw as far back as he can, for, in trying it, he will do the very opposite. The absence of the teeth adds greatly to his confusion.

So that the correct articulation necessary to the beauty and use of artificial dentures becomes a matter of chance or good luck, without some plan which will result in the patient's raising the lower jaw in a way exactly as desired. To that end the following plan is offered: Before placing the wax in the mouth, instruct the patient to close the mouth as he would if intending to crush something very hard between the molar teeth; and after the wax is inserted, and before he begins to bite, as an additional precaution, place a finger on the masseter muscle, directing him to "bite hard there." If this simple plan has failed once in a hundred cases, it is now forgotten.

The try plate, which always adds very much to the time and trouble in making a set of teeth, and especially so where the patient resides at a distance, is by this plan rendered unnecessary.

NITROUS OXIDE GAS.

The following refers to some particulars which appeared in our last, respecting the above gas:—

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

Sir,—In your notice of our Nitrous Oxide Apparatus it is made to appear as if we only supplied the gas in bottles of 15 gallon capacity, whereas we have both 45 gallon and 90 gallon bottles as well, and also small 50 gallon bottles of the gas in a *liquid form*. The fluid capacity of our 15 gallon bottles is under 5 pints. Your correction of these little inaccuracies will oblige,

Yours faithfully,

17th June, 1870.

G. BARTH AND Co.

Photography.

MINIATURE APPARATUS FOR TOURISTS.

AN invention in the art of photography, especially useful to tourists, has been suggested by Mr. Ernest Edwards, and perfected by Messrs. Murray and Heath, of Jermyn-street. Its object is to avoid the cumbersome apparatus hitherto necessary, if the sightseer wished to bring away with him these lasting memorials of the scenes which he has visited. In Messrs. Murray and Heath's most convenient little apparatus, the trouble is reduced to a minimum, as will be seen from the following description. The little camera, the outside dimensions of which are 3½ in. all ways, with lenses for landscapes, architectural subjects, etc., and the necessary slides for twelve pictures or negatives, are very readily carried in the pocket, or, if preferred, can be packed into a small leather sliug-case measuring 7 × 4 × 7½ in. deep, and weighing, with plates, 4¼ lb. It is only necessary to carry, in addition to this, a small stand not heavier or mere bulky than an ordinary alpenstock. The process that is worked in this so-called (and very justly so) "Miniature Apparatus" is so simple that no previous knowledge of photography is necessary for the amateur to make pretty sure of obtaining good results. The plates are ready prepared, and, we are informed, will keep any length of time, and can be developed at any period after exposure, so that the traveller brings home exact transcripts of whatever he may desire, with no further trouble than pointing the camera at the object to be taken, and opening the slide containing the prepared plate. The plates so exposed can be returned at convenience to the makers, to be developed and printed. Of course the negatives and prints thus obtained are very minute, some 2¼ in.

* From *Dental Cosmos* (Philadelphia).

square, but even of this size they are perfect little gems. Should a larger size finished picture be desirable, having once obtained the negative, it can be enlarged to almost any extent. Some that we have examined are 24 by 19 in. Both landscapes and portraits are exceedingly beautiful, and much more valuable than ordinary photographic prints, because, no salts of silver or gold having been used in their production, they are entirely composed of the pigments used by the painter, and are therefore imperishable.



THE NEW ECLECTIC INHALER.

BY MORELL MACKENZIE, M.D. LOND., PHYSICIAN TO THE HOSPITAL FOR DISEASES OF THE THROAT.

IT has been said with truth that "good wine requires no bush," but the proverb does not apply to inhalers. So many inhalers have been brought under the notice of the Profession from time to time, that it is indeed difficult to select from among them.

As I do not consider it an advantage for any instrument to be associated with the name of any particular person, I have called this inhaler the "Eclectic," because it is believed to possess the good features of those that have gone before, without their defects. In addition, moreover, it has certain features entirely new.

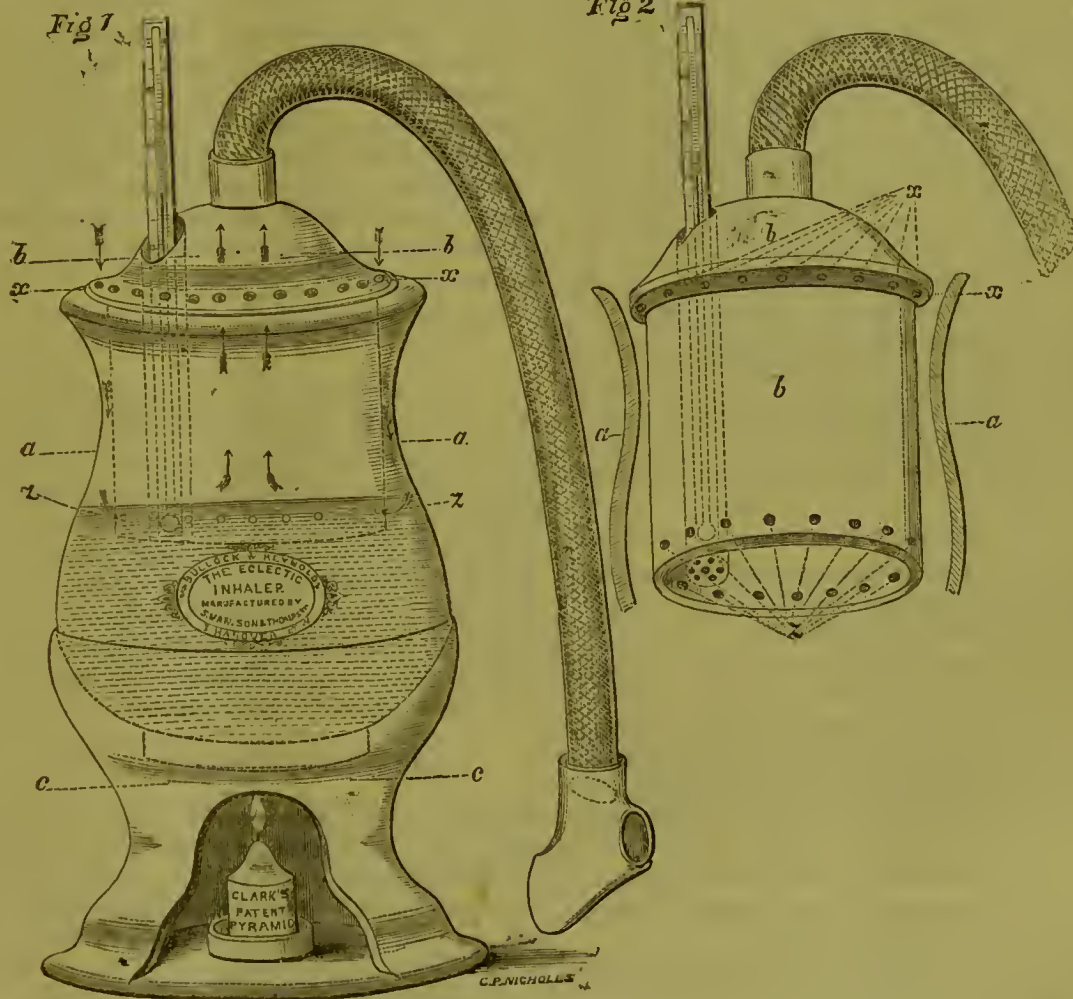
A good inhaler should possess the following properties:

1st. It should be capable of containing a sufficient quantity of water, and also space for holding a sufficient quantity of steam.

2ndly. It should provide for the perfect medication of the vapour inhaled, by necessitating the passage of air through the liquid; or, in other words, it should allow the patient to inhale, not merely the medicated steam ascending from the hot liquid, but air which has passed through the liquid and become saturated with the volatile matter. This has been called the hookah or bubble-bubble principle, and has been imperfectly provided for in many inhalers.

3rdly. It should require very little effort on the part of the patient.

4thly. It should be capable of being kept at a uniform or nearly uniform temperature.



There are Curtis's, Nelson's, Watson's, Maw's double-valve apparatus, and a host of others, all more or less good, but all having some disadvantage.

The necessity for constructing some more perfect apparatus, led me four years ago to commence a series of experiments in connection with the subject, and in my investigations I have had the valuable assistance of Messrs. Bullock and Reynolds. A great number of instruments have been constructed under my direction. The result of my labours is the inhaler now devised.

5thly. It should be capable of being easily cleaned.

6thly. It should be capable of being used in either a sitting or recumbent position.

That the Eclectic Inhaler fulfils all these conditions will be now shown:—

a. It holds a pint of hot water, and has a large air-chamber above.

b. The perfect medication of the vapour is insured by allowing air to pass through the medicated liquid on inspiration.

c. Absence of effort is secured by providing for the ample supply of air through the very numerous ingress holes (*x* and *z*), and for an easy passage of air through a large inhaling tube and mouthpiece; and by being constructed in such a manner that the lower ingress holes are only covered by about half an inch of the medicated liquids.

d. The temperature is maintained by a Clark's night-light, and regulated by a thermometer.

e. Cleanliness is provided for by the construction of the apparatus.

f. The use of the inhaler in any position is secured by the elastic inhaling tube, as in Curtis's.

DESCRIPTION.

The inhaler consists of three parts—*a*, *b*, & *c*.

a Is an open vase, and is essentially the containing vessel into which the hot water and medicated solution are put. It is shown in Fig 1, with a pint of water in it, and above the water line is a large space for the steam.

b Is a kind of lid, resembling an inverted tumbler. It is shown in Fig 1, forming the lid of the containing vase, and in Fig 2, with the sides of the vase drawn diagrammatically. The bottom of the tumbler forms the covering of the vase, and the sides of the tumbler dip down into it, leaving an air chamber between the two parts. When the vase has its proper quantity of water, the sides of the inverted tumbler or lid dip down only about half an inch below the water line. The circumference of the lid is perforated with small holes, as seen at *x*, and the circumference of what would be the rim of the tumbler is perforated in the same way at *z*. The apertures, both above and below, communicate with the air chamber. When the patient inhales, air rushes through the various holes above at *x*, then through the air chamber, again through the series of holes at *z*, and finally up to the mouthpiece, as shown by the course of the arrows. In the centre of the upper surface of the lid is a projecting nozzle, to which is attached a flexible tube, provided at its extremity with a double valve earthenware mouthpiece. There is an opening in the lid through which a thermometer registering high temperatures passes into the water.

c Is a stand on which the vase rests, and is made hollow, so as to hold a night-light.

BRIEF DIRECTIONS FOR USE.

1. Remove the lid, and pour in a pint of boiling water; then add the medicated liquid, and replace the lid.

2. Light a (Clark's Pyramid) night-light.

3. When the thermometer falls to 150° Fahr. commence inhaling.

4. The patient may inhale for any length of time, from five minutes to half an hour, according to the circumstances of the case, but the mouth should not be kept continuously at the mouthpiece. *About six inspirations should be taken in a minute.*

5. Inhalations should, as a rule, be taken before meals.

6. In order to avoid taking cold, the patient should not go out of doors for half an hour after inhaling.

The Inhaler has been manufactured for Messrs. Bullock and Reynolds, by Messrs. S. Maw, Son, and Thompson.

RIMMEL'S DUGONG OIL SOAP.

We have been favoured with a private view of Mr. Rimmel's contribution to the forthcoming Exhibition at Naples, and have been much impressed by the taste displayed in the arrangement of the samples of soap which are intended to represent the heavy work of the perfumer. A beautiful block of light-green soap inscribed with the word "Dugong" particularly attracted our attention, and as the results of a

subsequent examination of this new soap are most satisfactory, we have much pleasure in bringing it under the notice of our readers. The oil used in the preparation of this soap is obtained from the Dugong, a cetaceous animal found in the Southern Seas, and it is characterised by



THE DUGONG.

properties which indicate its peculiar fitness for the purpose to which it has been applied. It forms a very delicate emollient soap of firm consistence, free from offensive odour. The soap now under notice is scented with the essence of Eucalyptus, an article introduced into perfumery by Mr. Rimmel in 1862. The numerous species of the closely allied genera *Eucalyptus* and *Melaleuca* found in Australia, are remarkable for their aromatic foliage. A sample of oil distilled from the leaves was sent to the Exhibition of 1862, in the hope that it would be found useful in painting. Mr. Rimmel, struck with its peculiar odour, made it the subject of a series of experiments, which led him to employ it in combination with other essential oils for perfuming soaps. This application of the oil of Eucalyptus has had the effect of quadrupling the market value of the product. We prefer this perfume to any of the common scents used for toilet soaps. The Dugong Oil Soap will doubtless become a standard article in Mr. Rimmel's varied stock of sweet-scented things.

WHITEHEAD'S SOLIDIFIED SOUP SQUARES.

On the eve of going to press, we have received a sample of Messrs. Whitehead and Co's Solidified Soup Squares. The essence of beef manufactured by this firm at the Clarence River, Adelaide, South Australia, has obtained such distinguished approval in high medical quarters, that we should not hesitate to recommend any similar preparation bearing their names. But, for conscience sake, we tested this solidified soup, culinarily, and can testify with confidence to the perfectly correct flavour thus produced. They are sent out in a most attractive form, and we are confident will please the public wherever they are introduced.

LIEBIG'S MALTED FOOD EXTRACT.

MESSRS. MILLARD AND SONS, have called our attention to a preparation which evidently deserves special notice. The title quoted above conveys a fair idea of the composition, as it has a sweet malty flavour exceedingly pleasant, and giving one the idea that it would make a food, at the same time nutritious and slightly stimulating. It is recommended as a substitute for tea, coffee, or chocolate, and for invalids and infants. We imagine that a food of this character would be especially advantageous to persons who suffer from habitual constipation.

MOLLARD'S MEDICINAL SOAPS

SOME samples of these soaps, most beautifully manufactured, have been sent to us by the maker, an eminent *pharmacien* of Paris. The samples before us are soaps medicated with sulphur and iodide of potassium. The latter we have notice

more particularly as being newer to us, and from the refreshing kind of sea air diffused by it in the apartment, from the moment of opening the packet. As M. Prestat, the maker, points out, the employment of medicinal baths, and the confidence in their efficiency, particularly in skin diseases, is widely extending, and it seems quite reasonable to assume that the use of soaps conveying similar agents to the skin, must be so much the more efficacious from the friction necessarily induced by their application. The other medicinal soaps of this manufacture, are camphor, iron, tar, and carbolic acid, and, as we understand our correspondent, they are supplied in the form of cakes, powder, or cream, for the convenience of various methods of application, the last, we presume, being especially suitable for turning a simple warm bath into the required medicinal one.

HEYER'S PRINTING PRESSES.

PRINTER'S ink used in one form or another has become, *par excellence*, the best grease for the wheel of business; and there is nothing much more certain than that faith in its virtues and perseverance in its employment will be rewarded with success. The use of it, however, for purposes of advertisement may be regarded as a sort of luxury; to many tradesmen, and to none so especially as chemists and druggists, it is a daily necessity. An acquaintance with the rudiments of the art of printing is a valuable attainment, and to be able to print oneself is a further step in usefulness. For these objects Mr. Heyer, of 101, Leather-lane, has invented a series of small presses, which, with a very little practice, can be efficiently worked by the most perfect novice. The smallest is not by any means a mere plaything, and all seem made for work. Sizes and prices are mentioned in an advertisement. The same machines are instantly changed into copying presses by the simple process of removing the tympan and bed.

CUBEBS CAPSULES (DELPECH.)

M. DELPECH, of Paris, (among the first of the *pharmaciens* there) has sent us samples of his capsules as above entitled, which are somewhat peculiar. They do not contain the mere oil of cubebs which, according to many authorities, is almost, if not quite inert, but a peculiar syrupy extract, which during a series of experiments conducted for the eminent surgeon, M. Demarquay, M. Delpech had prepared some years ago by treating cubebs with alcohol and ether, and which is known by the untranslatable description of *Extrait Hydratocoolique Éthéré de Cubébe*. This liquid is of an olive-green colour, with a peculiar smell somewhat resembling peppermint, but still with an unmistakable flavour of the cubeb. It is said to represent about ten times its own weight of cubebs. Each capsule contains from 10 to 12 grains of this extract, and thus represents a dose of about two drachms of the powder. M. Demarquay writes ("Traité de Trousseau et Pidoux." 2nd volume) very highly of this medicine, which he gives in large doses four, six and even eight capsules daily, in the acute periods of the disease. M. Delpech also adds the names of many others among the chief French surgeons who employ this remedy, among them being:— Docteurs Trousseau, Demarquay, Duchesne, Dufour, Émile Dubois, Créquy, Josias, Lebled, Lhuillier, Liégeois, Marchant, Mallez, Paul Péan, Thierry-Mieg, Ricord, Voillemier, etc. We also observe in the "*Bulletin de Thérapeutique*," of April 15th, 1870, an account of a new form of preparing cubebs, called *Saccharure de Cubébe* (also by M. Delpech) which is referred to in an article by M. Vasin, on the treatment of diphtheria

and croup. This same extract is the foundation of the new remedy, but is reduced to one-tenth of its original strength (and therefore equivalent to the original drug) by admixture with sugar and gum. This is given dissolved in water in small doses, and it is said with remarkable success.

CATHERY'S BEETLE POISON.

EVERY one, except the beetles themselves, will thank us for introducing to their notice this efficient exterminator. Its chief attractiveness, of course, consists, paradoxically speaking, in its destructiveness; but to the trade, we may add, that it is put up in slow and good-sized boxes, which sell for sixpence each.

CONDENSED MILK.

"No milk, thank you," is an expression often heard at the tea-table, and the only wonder is that it excites so little astonishment. Did the man or woman who now uses the phrase, and by habit has, perhaps, come to believe that he or she really does not like this most natural of all foods, say, or even think, "No milk, thank you," on the first occasion of its being offered him or her? And by what process, then, has he or she developed into such a human monstrosity as in years of discretion to refuse the food which once he, she, or it, once lived upon exclusively? Has brandy vitiated the palate, and created a taste which nothing but fiery liquids can satisfy; or does the blame lie, on the reverse side, with the pumps of London, which have conspired, to some extent successfully, to show the superfluity of cows in the economy of nature? If the latter is the true explanation of the mysterious objection which a moiety of the human race have towards milk, we have discovered a remedy. We have received some samples of condensed milk, which have quite reversed the opinion we have hitherto held with regard to this manufacture founded on some that we tried some time ago, and which we found to be quite unpalatable. The first sample of the superior kind which we received was called the Gruyère Milk, and was sent to us by Mr. Neumark, of Oxford-street, whom we have hitherto known as the agent for Hoff's Malt Extract. He informs us that he is especially anxious to introduce this milk to the public through chemists, and we can confidently say that chemists will do themselves credit in selling it. The other sample was from the Anglo-Swiss Milk Company, in Leadenhall-street, and their article is evidently prepared in exactly the same manner, and might be from the same cows, so identical are the two kinds in purity, flavour, and strength. The only admixture in either case is refined sugar, and this makes it, when diluted with water, almost exactly resemble human milk, and therefore, no doubt, a most convenient food for infants.

The Crystal Palace Company have determined to raise £12,000 for the purpose of erecting an aquarium, for which the plans and drawings are being prepared, upon part of the ground which has lain unused since the fire. We believe they have placed themselves in communication with Mr. Alfred Lloyd, with a view to his undertaking the management.

Nature hears with great pleasure that an English friend has just received a letter from Baron Liebig, in his own handwriting, dated Munich, the 1st inst. Although still very weak, he is now able to get into his garden for some little time daily. If he continues to progress as he is now doing, he proposes going to Switzerland, to the Engadine, in three weeks, where it is hoped he may soon become quite strong.



Lessons in Elementary Botany. By DANIEL OLIVER, F.R.S., F.L.S. Based on the principles of the late Professor Henslow. Macmillan and Co., 1869. Price 4s. 6d. Second edition.

WE earnestly commend this little and admirable book to the notice of our junior students. It interferes with no other larger and more comprehensive manual; rather it is an excellent introduction to these elaborate works. We offer no criticism, but simply wish to tell those engaged in pharmacy what the book means. But it would be unjust not to state that, to our personal knowledge, it has created a love for the science about which it treats, and we believe one reason is, that it starts with no essay on abstract botanical research, but at once enters on practical details, thus: page 1 describes a buttercup. Take a spade, dig one up square, so as not to injure it. This plant, which can be found in so many places, has a root, a stem, foliage leaves, flowers, sepals, petals, stamens, carpels, fruit, seed, embryo and albumen. But, if it has, so have thousands of other specimens; and, in a week, an amount of real knowledge is thus obtained which is to some extent surprising. The stem is partially herbaceous; the leaves have an axil; the stem has *nodes* and *internodes*; there are *blades* and *petioles*; there are all sorts of leaf description, such as *cauline*, *sessile*, *hairy* or *glabrous*, and indeed, where does the description of a buttercup end? But we have no wish to prolong this enumeration, as the facts may be found in any botanical dictionary. Still, we say, they are grouped together in an interesting and instructive manner. The second chapter, also on a buttercup, tells about transpiration and absorption, organic compounds, carbon, assimilation, and organs of nutrition. Chapter III. treats about functions, characters derived from the reproductive organs forming the principal practical basis of classification. Here we stop to say that a precisely similar plan has been adopted in teaching practical pharmacy. Take an actual prescription, and let it be carefully read, terminations in full, and nothing slurred. Then take the separate ingredients. What is, for instance, Sp. Etheris Nitrici? how is it made? Why is the new process adopted? What is its medicinal use? These questions will not give a thorough insight into pharmacy, but they are an excellent introduction; they are but Oliver applied, and both lead directly to the wider study of the subjects with which they are connected. But the buttercup may to some extent be confounded with other common plants, due to modifications presented, owing to varying conditions of cohesion, adhesion, and suppression of parts. These are wallflower, pea, bramble, primrose, and others. All of these are described, and next we come to the daisy. It is difficult to express our admiration of this system of education. The plants are within reach of the humblest apprentice, and the descriptions may be understood by a child. We now come to the use of the schedule, one of which is given which, with slight modifications, may be adapted to many purposes.

OLIVER'S BOTANY. SCHEDULE.

ORGAN.	NO.	COHESION.	ADHESION.
Calyx sepals			
Corolla petals			
Stamens			
Pistil carpels			
Seeds			

It was designed by the late Professor Henslow for his University and village-school teaching. Students may draw

similar forms for themselves, but in these days of cheap and good printing, this seems a waste of time and money. Should four learners club together and have 1,000 blanks struck off, the expense would be almost nominal. We quote the next sentences in full, as they are characteristic:—

"The column headed No. (number) is to be filled with the real number of parts, whether free or coherent, in each of the four series of organs (calyx, corolla, stamens, and pistil) which compose the flower. Thus, in Buttercup, there are five free sepals; and in Deadnettle and Primrose five coherent sepals. This number must therefore be entered opposite *sepals*, under the No. column, and so on. These numbers, or a 0 opposite to an organ, necessarily indicate Suppression, when such occurs. Thus, in Deadnettle, with five sepals and five petals, there are but four stamens, one being suppressed, as we infer from the general constancy with which the parts, in each series of the flower in plants generally, correspond in number, or are multiples. We often find, however, more direct evidence in the presence of a rudiment of the suppressed organ.

"3. The column headed Cohesion is to be filled up with those terms which express or involve cohesion of parts, or the absence of cohesion. Thus, were Buttercup being described, *polysepalous* would be entered in this column, opposite to calyx; the calyx being polysepalous from the absence of cohesion between the sepals. Deadnettle and Primrose, on the other hand, would be described in the same place as *gamosepalous*, the gamosepalous condition arising from cohesion of the sepals.

"4. The last column, headed Adhesion, is for terms which, in like manner, express or involve adhesion of parts, or the absence of adhesion. Thus, in the case of the three plants just referred to, *inferior* would be entered in this column opposite to calyx, the calyx being inferior because there is no adhesion between it and the ovary. Were Parsnip being described, the term *superior* would be entered in the same place, as in this plant the limb of the calyx becomes superior from the adhesion of its tube to the ovary.

"The terms employed in filling up schedules are:—

"Of the calyx (cohesion or its absence), polysepalous, gamosepalous; (adhesion or its absence) inferior, superior.

"Of the corolla (cohesion or absence of same), polypetalous, gamopetalous, (regular, irregular).

Of the stamens (cohesion or its absence). As it is important to note the number of stamens, and not simply to write polyandrous when the stamens are free, whatever their number may be (as you write polysepalous and polypetalous of calyx or corolla when their parts are separate), write, before the termination -androus, the Greek numeral prefix denoting the number of free stamens, thus:—

If 1.	2.	3.	4.	5.	6.	7.
mon-	di-	tri-	tetr-	pent.	hex.	hept-androus
8.	9.	10.	more than 10.			
oct-	enne-	dec-	poly-androus.			

"If the stamens cohere by their filaments, they are mon- di- or poly-adelphous; if by their anthers, they are syngenesious.

"(Adhesion or its absence) hypogynous, perigynous, epigynous, epipetalous, gynandrous.

"Of the pistil (cohesion or its absence) apocarpous, syncarpous; (adhesion or its absence) superior, inferior. To denote the number of carpels constituting the pistil, whether they be free or coherent (if the latter the number being inferred from the divisions of the style or stigma), the same Greek numerals as are employed to indicate the number of stamens are prefixed to the termination -gynous. Thus monogynous signifies with one style or stigma, polygynous with many styles, or stigmas, or distinct carpels. I have omitted these terms in the schedules of the type-species in Part II. of this book, simply noting whether the pistil be apocarpous or syncarpous. The number of carpels is given in the No. column.

"Of the perianth (cohesion or its absence) polyphyllous, gamophyllous (regular, irregular); (adhesion or its absence) inferior, superior.

"6. The schedule here given, by way of example, is filled up from the Buttercup:—

ORGAN.	NO.	COHESION.	ADHESION.
Calyx. sepals.	5	Polysepalous.	Inferior.
Corolla. petals.	5	Polypetalous, (regular).	Inferior.
Stamens. filaments. anthers.	∞	Polyandrous.	Hypogynous.
Pistil. carpels. ovary.	∞	Apeecarpous.	Superior.
Perianth. leaves.	†	†	†
CLASS.	DIVISION.		NAME.
Dicotyledon.	Thalamifloræ.		Buttereup.

"N.B.—The sign ∞ denotes many. No entry is made opposite to perianth (†), because it is described as calyx and corolla in the case of Buttereup and other dichlamydeous Dicotyledons."

Henceforth we enter into the more minute details of plant-structure. What constitutes a root is the invariable question at our examinations? Why is it not a stem? Then leaves and inflorescence. What is a *spike*, and what a *raceme*; a *corymb* or an *umbel*; what a *panicle* or a *bract*? How would you describe an orange, or a cherry, or an apple? and what is the meaning of Achene, Drupe, or Capsule? Such information can be most readily acquired in these pages. We must not linger. Part II. consists of the classification of plants of which we say nothing. Hard study here is wanted, still we would call particular attention to the schedules, and devoutly do we wish that some of our own men would extend and adapt the simple plan offered to strictly Pharmaceutical purposes. Let us know something about those great families which are in constant use in medicine—let us have in the same beautiful manner a description of *Conium maculatum*, *Atropa belladonna*, *Digitalis purpurea*, *Hyoscyamus niger*, *Solanum dulcamara*, and plants known by name to every apprentice. Enough about this small but admirable text-book—nothing could be more sensible or more calculated to interest the learner. Lastly let us say a word in favour of this class of study. May we endeavour to persuade our younger readers to enter on these pursuits. They will find them a perpetual spring of pleasure and satisfaction. Some amongst us (far too few) have distinguished themselves by their researches in Natural Science; they are not the worse Pharmacists because they have ventured on the immediate contemplation of the works of God. Thrice happy is the lot of him who has met with Nature in his walks—spoken to her face to face and heard the music of her actual voice. Let her but once have shown him her living books, the earth, the water, and the sky, and he will never—never—never give up the reading.

JOSEPH INCE.

The Practice of Perfumery. By R. JONES OWEN. London: Houlston and Sons.

In a small space Mr. Owen has here brought together a large amount of information on perfumery and kindred subjects, which, to chemists especially, will prove eminently useful. Following a pleasantly-written, though necessarily brief account of the history of the art and of the materials employed, we have a carefully compiled collection of formulæ for perfumes, and also for hair, skin, and teeth preparations. The processes are clearly described, and the recipes, though of course not original, seem to have been carefully selected. In one place, however, we find a strange blunder, resulting, as we presume, from our author's anxiety to obtain information from the most reliable authorities. On p. 58, with orange and elder flower water, a formula is given for rose water (and it is the only one in the book) which it is openly stated, is identical with the Pharmacopœia prescriptions for Inf. Rosæ.

Medd's Pharmacopœial Botany, the publication of which was announced in the *Chemist and Druggist* to commence on July 1st, will not appear until about the 1st of January, 1871.

The Unity of Medicine: its Corruptions and Divisions by Law Established in England and Wales; their Causes, Effects, and Remedies. By FREDERICK DAVIES, M.D., F.R.C.S., etc. Second edition. Churchills.

DR. DAVIES, the author of the above entitled work, is an earnest advocate of the union in one individual of the duties of the physician and of the surgeon. His work, first written in 1858, and now, in the second edition, "revised and extended to Ireland and Scotland," is an exhaustive history of the corruptions and divisions which have crept into medical practice from the days of Hippocrates until now. The tracing of this history is so thoroughly and so carefully accomplished that, on that ground alone, the book possesses a standard value. The rise and progress of the druggist's business occupies a large share of attention; and, though the author is evidently inclined to make short work of the 14,307 members of this trade who, we find from his statistics, infest England and Wales, yet we cannot trace anything like direct misrepresentation in his description of their origin and present position. The following sentence will convey an idea of the *animus* which exists against us even in the mind of a physician, so well educated and generally liberal, as Dr. Davies shows himself to be in other matters. He says (page 132), that "the physicians, surgeons, and apothecaries who are educated, examined, and commissioned by law, collectively, to practise medicine and pharmacy in England and Wales, are ample in numbers for all classes of the public, if rightly apportioned, and if each individual be restricted to his separate and distinct duties according to the example of all other nations, and that, therefore, the whole 14,307 druggists are supernumeraries!!!" The emphatic manner in which this last clause is printed is not originated by us. We should mention that the paragraph we have quoted is the summing up of a series of facts and figures, representing the position of the medical profession in all its branches in all civilised countries. From this table we gather that, while England and Wales supports one druggist to 1,253 inhabitants, the United States possesses one to 3,777, France one to 6,660, and Russia one to 86,957! The picture drawn of the condition of the country resulting from this state of things is, of course, most deplorable. Counter-practice is inevitable with such a small constituency attached to each druggist, and this is evidently assumed to be an unmixed evil. In no case does the author seem to regard it as open to argument even, that a chemist and druggist can be an intelligent man. He is, and ever should be, a hewer of wood and a drawer of water entirely at the service of the educated physician. While referring to this subject it may be well to point out that although the date 1870 is on the title page, it is repeatedly stated that the business of a chemist and druggist is quite open, and that the sale of poisons is unrestricted. To this free trade in poisons, and to this overcrowding and resulting poverty of druggists is traced, though not quite in an open manner, the whole infanticide of the country, and other crimes are darkly hinted at which we seem to be instructed would disappear from the land if the 14,307 supernumerary druggists were swept away. This part of the book, however, is comparatively incidental. The chief part of it is a valuable, and to us a specially interesting historical treatise. The invasion of medicine by the priests from the 6th to the 15th centuries who turned it into a sort of religious legerdemain, then its corruption by barbers to whom was deputed the chief part of the surgical work of this country from the 12th to the commencement of the 18th centuries, and finally the gradual growth of the apothecaries in public esteem and importance are all ably described. And though it may be admitted without any question that the fact of Hippocrates, Celsus, and Galen, having combined the offices now severally filled by the physician and the surgeon, is by this history sufficiently proved, we are not quite so certain that our author is so successful in his endeavour to show that this union ought to exist now. We fully agree with his objections to the shameful "milking" of patients which this double system of treatment may sometimes involve,

but this ago sees too clearly the advantages of a division of labour to allow it to look with much wishfulness for a return of the former times, although it would gladly hail the reappearance of such men as those we have mentioned; for reading a history like this, one cannot fail to be struck with the small service which our Royal Colleges have rendered us in the way of increased health, longevity, or happiness, notwithstanding all the grants, endowments, and enactments which the governing powers have made in their favour.

On Diet and Regimen in Sickness and Health. By HORACE DOBELL, M.D. London: H. K. Lewis.

As a rule we are not altogether favourable to "doctor's books," written expressly for general readers. If we admit, which we should not in every case, that the author's object was purely to enlighten his fellow men on subjects with which in the nature of things he must be more conversant than they, we should still question whether such knowledge was not a burden rather than an aid to the majority of those who acquire it. Many persons have an absolute passion for this class of literature. Amateurs though they are, they take more than a professional student's interest in the imaginary dissection of diseased bodies, and the alleged discovery of a new complaint may almost be said to add to their enjoyment. It is far from our intention to advocate the exclusive employment of the qualified physician in every little ill that flesh is heir to, or which flesh acquires; but we are convinced that there are many serious cases of real nervous prostration, if not of heart disease or something equally dangerous produced on persons of a certain temperament, who have in the way we have indicated, saturated their minds with this diluted medical knowledge. These thoughts are suggested by the fact that this little book of Dr. Dobell's is so completely different to the works to which we have just referred. It is in every sense a most healthy book. It contains just that information which not only every medical man must know, but which every individual ought to know. Without any straining at such an effect, it is written in a popular style, and conveys instruction which is well calculated to fulfil the hope expressed by the author in his preface, that it will make patients more "intelligent." The regulations for the preservation of health are laid down in a clear and concise, not to say dogmatic manner, and this we take to be a most valuable characteristic of such a work. The author has had a wide experience, and well knows from what slight and perfectly avoidable causes many serious cases result. It is to point out these that the book has been written, and in this, the fourth edition, it has been made much more complete. One of the additions, a chapter on disinfection, strikes as a very useful condensation of all that can be said on the subject, at least as far as the disinfection of sick rooms is concerned. This chapter is followed by one giving general and special directions for the sick room, including a number of recipes for many of the most ordinary requirements in the way of food as well as medicine. A series of tables have been introduced in the book, showing the requisite kind and quantity of food for patients in various diseases, in the treatment of which diet is an important consideration. But although in his directions Dr. Dobell is, as we said before, almost dogmatic, it will not be found by any reader that he is at all disposed to draw any hard and fast lines for the guidance of either patient or medical attendant. With one extract, which will prove this, and which may be read with advantage by many enthusiastic advocates of some one particular theory, we conclude our notice of a book, which though not bulky nor expensive, may be recommended as an excellent family companion, containing advice which, with ordinary intelligence, may save many a guinea and many a pain. In the introductory chapter the author refers to the "pseudo-medical dogmas," such as are involved in the terms allopathy, hydropathy, homœopathy, kinesiopathy, and in such expressions as 'a stimulating system,' 'a depleting system,' 'similia similibus curantur,' 'contraria contrariis curantur,' and the like. *I disclaim them all, and I feel sure that in this statement I express the sentiment of the majority of thinking medical men.* It is utterly unworthy of the professor of a science and art so great as medicine to pin himself to such narrow dogmas and rules of thought and practice, as are indicated by one and all of

these expressions. The practice of rational medicine having for its subject not only that most complex and wonderful fabric, the animal organism, but that organism endowed with all those attributes which place man but "a little lower than the angels," demands that there shall not be anything excluded from his service, and that every science and every art should continue at its bidding, to assuage the suffering and to save the life of Nature's highest earthly creature.

BOOKS RECEIVED.

- "Dr. Frankland's Lecture Notes for Chemical Students." Vol. I.; Inorganic Chemistry. Second Edition, (Van Voorst.)
- "Crookes on the Manufacture of Beet-root Sugar in England and Ireland." Illustrated with engravings. (Longmans.)
- "Wormell's Elementary Course of Hydrostatics and Sound." (Groombridge.)
- "Rimmel's Le Livre des Parfums." (Chapman and Hall.)
- "Hart's Elementary Chemistry." (Cassel, Petter, and Galpin.)
- "Suffolk on Microscopical Manipulation." (Gilman.)

LIST OF NEW BOOKS.

- Adams's Travels of a Naturalist in Japan and Manchuria. 15s.
- Barclay's Astronomical Observations, 1865-9. Vol. 2. 4to, 7s. 6d.
- Beale's (L. S.) Disease-Germs; their supposed Nature. 3s. 6d. cloth.
- Braithwaite's Retrospect of Medicine. Vol. 61. Cr. 8vo, 6s. cloth.
- Brook's New Family Herbal, new edition. 12mo, 5s. 6d. cloth.
- Clater's Cattle Doctor, by G. Armatage. New edition, illust. 15s.
- Chapman's Medical Institutions of the United Kingdom. 3s. 6d.
- Crookes on the Manufacture of Beet-Root Sugar in England and Ireland. 8s. 6d.
- Edinburgh Obstetrical Society's Transactions, 1868-9. 8vo, 6s. 6d.
- Edinburgh University Calendar, 1870-1. 12mo, 2s. 6d. cloth.
- Hart's Elementary Chemistry. 12mo, 3s. 6d. cloth.
- Houghton's Sea-Side Walks of a Naturalist. Cr. 8vo, 3s. 6d. cloth.
- Maevicar's Chemistry of Natural Substances. 8vo, 7s. sewed.
- M'Coll's Algebraical Exercises and Problems, &c. 12mo, 3s. 6d.
- Proctor's New Star Atlas for the Library, School and Observatory. Fol. 25s.
- Rankine's Half-Yearly Abstract of Medical Sciences. Vol. 51. 6s. 6d.
- Rimmel's Le Livre des Parfums. Illust. 8vo, 8s. cloth.
- Smith's Ratio between Diameter and Circumference. 8vo, 31s. 6d.
- Suffolk on Microscopical Manipulation. 12mo, 6s. cloth.
- Wallich's Eminent Men of the Day. Scientific Series. 21s. cloth.
- Wormell's Elementary Course of Hydrostatics and Sound. 3s.

Corner for Students.

CONDUCTED BY RICHARD J. MOSS.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The new editions of Pownce's *Manual of Chemistry*, and Atfield's *Chemistry: General, Medical, and Pharmaceutical*, supply the data required for calculations, and are recommended as text-books.

QUESTIONS.

First Division.

I. ORGANIC ANALYSIS.—In a determination of nitrogen, .67 of a gramme of an organic compound was mixed with soda-lime and ignited in a combustion tube; the evolved gas was passed through 20 cubic centimetres of a standard solution of sulphuric acid, containing two grammes of real acid (H_2SO_4) in 100 cubic centimetres, which quantity corresponded with 200 cubic centimetres of a solution of sodium hydrate. After the operation it was found that 18 cubic centimetres of the sodium hydrate solution were required for the neutralization of the acid. What was the percentage of nitrogen in the compound?

II. CHEMICAL TOXICOLOGY.—Describe a process for the examination of the contents of the stomach, in a case of suspected poisoning by hydrocyanic acid. Supposing the acid to be detected, how may the quantity present be approximately determined?

III. SUGAR.—By what chemical test may an aqueous solution of sucrose be distinguished from an aqueous solution of glucose?

IV. OXALIC ACID.—Give an outline of the principal properties of this acid and of the oxalates, and describe their principal reactions of analytical importance?

V. SPECIFIC GRAVITY.—An alloy of gold and copper has a sp. gr. of 16.38, in what proportion by weight are the two metals present? Specific gravity of gold 19.35, copper 8.85.

Second Division.

I. ARTIFICIAL OIL OF BITTER ALMONDS.—What is the substance known commercially as Artificial Oil of Bitter Almonds, and how is it prepared?

II. SOAP.—Explain the production of the curdy white substance produced by the action of soap on hard water?

III. VAPOUR DENSITY.—How are vapour densities ascertained? How do they affect the determination of molecular formulæ?

IV. DAVY'S SAFETY LAMP.—To what chemical facts are the peculiar advantages of Davy's Safety Lamp attributable?

V. SPECIFIC GRAVITY.—What is the specific gravity of a mixture consisting of 10 pounds of Linseed Oil, sp. gr. .930, and 8 pounds of Olive Oil, sp. gr. .915?

ANSWERS.

First Division.

I. ORGANIC ANALYSIS.—The formula of the sugar is $C_2H_{22}O_{11}$. The weight of carbon dioxide absorbed by the potassium hydrate solution is $(101.547 - 100.597 =) .950$ gm., which is equivalent to $\left(\frac{.95 \times 12}{44} =\right) .2591$ gm. of

carbon. The water absorbed by the calcium chloride weighs $(29.3865 - 29.029 =) .3575$ gm., and is equivalent to $\left(\frac{.3575 \times 2}{18} =\right) .0397$ gm. of hydrogen. By subtracting

the sum of the weights of these constituents from the quantity of sugar decomposed, we find the weight of the remaining constituent, oxygen, $.6175 - .2591 + .0397 = .3981$ gm. By dividing the quantities of carbon, hydrogen, and oxygen present by their respective atomic weights, we get numbers representing the atomic proportions in which they are combined, thus:—

$$\begin{aligned} C \cdot 2591 \div 12 &= .216, \\ H \cdot 0397 \div 1 &= .0397, \\ O \cdot 3981 \div 16 &= .2488. \end{aligned}$$

Taking the proportion of oxygen as unity, we get $O = 1$, $H = 2$, and $C = 1.0854$; and, by multiplying these numbers by 11 (the whole number that goes nearest to the removal of the fraction), we have the above formula.

II. OPIUM.—In examining a solution for opium, it is usual to test for morphia and meconic acid, two of the more important constituents of this substance. For this purpose, the liquid should be evaporated nearly to dryness on a water-bath, the residue digested in a dilute solution of acetic acid, filtered, and to the filtrate a solution of lead acetate is added; the meconic acid, if present, will be precipitated, whilst the morphia will remain in solution in combination with acetic acid. The mixture should then be warmed, allowed to cool, and then filtered. The precipitate, after being well washed, should be suspended in water, and subjected to the action of hydrogen monosulphide; by this by this means the lead is precipitated as sulphide and the meconic acid liberated; it is easily recognised by its solution acquiring, on the addition of ferri chloride, a blood-red colour, which is distinguished from ferri acetate by not altering in colour by boiling, and from ferri sulphocyanide by not being bleached by treatment with mercuric chloride. To the solution supposed to contain the morphia, hydrogen monosulphide is added to precipitate the excess of lead which was added; it should then be filtered, reduced to a small bulk by evaporation, and treated with a concentrated solution of potassium carbonate, which precipitates the morphia. The mixture should then be agitated with an ethereal solution of acetic ether, which, if poured off after subsidence, and allowed to evaporate spontaneously, should yield crystals of morphia, which, when treated with a dilute solution of iodic acid, yield a blue coloration with starch mucilage. As this result might be produced by other substances capable of reducing iodic acid, the coloured mixture should be covered with a layer of a very dilute solution of ammonia, when, if morphia is present, two coloured rings will be formed at the surface of contact, the upper being blue and the lower brown; in more dilute solutions, only the brown ring is produced. This reaction is peculiar to morphia.

III. NITRO-CELLULOSE.—When clean and dry cotton-wool, which is nearly pure cellulose ($C_{18}H_{30}O_{15}$), is treated with an acid mixture, made in the proportion of two molecules of

nitric acid to two of sulphuric acid, and three of water; the product, which should be well washed with water, consists chiefly of a substance having the formula $C_{18}H_{21}(NO_2)_9O_{15}$, this is ordinary gun-cotton, or trinitrocellulose; it is highly explosive, insoluble in a mixture of ether and alcohol, but soluble in acetic ether. When the acid mixture contains half a molecule more water, the product has the formula $C_{18}H_{22}(NO_2)_8O_{15}$, it is not so explosive as the former compound, but is soluble in ether-alcohol, and insoluble in glacial acetic acid. If the acid mixture contains four molecules of water, the compound produced is that known Gladstone's cotton-xyloidin, which is very slightly explosive soluble in water and in glacial acetic acid. When an acid mixture containing a little less nitric acid is employed, such as that ordered in the Pharmacopœia for the preparation of *Pyroxylin*, the product is represented by the formula $C_{18}H_{24}(NO_2)_6O_{15}$; this substance, called dinitrocellulose, is insoluble in alcohol, but soluble in ether-alcohol, a solution of it being official under the name of *Collodium*. A compound having the formula $C_{18}H_{27}(NO_2)_3O_{15}$, and known as mononitrocellulose, is the principal product of the action of fuming nitric acid on cotton; it is scarcely explosive, and is insoluble in ether-alcohol.

IV. PHOSPHORIC ACID.—When phosphorus is burned in dry oxygen or air phosphoric anhydride (P_2O_5) is produced. It forms, by contact with water, metaphosphoric acid (HPO_3), but if boiled with water, ordinary phosphoric acid or orthophosphoric acid (H_3PO_4) is produced. This acid is also obtained, as in the official process, by boiling phosphorus with dilute nitric acid; or by treating the acid calcium phosphate, produced by the action of sulphuric acid on bone earth, with a slight excess of ammonium carbonate, filtering to separate the insoluble calcium carbonate produced, on evaporating the filtrate and igniting the residue, impure phosphoric acid is obtained. The aqueous solution of this acid has a strong acid reaction, and at a boiling heat expels most volatile acids from their salts. The acid in solution bears heating to $160^\circ C$ without undergoing decomposition. The phosphoric radical is trivalent and yields acid neutral, and normal or tribasic phosphate. With the exception of the alkaline phosphates they are nearly all insoluble in water. Aqueous solutions of the normal phosphates of potassium and sodium are alkaline to test paper, and are decomposed by carbon dioxide. Aqueous solutions of the neutral phosphates of these metals have a feebly alkaline reaction; solutions of their acid phosphates are strongly acid. If ammonium chloride and ammonia are added to an aqueous solution of a phosphate, and then magnesium sulphate, a double phosphate of magnesium and ammonium ($Mg. NH_4PO_4$) almost insoluble in water containing ammonia is precipitated. Lead acetate produces in solutions of phosphates a white precipitate of lead phosphate ($Pb_3[PO_4]_2$), it is soluble in nitric acid. When heated in the inner blowpipe flame it is not reduced to the metallic state, all other lead salts are. Silver nitrate produces in solutions of the phosphates a light yellow precipitate of silver phosphate (Ag_3PO_4), readily soluble in nitric acid and ammonia. If to a moderately acid solution of a phosphate, an excess of sodium acetate is added, and then a drop or two of a solution of ferric chloride, a yellowish white gelatinous precipitate of ferric phosphate is produced. A nitric acid solution of ammonium molybdate, produces in cold neutral or acid solutions of the phosphates a finely divided yellow precipitate soluble in ammonia; in the absence of large quantities of hydrochloric acid and of certain organic matter (tartaric acid for example), this reaction constitutes a good test for phosphoric acid: the reagent should be added in excess, and if arsenic acid is present it should be removed by hydrogen monosulphide.

When orthophosphoric acid is heated to $215^\circ C$, it is converted into pyrophosphoric acid ($H_4P_2O_7$), which appears under the form a soft glass. Solutions of pyrophosphates give a white precipitate with this reagent. Pyrophosphoric acid is converted into ordinary phosphoric acid, and may be detected as such by boiling with water. On heating it to redness, it is converted into metaphosphoric acid (HPO_3). This acid forms a transparent, colourless, uncrystallisable mass; its solution coagulates the albumen of white of egg, but its salts do not unless the acid is liberated by the addition of acetic acid; the other varieties of phosphoric

acid do not give this reaction. Solutions of metaphosphoric acid are converted by boiling into orthophosphoric acid; at ordinary temperatures this change takes place slowly.

V. SPECIFIC GRAVITY.—On the assumption that the mixture is purely mechanical, its specific gravity would be 1.58.

As the proportion by weight in which the two liquids are mixed is ascertained by multiplying the volume of each liquid by its specific gravity, we have, $1 \times 1.37 = 1.37$, and $3 \times 1.65 = 4.95$; the sum of these numbers represents the weight of the mixture, which, divided by the volume of the mixture, gives its sp. gr. $\frac{1.37 + 4.95}{1 + 3} = 1.58$.

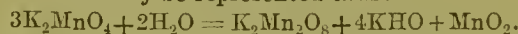
Second Division.

I. POTASSÆ PERMANGANAS, B.P.—On heating the manganese dioxide with potassium hydrate and potassium chlorate, it is oxidised at the expense of the chlorate, and, combining with part of the potassium, produces potassium manganate; the remainder of the alkali metal is left as chloride, and water is liberated, thus:—



When the product of this operation is allowed to cool, powdered and boiled with water, one-third of the manganese is re-converted into dioxide, two-thirds of the potassium into hydrate, and the remainder into permanganate.

This reaction may be represented thus:—



By the addition of sulphuric acid the potassium hydrate is converted into sulphate, and on evaporating the liquid a crystalline mixture of this salt and potassium permanganate is obtained; from this mixture the latter salt is separated by solution, it being the more soluble of the two.

II. MERCURY.—The quantity of Hydrargyri Perchloridum, B.P., that should be produced is 27.1 ounces.

For the preparation of mercuric sulphate, the Pharmacopœia directs that 20 ounces of mercury be boiled with 12 fluid ounces of sulphuric acid. By this operation, the whole of the mercury is converted into sulphate, HgSO_4 , the molecular weight of which is 296, the weight of the atom of mercury which it contains being 200; considering these weights as ounces, and dividing by 10, we have 20 ounces of mercury yielding 29.6 ounces of sulphate. Now, one molecule of this salt yields one molecule of mercuric chloride, HgCl_2 , the molecular weight of which is 271, consequently one-tenth of a molecule, in ounces of mercuric sulphate, should produce one-tenth of a molecule in ounces of mercuric chloride, or 27.1 ounces.

III. GAS FLAME.—The non-luminous flame of a Bunsen's gas lamp consists of two principal portions: the dark central cone, consisting of the cold unburnt gas mixed with about 62 per cent. of air, and the portion surrounding this cone, the *flame mantle*, formed of the burning coal gas mixed with air. That portion of the flame mantle immediately above the metal tube of the lamp possesses a comparatively low temperature, owing to its proximity to the cool metal. If mixtures of flame-colouring substances are held in this part of the flame, it is often possible to vaporise the most volatile constituent, and thus in the first few moments to obtain tints which cannot be observed at higher temperatures, because they then become masked by colours produced by the volatilization of the remaining substances. The portion of the flame which possesses the highest temperature, or the *zone of fusion*, is situated about half-way between the inner and outer limits of the mantle at the point where the flame is thickest. This region is adapted for testing the melting point of substances, their volatility, and emissive power, as well as for all purposes of fusion at high temperatures (about 2,300°C). The external edge of this part of the flame mantle acts as an oxidising flame; substances held in it being exposed to a high temperature in the presence of an excess of atmospheric oxygen. The corresponding inner portion acts as a reducing or dioxidising flame, owing to its possessing a high temperature in the absence of the quantity of oxygen sufficient for complete combustion.

IV. TERMS.—The term diffusion is applied to gases to express the peculiar and important property which they possess of mechanically interchanging molecules to an

apparently unlimited extent. In virtue of this property, gases, whether in a state of purity or mixed with one another, pass through thin porous membranes with a velocity inversely proportional to the square root of their densities. The term effusion, as applied to gases, signifies their passage through a minute aperture into a vacuum. Effusion is subject to the same law with regard to the density of the gases as diffusion; but instead of influencing the molecules of a gas as diffusion does, it influences the mass, consequently, the effusion of a gaseous mixture is not accompanied by a separation of the different gases, according to their individual densities, as in the case of diffusion. Some metals possess the power of absorbing and condensing gases, notably palladium and platinum; this absorption is called occlusion.

V. SPECIFIC GRAVITY.—The raft is capable of carrying 1,651.48 pounds if floated in fresh water, and 1,735.612 pounds if floated in salt water, sp. gr. 1.027. Each of the ten pieces of wood contains ($10 \times 1 \times .5 =$) 5 cubic feet, consequently there are 50 cubic feet of wood in the raft, and it weighs ($62.32 \times .47 \times 50 =$) 1,464.52 pounds. The 50 cubic feet of water which the raft is capable of displacing weigh ($50 \times 62.32 =$) 3,116 pounds; but, as the raft weighs 1,464.52 pounds, it follows that it may carry ($3,116 - 1,464.52 =$) 1,651.48 pounds more than its own weight. Fifty cubic feet of salt water should weigh ($50 \times 62.32 \times 1.027 =$) 3,200.132 pounds, deducting the weight of the raft as before, we have ($3,200.132 - 1,464.52 =$) 1,735.612 pounds.

PRIZES.

The First Prize for the best answers to the questions of the First Division, published in our June number, has been awarded to

JOHN W. SMITH, 73, Park-street, Halifax.

The Second Prize for the best answers to the questions of the Second Division has been awarded to

H. B. WALLIS (H. B. W.), 45, Upper Marylebone-street, Portland-place, W.

Marks awarded for Answers.

	First Division.						Total
	I.	II.	III.	IV.	V.	E.	
J. W. Smith (1st prize)	6	8	8	8	4	3	37
Otho	8	7	7	7	4	3	36
B. P.	8	7	6	6	4	3	34
A. Fraser	8	5	5	6	4	3	31
A. E. J.	4	8	5	6	4	3	30
J. S. E.	4	6	6	6	4	3	29
J. H. Watson	7	6	4	5	4	3	29
J. S. P.	7	5	2	7	4	2	27
J. Young	3	5	4	7	4	3	26
Castria	6	6	5	3	4	2	26
Nil sine labore	2	4	4	7	4	3	24
Rusticus	0	5	5	4	4	1	19

Second Division.

	I.	II.	III.	IV.	V.	E.	Total.
	H. B. W. (2nd prize)	5	6	4	6	5	3
J. Edgill	5	5	5	5	3	3	26
W. J. Croghan	3	6	2	3	5	3	22
F. W. Fletcher	4	0	4	6	5	3	22
C. H. Fleming	2	4	1	4	2	2	15
W. J. Smith	0	5	3	5	0	2	15
Non Nobis	4	0	2	4	2	2	14
S. T. S.	4	5	2	2	0	1	14
Iota	2	0	1	3	5	2	13
Scotia	3	2	2	2	2	0	11
W. McJ.	0	1	4	1	3	1	10

TO CORRESPONDENTS.

** All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

Prizes.—The students to whom prizes are awarded, are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

J. W. Smith.—I. You cannot have fractions of atoms, the atomic theory assumes that they are indivisible.

J. S. E.—IV. The metaphosphates do not coagulate the albumen of white of egg unless acetic acid is added to liberate the acid.

J. H. Watson.—I. The calculation of the percentage composition is quite unnecessary. IV. Phosphoric acid is not a liquid.

J. Young.—III. You omitted two atoms of hydrogen in one formula, and one atom in another.

Castria.—III. One of your equations left a molecule of water unaccounted for.

Rusticus.—I. The percentage composition of a substance is not its formula, fortunately.

J. Edgill.—V. An error of ten pounds in subtraction.

F. W. Fletcher.—II. You succeeded in devising a most inaccurate method of calculation, the quantities of mercury and sulphuric acid

ordered are not in exact atomic proportions, consequently your result could not be correct.

C. H. Fleming.—II. You should give a clear and concise explanation of the process by which your result was arrived at in answering questions of this sort. V. You took the sp. gr. of the salt water as 1.27 instead of 1.027.

W. J. Smith.—V. According to the given data, 1 cubic foot of water weighs 62.42 pounds. You based your calculation on the strange supposition that 27 feet (not cubic) weigh 63.32 pounds.

Nor No. 1.—V. Of course the raft should carry more in salt than in fresh water; the greater the density of the liquid in which a body floats, the greater the weight required to submerge it.

S. T. S.—V. Both results about fifteen times more than the correct weights.

W. Mc. J.—There is something very novel about your formulæ, they appear to be constructed partly on the old notation, partly on the new, but chiefly on no notation at all.

Books offered as First Prizes.

- Attfield's *Chemistry: General, Medical, and Pharmaceutical.* (Van Voorst.)
- Brooke's *Elements of Natural Philosophy.* (Churchill.)
- Conington's *Handbook of Chemical Analysis*, with Tables of Qualitative Analysis adapted to the same. (Longmans.)
- Eliot and Storer's *Manual of Inorganic Chemistry.* (Van Voorst.)
- Fownes's *Manual of Elementary Chemistry.* (Churchill.)
- Fresenius's *Qualitative Analysis.* (Churchill.)
- Galloway's *Qualitative Analysis.* (Churchill.)
- Ganot and Atkin-on's *Elementary Treatise on Physics.* (Longmans.)
- Garrod's *Materia Medica*, with Modern Chemical Notation. (Walton.)
- Noad's *Chemical Analysis, Qualitative and Quantitative.* (Reeve.)
- Northcote and Church's *Qualitative Analysis.* (Van Voorst.)
- Odling's *Outlines of Chemistry.* (Longmans.)
- Royle and Headland's *Materia Medica.* (Churchill.)
- Williamson's *Chemistry for Students.* (Clarendon Press)
- Barth's *Introduction to Scientific Chemistry.* (Groombridge).

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

- Bloxam's *Laboratory Teaching.* (Churchill)
 - Church's *Guide for Students in Agricultural Chemistry.* (Van Voorst.)
 - Galloway's *First Step in Chemistry.* (Churchill.)
 - Gill's *Chemistry for Schools.* (Walton.)
 - Hofmann's *Introduction to Modern Chemistry.* (Walton.)
 - Huxley's *Lessons in Elementary Physiology.* (Macmillan.)
 - Oliver's *Lessons in Elementary Botany.* (Macmillan.)
 - Orme's *Introduction to the Science of Heat.* (Groombridge.)
 - Potts's *Elements of Euclid.* School Edition. (Longmans.)
 - Roscoe's *Lessons in Elementary Chemistry.* (Macmillan.)
 - Wormell's *Elementary Course of Mechanics.* (Groombridge.)
 - Wurtz's *History of Chemical Theory.* Translated by Watts. (Macmillan.)
- [Any other scientific book which is sold for about five shillings may be taken as a second prize.]



LONDON CHEMISTS' ASSOCIATION.

ON Thursday, May 19th, Mr. PALMER being in the chair, a paper was read on

THE POUltICES AND PLASTERS OF THE PHARMACOPŒIA, by Mr. WEAVER. The poultices were almost the same as those of the P.L., and the author was glad to say that their number had not been increased. They were not officinal, either in the P.E., P.D., or the U.S. Pharmacopœia, and they might have been omitted from the P.B. The author remarked that mustard and linseed poultices were always prepared by the nurse and by rule of thumb, and he doubted whether anyone present had ever been called upon to prepare any one of the other four poultices that were officinal. Yeast poultice he had known used by old women, but he had never seen it or the others in a prescription, and did not see how they could be prepared away from the bedside. He did not say but that such a poultice as Cataplasma Conii might be of use, and that it was a better plan of applying conium and such like vegetable matter, than in the form of a resinous plaster.

Plasters formed a more important group in the Pharmacopœia. They differed from poultices in being composed of resinous and waxy matter, and were intended to be kept in contact with the body a longer time, and not only to act medicinally, but mechanically, as supports to weak parts. After giving a short history of plasters, he proceeded to notice each of the P.B. preparations. Emplastrum Ammoniacum Hydrargyri was almost the same as the plaster of other Pharmacopœias: that of the P.D. was made by mixing ammoniacum plaster and mercury plaster together; this could be done at the time of spreading a plaster, thus getting rid of some of the annoyances dis-

persers experience with it. With regard to the P.B. form, he thought a little more oil was required. The well-discussed Emp. Belladonnae came next in review. The author noticed the recent communication of Mr. Gising, pointing out the variable quantity of extract obtained by spirit from the ordinary extract, and how much better it would be if a definite amount of alcoholic extract was used. Mr. Weaver said that an alcoholic extract was ordered to be used in the U. S. Pharmacopœia, and also in the Codex, where it and other plasters were to be made from extracts obtained with alcohol. Manufacturers, before the appearance of the P.B., supplied an alcoholic plaster. The present plaster was a great improvement on that of the P.L., which contained twice as much of the ordinary extract as the plasters of the P.E. or P.D., and did not adhere well.

Emp. Calefaciens, Mr. Weaver remarked, was a very complex affair; it was not in the P.E., and had been omitted from the P.L. The P.D. had given a simple form, like that of the U.S.P., which merely directed so much Emp. Canthar to be added to a certain quantity of Burgundy pitch. There would be no need of the nineteen different weighings that Mr. Martindale had spoken of if such a form was introduced.

Emp. Cantharidis was next treated of. The author thought it could not be improved upon, being of the right consistence for spreading; he pointed out the necessity of not using a greater heat than that of a water-bath, either in preparing the plaster or in combining it with other articles.

Emp. Cerati Saponis, similar to the Cerat. Sapon. Co., P.L., had a more appropriate name, but it seemed to be seldom or never used now. The spread plaster, generally called Brown Soap Plaster, was asked for occasionally.

Emp. Ferri was still retained in the Pharmacopœia, being in all the previous ones of London, Edinburgh and Dublin.

Emp. Galbani differed a little from that of the P.L., the P.E. form being introduced.

Emp. Hydrargyri of the P.B. was stronger than that of the P.L., being of the same strength as the P.E. Sulphur was used in making it as in the London form, but it was not ordered in other Pharmacopœias; it helped to extinguish the mercury, causing a sulphide to be formed. More oil was used in other forms.

Emp. Opii was now prepared by the Dublin form. So much opium was to be added to so much resin plaster; it was the simplest form among the plasters and an example to the rest, contrasting strongly with its neighbour, Emp. Picis. Mr. Weaver asked what was Burgundy pitch, common frankincense, and resin. All three were indefinite, ever varying articles; as for the first article, it was doubtful whether there was a genuine sample in the market.

Emp. Resinæ, in the U.S. Pharmacopœia, was resin 6 oz., lead plaster 36 ozs.; the addition of soap rendered it more emollient.

Next came Emp. Plumbi, the celebrated lead plaster, which was so often, and might be oftener, used as a basis for other plasters, and for all, he thought, if combined in some instances with resin. After noticing the necessary presence of water in making this plaster, he pointed out how indefinite were the Pharmacopœia directions. It appeared to him that half the directions were left out; the oxide of lead should have been ordered to be sifted into the oil; and as for the glycerine produced, nothing was said about it. A good and saleable article could not be prepared by the Pharmacopœia directions.

Emp. Plumbi Iodidi was new to the P.B.; it was in place of an Emp. Iodini, occasionally ordered.

Emp. Resinæ and Emp. Saponis were next reviewed. Mr. Weaver pointed out that both these plasters contained the same ingredients. Resin plaster might be made from soap plaster by merely adding a little more resin; the quantity of soap in each differed slightly.

Mr. Weaver summed up with a few general remarks, bearing more especially upon plaster spreading, which many prided themselves on, more especially some old pharmacists who still deprecated the use of margin keepers.

The CHAIRMAN certainly thought that a definite quantity of an alcoholic extract should be used in making Emp. Belladonnae, and that plasters generally might be more simple preparations than they are. He remarked that with

regard to Emp. Plumbi, no other combination of oil and metal answered the purpose of a plaster so well.

Mr. MATTHEWS, corresponding member, of Brighton, sent a communication, in which he noticed chiefly a French preparation, *Toile Cataplasme*, which was asserted to be a perfect substitute for Cat. Lini, and which seemed to answer very well. All that was necessary was to soak a piece of the required size in boiling water for one minute, a poultice being obtained at once which was light, unctuous, and emollient, moulding itself easily upon the part to which it was applied. It retained its heat for a very long time, provided it was covered with a piece of the gutta-percha sold with it. The following were among the advantages claimed for it:—It was admirably adapted for serving as a medium for medicinal substances with which it was sometimes required to sprinkle a poultice, as Tinct. Opii, Tinct. Arnicae, Plumbi Aetias, Amylum, etc. It was also a good substitute for all kinds of emollient compresses, and if one side only was moistened it took the place of an adhesive plaster. There were three kinds of this article prepared: No. 1, pure mucilage; No. 2, mucilage of linseed; No. 3 being composed of a mixture of the two—this kind only was in demand, the others appeared to him unnecessary.

Mr. JESSOP remarked that he thought piline would answer for most of the purposes spoken of in Mr. Matthews's communication, without the disagreeable stickiness of it or ordinary poultices. It might also be used in place of disagreeable plasters.

Mr. PORTER made some general observations upon the plasters. He said that one specimen of belladonna plaster he had examined was plaster merely covered with a strong tincture of some leaves, with no atropine present. The quantity of spirit ordered in the Pharmacopœia for making the alcoholic extract for this plaster was not near enough.

Mr. BEYNON remarked that Mr. Groves, at a recent meeting of the Pharmaceutical Society (although his remark was not noticed in the *Journal*), said he thought a plaster made from an extract of belladonna, prepared in a similar way to Battley's Liq. Belladonnae, would be better than the present form. Was it of any advantage having a green plaster? In making lead plaster, Mr. Brown had informed him, that if the oxide of lead was mixed with water previously to adding the oil, a plaster was formed in a very short time.

Mr. BLETSOE made some remarks upon Emp. Plumbi Iod. and its changing colour owing to the soap decomposing the iodide of lead, and, with other members, noticed the number of ingredients in some of the plasters.

A vote of thanks to the author of the paper and to the chairman terminated the meeting.

On Thursday, May 26th, Mr. Spalding occupying the chair, a paper on

THE PILLS OF THE PHARMACOPEIA

was read by Mr. BEEDZLER. He said that these preparations constituted as important a class as any in the Pharmacopœia, no preparations except the tinctures and waters being so frequently prescribed. The method of giving medicines in the form of a pill presented several advantages; indeed, it was almost the only way in which some could be administered. Heavy insoluble powders, the dose of which was small; substances, the action of which the prescriber wished to be gradual; and many nauseous medicines, which if given in a mixture would disagree, were conveniently taken in this way. As a rule, Mr. Beedzler remarked, a considerable amount of judgment and skill was required in pill-making. There was the method of manipulating, the choice of an excipient, etc.; upon these sometimes depended the efficacy of the medicine. Of course, with respect to official pill masses we were not left to our own discretion, and only in a few instances were we left to regulate the quantity of excipient to be used. Considering the preparations as a group, they were improvements upon those of the P. L., but still three years of practical experience in the preparing and dispensing of them had, no doubt, enabled those present to find out little defects of detail that in another edition might be remedied. Mr. Beedzler said the P. B. contained twenty forms for pill masses, two of which were quite new additions, Pil. Ferri Iod. and Pil. Quinæ. He then proceeded to notice the pills in alphabetical order.

Pil. Aloes Barbadosis, he supposed, was in place of Pil.

Aloes eum Sapone. The P. L. pill was similar to the Pil. Aloes Dil. so much prescribed by Dr. Marshall Hall. Mr. Beedzler called attention to the fact that in all pill masses which contained soap, hard soda-soap was ordered in place of soft, used in the P. L.; it made better pill masses, which were not so liable to flatten when rolled out, and did not acquire the peculiar disagreeable odour that might be noticed in soft soap. In several cases, moreover, it enabled the ingredients of a pill to be kept in a dry state without the excipient, which sometimes was an advantage. Pil. Aloes et Assafœtida came from the P. E.; the U. S. Ph. also contained it, but ordered it to be beaten up with water instead of confection of roses, the quantity of which was, in Mr. Beedzler's opinion, at least twice as much as necessary.

With respect to the quantity of excipient in Pil. Aloes et Ferri, an error was made on the other side, not enough being ordered. In making this pill, he found that if the sulphate of iron in very powder be added after the other ingredients have been beaten into a mass, it was not so liable to crumble.

Pil. Aloes et Myrrhæ commonly known as Pil. Rufi, and under which name it was first introduced into the London Pharmacopœia, was very similar to what its composition was centuries ago. Some pharmacists were now almost profanely suggesting that the therapeutic value of the saffron was not equivalent to its costly price.

Pil. Aloes Socotrinæ was next discussed. He supposed it was given instead of Pil. Aloes Co., but the latter was made up with extract of gentian.

Pil. Assafœtida Co. was from the Dublin Pharmacopœia; the P. E. ordered confection of roses instead of treacle. It was intended to replace the Pil. Galban Co. of the P. L., but was inferior to it, he thought, as it did not keep its consistence so well. Sagapenum, which entered into the latter, was not now an official article.

Pil. Gambogiæ Co. was not frequently prescribed, the aloes in it certainly retarded the action of the gamboge. As this pill was noted for becoming so hard and unmanageable, he wondered some means had not been taken to obviate this defect.

With regard to Pil. Coloc. Co., he noticed that it was to be made into a mass with water, but it soon became very hard. Having tried several experiments and compared results, he had come to the conclusion that glycerine was the best excipient. He found that ʒij. of the powdered ingredients required ℥xij. of water, or a like quantity of rectified spirit, which was ordered in the P. E., or ℥xxx. of glycerine, or ℥lv. of treacle, to make a mass: the sample made with water hardened very quickly; that with spirit not quite so quickly; whilst that made with glycerine was just of the right consistence to roll nicely and keep its shape several weeks after it had been made; the treacle also made a good mass, but such a quantity was required that the strength of the preparation was reduced some 40 per cent.

Pil. Coloc. et Hyoscyami was next noticed, being one of the several pills contributed by the P. E. Even with the extract of henbane, this pill soon became very hard.

Pil. Conii Co. was a pill seldom prescribed, it did not keep; treacle, as a rule, was quite unnecessary in making it.

Pil. Ferri Carb. was in place of Pil. Ferri Co., the form being introduced from the P. E. As it contained nearly half its weight of carbonate of iron, so combined as to remain unchanged some time, it must be a better preparation than that of the P. L.

Pil. Ferri Iod. became first official in the P. B., 1864. It was in the Codex, where it was ordered to be made with honey, and in the U. S. Pharm. He thought it a questionable way of administering iodide of iron. He tested a sample of this pill which had been made a few weeks, and found it to contain much free iodine; it should be rolled into pills directly it was made, and the pills varnished. He supposed a little must be kept in mass, as some prescribed it in combination with other pill masses.

Pil. Hydrarg. was next noticed, after which Pil. Hyd. Subchlor. Co. In the latter castor oil, as in the P. D. form, was the excipient, which he thought an improvement.

The form for Pil. Ipecac. cum Scilla, formerly called Ipecac. Co., was the same as in the P. L. Pil. Plumbi eum Opio was next spoken of. In Pil. Quinæ, the author found that the quantity of confection of roses was not enough by

one-third for making a manageable mass; thirty grains, instead of twenty, were required. Pil. Rhei Co. received some attention; hard soap in it was better than soft soap, as he had pointed out before; he found that the oil of peppermint in it was objectionable, and that most English pharmacists used oil of caraway still, as in the P. L.; the compound soap pill had its name restored again, being called Pil. Opii in the 1864 Pharmacopœia. The last of the pills, Pil. Scillæ Co., Mr. Beetzler remarked, contained more squill than the London preparation; it kept its consistence well, being made with treacle.

The CHAIRMAN called the attention of the meeting to a very old pharmacopœia that he had brought with him—it contained only four kinds of pills; he almost wished we had as few in number now. He added, that a purgative pill not containing aloes was a desideratum. He asked what was the use of the sulphate of potash in Pil. Coloc. Co? There was a similar pill in the Codex without it.

Mr. JEWELL thought that glycerine might have been added to some of the pill masses with advantage, especially to Pil. Coloc. Co., as Mr. Beetzler had shown. He remarked that the present Plummer's pill, being oily, would not mix with other pill masses.

Mr. HOFFE thought that the assafœtida pill should be beaten after it was mixed. Perhaps a small quantity of hard soap would improve it. He remarked that Pil. Hydrarg. was in every Pharmacopœia but the Austrian, and the forms were all similar.

Mr. TAUBMAN made some remarks upon Plummer's pill. He found three-quarters of an ounce of castor oil, instead of one ounce, was sufficient to make a good mass; he thought it should be optional to use peppermint oil in Pil. Rhei Co. It was a pity that strong smelling oils were ever introduced into pill masses.

A vote of thanks was given to Mr. Beetzler for his paper, and also to the Chairman.

On Thursday, June 2nd, Mr. Parsons being Chairman, a paper was read by Mr. TAUBMAN, on

THE LIQUORS OF THE PHARMACOPEIA.

The author first remarked that in the present edition of the "British Pharmacopœia" there were formulæ for thirty-seven Liquors, some of which had stood the experience of many years; a great majority had been inserted into the various Pharmacopœias since the commencement of the present century. Previous to the P. L. 1809, they were classed as waters; but in the Pharmacopœia of that year, which instituted such a thorough reform in nomenclature, they were very properly separated from the waters, and called liquors. Mr. Taubman then proceeded to notice briefly each of the liquors. After giving the form for making Liq. Ammoniac Acet., he observed that it was a very weak solution, that it did not keep. A stronger solution kept better, and was frequently preferable in dispensing.

Liq. Ammoniac Cit., introduced for the first time in the P. L. 1851, he remarked, was ordered to be made by neutralizing the acid with carbonate of ammonia, instead of a solution of ammonia. The solution of ammonia received some comments. Liq. Ammon. Sesquicarb. was now omitted, and also the Liq. Antim. Tart. of the P. D., although a solution frequently used instead of the wine.

The arsenical solutions were next treated of. Liq. Arsenicalis and Liq. Arsen. Hydrochlor. contained each four grains of arsenious acid in the ounce, while Liq. Sodæ Arsen. contained four grains of the anhydrous arseniate of soda to the ounce. Mr. Taubman remarked upon the much stronger effects of arsenic acid.

Liq. Atropiæ and Liq. Atropiæ Sulph., the latter of which was made officinal for the first time, were next considered. The spirit used to dissolve the atropia in Liq. Atropiæ rendered it disagreeable to persons having to use it. Mr. Martindale had proposed that there should be only one solution, made by dissolving the atropia by means of sulphuric acid, a preparation similar to Liq. Strychniæ.

Liq. Bismuthi et Ammoniac Cit., with its long name, came next. He did not think the P. B. form made an elegant preparation, containing, as it did, such a quantity of nitrate of ammonia.

Liq. Calcis Sacch. was noticed as being an elegant form for administering lime, contain in gas much as thirteen times more lime than Liq. Calcis; it was a pity it did not keep its colour.

With regard to Liq. Chlori, the author thought it would be better if the Pharmacopœia said this should be kept in a dark place.

Liq. Epispasticus was the Lin. Canthar. of the 1864 Pharmacopœia. The old name was perhaps objectionable, but he did not think the present was quite satisfactory.

The iron solutions received a great deal of attention. The mercurial solutions came next. Mr. Taubman noticed Mr. Martindale's paper on the Liq. Hydrarg. Perchlor., which showed that no mercury remained in this solution as perchloride, but as a double salt with the ammonium chloride.

Liq. Iodi, inserted for the first time, was a watery solution of iodine; it did not act so much like a caustic as a spirit solution.

In speaking of Liq. Lithiæ Effervescens, Mr. Taubman noticed also the corresponding preparations of soda and potash. Although few chemists could make these waters themselves, yet he thought they were very properly introduced into the Pharmacopœia, as standards are required.

Liq. Magnesiæ Carb., also a similar preparation, Mr. Taubman remarked, had been the subject of some discussion. It had been proved that preparations varied much, and did not, as a rule, contain as much as thirteen grains to the ounce, that a slightly weaker preparation would keep better, and not become so unsightly as the P. B. preparation, from which, as Professor Atfield had shown, a trihydrous carbonate of magnesia crystallized out.

The morphia solutions did not receive much comment; like other solutions of potent articles, they contained four grains to the ounce.

With regard to Liq. Plumbi Subacetatis, the author stated that in adding distilled water to make up the quantity lost, freshly distilled water should be used; Mr. Taubman thought there was no occasion for a diluted liquor, prescribers generally used their own form.

Liq. Potassæ, which, he observed, had been the subject of many experiments, was next treated of. He gave Dr. Redwood's plan of making it as pure and free from alumina as possible.

Liq. Potassæ Permang. came next. He said it was a solution analogous to Condy's Fluid, but of half the strength.

Liq. Sodæ and Liq. Sodæ Chlor. were noticed. The author asked what was the red deposit that occurred in the latter. With regard to Liq. Strychniæ, it had been said that it did not contain sufficient acid, but he thought there was enough. Liq. Zinci Chlor. the last of the liquors, was fully treated of, the chemical reactions being given.

The CHAIRMAN agreed with the author of the paper that stronger solutions would be more convenient in some cases; the concentrated solution (1 to 7), of acetate of ammonia was frequently prescribed. With regard to Liq. Hyd. Perchlor. all dispensers kept a stronger solution, and were frequently obliged to use it instead of the very weak preparation. He had found that the solutions of atropia did not keep; stronger solutions—1 gr. to ʒj.—however, kept well.

Mr. WEAVER thought Mr. Martindale's plan for making a Liq. Atropiæ better than dissolving the sulphate itself. He had found commercial samples vary much in composition, some containing large quantities of free acid and also water, which were, and should be, looked upon as adulterants; in fact, they were, he believed, the two great adulterants of chemicals, more especially of expensive ones.

Mr. WILLMOTT gave some interesting facts with regard to Liq. Hydrarg. Perchlor., noticing the time the double salt took in forming in different quantities of water. He made several other very practical remarks.

A vote of thanks to the author of the paper and to the chairman concluded the business of the meeting.

CHEMICAL SOCIETY.

At the ordinary meeting held on June 16th, Prof. Williamson, F.R.S., President, in the chair, L. A. Lucas, and A. W. Bickerton were elected Fellows.

Mr JAMES BELL read a paper

ON FERMENTATION.

The author has instituted a series of experiments to determine:—1st, The forms of natural ferment, which various

albuminous bodies will give rise to in solutions of cane sugar, and cane sugar and glucose. 2nd, The relative fermentative powers of various ferments, especially of those occurring in malt extract and in the juice of grape. 3rd, The influence of change of soil upon the fermentative organisms. Of the manifold results obtained in these experiments, the following deserve special attention:— (a) Addition of glucose to the grape juice is advantageous, inasmuch as it assists to exhaust the juice of its fermentative element, and thus imparts to the wine a greater keeping power. (b) Each ferment has its favourite soil.

The PRESIDENT, in proposing a vote of thanks to the author, took occasion to give a brief *résumé* of the present state of knowledge of the yeast plant. Though called a "plant," the yeast organism is rather animal, not vegetable in all its functions; the products it secretes are less complicated than those it takes in; it requires neither light nor heat for its vital process.

Dr. HEISCH communicated a paper

ON ORGANIC MATTER IN WATER.

The author was some time ago called on to assist a large manufacturer of lemonade, who suddenly found it impossible to make lemonade that would keep. After a day or two it became turbid, and its odour anything but agreeable. On investigating the liquid under the microscope it was found full of small spherical cells with, in most cases, a very bright nucleus. After examining all the materials employed, it was detected that the fault was with the water. On putting a few grains of pure crystalline sugar into some of the water, it became turbid in a few hours, and contained the cells above described. On inquiry it turned out that the well from which the water used in the preparation of the lemonade was obtained, had been slightly contaminated with sewage. This led the experimenter to mix a minute quantity of sewer water with a sugar solution; very soon the cells made their appearance. Filtering through the finest Swedish paper does not remove the germs. Boiling for half an hour in no way destroys their vitality. Filtration through a good bed of animal charcoal seems to be the only effectual mode of removing them; but it is necessary to air the charcoal from time to time, else it loses its purifying property.

Mr. PERKIN read a letter from Prof. Strecker, wherein the latter claims the priority of having published the true formula of alizarin as early as 1866, which Mr. Perkin had not mentioned in his recent lecture on alizarin. Mr. Perkin said this omission was due only to a slight oversight; certainly not to any intention to deprive Prof. Strecker of his merit.

Mr. HERMAN read a paper

ON THE METHODS FOR THE DETERMINATION OF CARBON IN STEEL.

Several samples of steel were analysed according to different methods, with the view of ascertaining which of the usual processes for determining the carbon in iron is the most advantageous. A large number of careful experiments led to the conclusion that the direct burning of the iron in a stream of oxygen, is the most expeditious as well as the most accurate method. In the following table, containing the means of the results arrived at by the different methods, the figures obtained by combustion are almost identical with those required by theory:—

No. of Sample.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
By Eggert's colometric method	1.319	.789	.701	.587	.486	.349	.283	
By combustion in oxygen . . .	1.1656	.7602	.635			.3594	.273	.9215
By Elliott's method	1.248	.8065	.724	.6701	.5025	.4772	.349	.9427

THE SHEFFIELD PHARMACEUTICAL AND CHEMICAL ASSOCIATION.

The last general monthly meeting of the winter Session was held at the Rooms, on Wednesday evening, June 15th. Mr. Wilson, the President, in the chair. Mr. Burnell was elected a Member; and Messrs. Clifton, Hutchinson, Liversidge, and Pickering, Associates.

The President and ex-President having kindly represented the Association at the recent annual meeting of the Pharmaceutical Society, this was deemed a favourable opportunity to receive from them an account of the meeting and *conversazione*. Their remarks were listened to with great interest, and a lengthened conversation ensued thereupon; after which, a cordial vote of thanks to the deputation was moved by Mr. Radley, seconded by Mr. Ward, and carried unanimously.

It being announced, that on the following evening Mr. Ward would deliver the last of a course of twelve gratuitous lectures to the Associates, upon the Chemistry of the British Pharmacopœia, Mr. MALEHAM, on behalf of the Council, proposed a hearty vote of thanks to Mr. Ward, and characterised the lectures as very valuable and instructive, having been carefully prepared at a great expense of time; he trusted they would be duly appreciated by the Associates, who had enjoyed the privilege of listening to them.

Mr. HUDSON in eulogistic terms seconded the motion; which was also supported by Mr. Radley, who, judging from the report of some of the pupils, felt convinced Mr. Ward had rendered the Association and the youths good service—Carried with applause.

Mr. WARD briefly replied, expressing some disappointment that a larger number of the Associates had not availed themselves of the opportunity to attend.

A newly-invented label damper was presented by Messrs. Bourne and Taylor, which was lauded round for examination, and appeared to possess considerable merit. This concluded the business of the meeting.

BANKRUPTCY.

IN RE ARTHUR HEBDEN AND WM. FOXCROFT, BEESTON ROYDS, YORKSHIRE, PRUSSIATE OF POTASH MANUFACTURERS.

THESE bankrupts came up for their discharge at the Leeds Bankruptcy Court, before Mr. Registrar Marshall, on the 30th ult. Mr. Spirett, who appeared for the trustee, informed the Court that the bankrupts had been adjourned from the 20th of May, for the purpose of enabling them to amend their accounts, and also in order that they might file fresh accounts. The accounts had been filed, and the trustee, who resided in London, had gone into them. There was no opposition to the bankrupts. The Registrar remarked on the inconvenience of appointing a gentleman as trustee who could not exercise any supervision over the estate. The liabilities of the bankrupts were stated to be £1,400 (the trustee being creditor for half the amount); assets £100. Bankrupts were allowed to pass and receive their order of discharge.

IN RE FREDERICK HARRISON, DRUGGIST, ETC., VAUGHTON-STREET, BIRMINGHAM.

A meeting under the arrangement clauses of the Act was held at the offices of Mr. Richard Free, Temple-row, on the 13th ult., Mr. Arthur Holden in the chair. The statement showed liabilities £350; assets estimated to produce £120. A proposition was made and carried, that the estate should be wound up under liquidation, and that Mr. Robert Free, accountant, of Benect's-hill, be appointed the receiver of the estate.

LAW AND POLICE.

THE VACCINATION QUESTION IN BIRMINGHAM.

At the Birmingham Police Court, on the 17th ult., Frederick William Weston, chemist, of Warstone-lane, was summoned by Mr. Thompson (clerk to the guardians), who appeared to prosecute, for neglecting to have his child vaccinated according to the requirements of the Act of Parliament relating to the vaccination question. It was stated that defendant was an anti-vaccination man, and did a great deal of harm in the neighbourhood in which he resided, by recommending the people generally to disobey the law in regard to vaccination. The full penalty being pressed for, he was fined 20s. and costs.—William Darnley Hall, herbalist, and anti-vaccination lecturer, was also summoned for a similar offence. Defendant, it was stated, was out of town lecturing, and his assistant not knowing his whereabouts could not inform him of the fact of his

being summoned, therefore the case was adjourned. At the re-hearing of this case on the 1st inst., the defendant did not appear, being, it was stated, in Durham lecturing, and it was too far to come in answer to the summons. Mr. Roberts, the public vaccinator, said it was a most obstinate case. Defendant had refused to have his child vaccinated, and he did a great deal of harm in prejudicing poor people in the neighbourhood where he lived against vaccination. The magistrates inflicted a fine of 20s. and 11s. costs, or in default one month's imprisonment. They also ordered the child to be vaccinated.

POISONING CASES.

DEATH BY ABSORPTION OF ARSENIC.

A PECULIAR case of poisoning took place at Derby on the 13th ult. An innkeeper, named Harrison, residing in Compton-street, purchased a quantity of arsenic for the purpose of washing the walls of his house, which were infested with vermin, and it is supposed that an unusual quantity of this poison was used on the occasion, and it became absorbed into the systems of the whole of the family and occupiers of the house. All of them were seized with the symptoms of arsenical poisoning. Dr. Toogood, of Derby, was called in, and rendered all the assistance he could to relieve the sufferers, but in the case of the proprietor, Mr. Harrison, without avail. Deceased's wife, son, and a servant girl, are still suffering from the results of the absorption of arsenic.

SUICIDE BY TAKING BATTLE'S VERMIN KILLER.

An inquest was held on the 15th ult., at Oldham, on the body of a girl named Burton, who had committed suicide by taking a quantity of Battle's Vermin Killer.

GOSSIP.

THE annual meeting of the members of the Midland Counties Branch of the British Medical Association was held at the Great Western Hotel, Birmingham, on the 17th ult., Mr. Thomas Underhill, Great Bridge, president, in the chair, and upwards of a hundred other medical gentlemen were present. The treasurer's report showed a balance in favour of the branch. The president afterwards delivered his address.

Miss Loretta Mann, a lady compositor, has been elected a member of the Philadelphia Typographical Union. Miss Mann is studying medicine at Philadelphia, and works as a compositor in order to pay her expenses while proceeding to her degree.

Stamping out the cattle plague is not so easy in India as here. The Assamese have lost 170,000 head of cattle in a twelvemonth; and they not only object to the Government remedies, but have invoked their gods against them.

GAZETTE.

PARTNERSHIPS DISSOLVED.

- ALLINSON and HOLT, 1, Norton-foigate, Middlesex, surgeons; July 2. Business continued by William Holt.
- EVANS, LESCHER, and EVANS, 60, Bartholomew-close, London, wholesale druggists and manufacturing chemists; June 30, as regards John Hilditch Evans.
- EVANS, SONS, and Co., Liverpool, wholesale druggists and manufacturing chemists; June 30, as regards John Hilditch Evans.
- GALE and Co., 15, Bouverie-street, London, wholesale chemists and druggists; June 10.
- HAWORTH, J., and Co., Apley-bridge, near Wigan, Lancashire, manufacturing chemists; June 24.
- KEMP and Co., philosophical instrument makers and chemists, 12 and 13, Infirmary-street, Edinburgh; June 28, as regards Peter Couper, trustee, and James Darsie Morrison.
- NEW APOTHECARIES' COMPANY, Glasgow; June 1, as regards James Watson, M.D., Harry Rainy, M.D., and A. D. Anderson, M.D.
- PAGE and THIBS, 47, Blackfriars-road, chemists and druggists; June 24. Debts by John Page, who continues the business.
- ROWLAND, ALEXANDER, and SONS, 20 and 67, Hatton-garden, Middlesex, merchant perfumers and oil manufacturers; May 30, as regards John Alexander Rowland. Debts by John Henry Rowland, Henry Edward Rowland, and George William Rowland, who continue the business under the same style.

BANKRUPT.

BENNETT, SIDNEY, 13, Queen-street, Mayfair, orthopaedic practitioner.

SCOTCH SEQUESTRATIONS.

LEWIS, NATHANIEL JAMES, druggist, Rothes; June 9. Claims by Oct. 9. Agent, James Sutor, solicitor, 126, High-street, Elgin.

NOTICES OF FIRST GENERAL MEETING FOR ARRANGEMENT OR COMPOSITION.

- ALTMANN, HENRY JOSEPH, 16, Caroline-street, Bedford-square, surgeon.
- COMBER, WILLIAM MERRITT, Queensferry Chemical Works, Hawarden, Flint, manufacturing chemist.
- EVANS, CYRUS OVENS, 50, Hornsey-road, Holloway, and formerly also 10, Well-street, Hackney, chemist and druggist.
- GLAISTER, CHAMBERS, Wigton, druggist, grocer, and spirit merchant.
- LAY, EDMOND HUGH, Briggs-street, Norwich, chemist, druggist, and retailer of tobacco and cigars.
- MARGULIES, MAURICE, 834, Oxford-road, previously 33, King-street, previously 338, Oxford-street, previously 2, Ducio-street, Manchester, and late 15, St. James's-street, London, doctor of medicine.
- MOSS, FREDERICK WILLIAM, Water-lane, Blackfriars, City, and Vauxhall-walk, Lambeth, Surrey, veterinary surgeon.
- PROCTOR, ROBERT, Howard-town, Glossop, dispensing chemist.
- ROWLANDS, HUGH, 227, Brownlow-hill, Liverpool, and late 10, St. Mary's-road, Garston, chemist and druggist.
- SMITH, HENRY FLY, 41, Chepstow-villas, Bayswater, surgeon, and 459, 460, and 461, Oxford street, gas engineer, trading as PETTIT & Co., formerly in partnership with George Brooks Pettit, since deceased.

Trade Memoranda.

PARISH OF BIRMINGHAM.—There were three tenders for drysaltery, viz., Mr. William Sumner, High-street, Birmingham; Mr. Francis Williams, Broad-street, Birmingham; Mr. Joseph Key Adams, Whitall-street.

	William Sumner.	Francis Williams.	Joseph Key Adams.
	£ s. d.	£ s. d.	£ s. d.
Oak varnish at per gallon	0 7 0	0 8 0	0 7 0
Boiled oil ditto	0 3 0	0 3 2	0 2 10
Lamp oil as per sample .. ditto	0 3 8	0 4 0	0 3 9
Shoe oil .. ditto	0 3 10	0 3 8	0 2 6
Linseed oil ditto	0 2 10	0 3 0	0 2 7
Olive oil ditto	0 6 6	0 5 6	0 5 6
Turpentine ditto	0 2 8	0 2 6	0 2 5
Best white lead at per cwt.	1 4 6	1 3 0	1 6 6
Best red lead ditto	1 4 0	1 4 0	1 2 6
Yellow ochre ditto	0 7 0	0 8 0	0 16 0
Venetian red ditto	0 7 0	0 8 0	0 16 0
Brown umber, ground in oil .. at per lb.	0 0 4	0 0 3	0 0 2
Raw sienna .. ditto	0 0 5	0 0 6	0 0 9
Chrome yellow ditto	0 0 7	0 1 0	0 0 9
Line blue at per cwt.	1 13 0	1 19 0	1 6 0
Roll brimstone ditto	0 13 0	0 11 0	0 11 6
Patent dryers ditto	0 17 0	0 19 0	0 16 6
Gluc ditto	2 5 0	2 2 0	2 2 0
Pitch ditto	0 10 0	0 11 0	0 10 0
Putty ditto	0 9 0	0 9 0	0 8 0
Alum ditto	0 9 0	0 9 0	0 9 0
Glass paper at per ream	0 12 0	0 10 0	0 12 6
Black lead, pure lump, casks .. at per cwt.	1 10 0	1 0 0	0 17 9
Soft soap (Scotch), in firkins of 60 lbs. each at per firkin	0 11 0	0 12 0	0 11 2
Whiting at per ton	1 11 0	1 10 0	1 16 0
Bath bricks at per 100	0 8 0	0 6 6	0 6 6
Black japan at per gallon	0 6 0	0 10 0	0 6 0
Russian tallow at per cwt.	2 8 0	2 16 0	2 10 0
Blue black ditto	0 6 0	0 8 0	0 6 0

MESSRS. T. and H. Smith and Co., the manufacturing chemists, of London and Edinburgh, have just changed their London address, from 69, Coleman-street, to 12, Worship-street.

It is necessary to correct an inaccurate paragraph which appeared in this column in May. It was there stated that the firm of Lyman, Elliott, and Co., of Toronto, having dissolved partnership, the business would in futuro be carried on by the Messrs. R. and W. Elliott. The facts are correctly given in a letter which we publish on another page. The old firm will henceforth be known as Lyman Brothers and Co., while the Messrs. Elliott have purchased the business of Dunsbaugh, Watson and Co., who retire.

THE guardians of the Dudley Union have accepted the tender of Mr. Nicklin for the supply of drugs.

WALSALL UNION.—The guardians have accepted Mr. Sneyd's tender for the supply of trusses. Double, 3s.; single, 1s. 6d

SOME of our daily contemporaries have waxed very indignant about the baby-shows which at this moment are among the attractions of the metropolis. While appreciating the justice of much of the ridicule cast upon these exhibitions, and earnestly avowing that nothing but the most severe considerations of duty would induce us to visit them, we are yet at a loss to see anything so intrinsically bad about the public display of these little innocents for persons whose hearts may incline them that way. In fact, we could give some excellent reasons for wishing well to these shows, if these were not sufficiently obvious, and especially if it were not for the terror of being quoted on the placards. But we would seriously suggest that if they are to be continued, it might prove of some real advantage if, in every case where a baby was exhibited, a declaration of the kind of food with which it had been nourished should be insisted on. Or if, as we suppose would be generally the case, that most if not all had been brought up on the same kind of natural nourishment, might we suggest to the promoters that a more scientific interest might be secured in these exhibitions if the manufacturers of the various kinds of infants' food could be induced, by the temptation of a handsome prize, to compete with one another, each procuring the loan of some poor little London baby for the purpose, whose future prospects of health and strength would doubtless be materially enhanced by undergoing such a preparation.

The *Melbourne Argus* recently contained the following paragraph, and in transcribing it to our pages we may add, that if this should meet the eye of the consignee of these antipodean leeches we should be glad to see a few of them on their arrival, as from personal experience of their value we have a rather special affection for leeches generally:—"Few persons have any conception of the magnitude of the leech trade. France is said to consume annually 100,000,000 of leeches. England and Germany the same, and other countries in proportion. From official statistics of France, Germany, Russia, Italy, and Turkey, it has been gathered that the prime cost of leeches sold in Europe exceeds 2,000,000*l.* per annum. Some parts of Australia abound with leeches, those which frequent the Murray river being preferred by the medical faculty to any other known specimen. They bite freely, and leave no inflammatory wound or mark behind. They thus equal, if they do not surpass, the famed speckled leech of Northern Europe. Messrs. Felton, Grimwade, and Co., of Melbourne, took measures some time ago for the conservation of the Murray leeches, and their contracts with the fishermen in the Murray district for the past season exceeded half a million. We are informed that the intercolonial demand is almost equal to the supply. Shipments are, however, sometimes made to England, and to-morrow the s.s. *Somersetshire* will take a large consignment for disposal in the home country. The leeches have been packed in boxes of soft clay, made to resemble as much as possible the muddy bottom of the river, which is their ordinary resort. Captain Attwood has undertaken to give special attention to his lively freight."

CITY CHANGES.—The incessant alterations and improvements in the city of London doom to destruction one after another of the old landmarks which have become so familiar. None more so than the well-known old house, 95, Farringdon Street, where Messrs. Barclay & Sons, patent medicine vendors, have so long been established. Messrs. Barclay, who have successfully carried on business at the same spot for nearly one hundred years, have been compelled for the general welfare to give up their old premises, and have been removed to a new and handsome building immediately opposite, which has been erected expressly for them, at a very heavy outlay, a small portion of the cost only being borne by the City.

THE Worcester guardians have accepted the tender of Mr. Witherington, Foregate-street, for drugs, etc.

The following extract from the *California China Mail and Flying Dragon* will give an idea of the advance of pharmacy in these far-distant regions. It is headed "Apothecaries," concerning whom it thus gushes:—"APOTHECARIES.—'I do remember an apothecary, and hereabouts he dwells.' As

we perambulate our fashionable thoroughfares we are often minded of the difference between the old apothecary of the time of the Capulets and the practising pharmaceuticalist of our own days. We are all tolerably familiar with the master's picture of the 'caitiff wretch' who would sell a draught of deadliest poison, 'and no questions asked.' Observe the change: We have elegance in place of penury, scrupulous care against unthrift, the faculty of nicest discrimination opposed to bleared dulness and a name, sympathy with the aim and pursuits, joys and griefs of man, instead of the haggard distrust of his kind which actuated that 'rare old boy' who was wont to close his shop on festival days. *News Letter* would fain offer its tribute of praise to the advance of pharmaceutical art, a noteworthy indication of which is the custom of late years of associating together for mutual improvement and the common weal. Our readers, who know everything—or claim to—are aware that such societies abound in every country of note in the world. Our own Californian Pharmaceutical Society has already won its way to usefulness and recognition. It has now been established about a year, and numbers one hundred and ten members. Its secretary, Mr. J. G. Steele, informs us that he corresponds in his official capacity with the Eastern and many European societies. New and commodious rooms have lately been secured on Sutter Street, and measures have been taken to form a library of standard and scientific works; also a cabinet of mineral and botanical specimens. One of our leading drug houses lately presented fifty dollars to the society to aid in the establishment of a library. This shows a liberal spirit and one worthy of emulation. It is well understood by the community, as well as by the medical profession, that the elevation of the drug business on this coast must be obtained through the efforts of the California Pharmaceutical Society."



TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—In your impression of the 14th May, under the head of "Trade Memoranda," the following paragraph appeared:—

"Messrs. Lyman, Elliot, and Co., wholesale druggists, of Toronto, Canada, have dissolved partnership, and the business will in future be conducted by Messrs. William and Robert Elliot, under the style of Elliot and Co."

With respect to which I have to say that the statement is only partially correct, while the tendency is quite erroneous. The business which has been carried on in Toronto for the last five years by B. Lyman, W. Lyman, W. Elliot, and R. Elliot, and for the ten years previously by B. Lyman, H. Lyman, and W. Elliot, has been dissolved by the retirement of the Messrs. Elliot, but the establishment which was commenced thirty years ago by the Lyman Brothers will be continued by them under the firm of "Lyman, Brothers, and Co.," who have acquired the Messrs. Elliot's interest and portion of goodwill.

I am, &c., yours,
H. L.

London, June 17th, 1870.

COD LIVER CREAM.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—The considerable approbation with which the formula for "Cod Liver Cream" you received from me, and inserted in your April number, has met from the trade in these parts, encourages me to address briefly to you the result of my more recent experiments in the preparation of that substance.

In lieu of the flavouring substances I then recommended, I would now strongly advise the mixing, as a savourer, with each ounce of the emulsion, half a drop of essential oil of almonds (freed from acid hydrocyan, of course), and two drops of essence of lemon. This combination is found more effectually to disguise the oil's characteristic flavour,

if it does not indeed form with it a sort of *harmonious alliance*.

One gentleman has told me that, through making his friends among the medical profession (as a body, inveterate haters of nostrums) acquainted with the simple nature of the formula, he had been enabled to dispose of a surprising quantity.

I should be glad to hear the results obtained by other experimenters.

Very respectfully yours,

EMULSIO.



[The following list has been compiled expressly for the CHEMIST AND DRUGGIST, by L. de Fontainemoreau, Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 3, Rue des Mimmes, Brussels.]

Provisional Protection for six months has been granted for the following:—

1183. C. H. Savory and W. R. Barker, both of New Bond-street. Improvements in the means of, and apparatus for effecting fumigation, vaporization, and inhalation applicable to medicinal and sanitary purposes. Dated 23rd April, 1870.
1359. A. Campbell, of Glasgow. A new or improved dip or smear for destroying vermin or disease in sheep or other animals. Dated 12th May, 1870.
1371. J. Heddle, of Leith, North Britain. Improvements in preparing, clarifying, and preserving vegetable juices and other liquids. Dated 13th May, 1870.
1394. G. W. Hemans, of Westminster. A process for the recovery, purification, and revivification of sulphuric acid spent and deteriorated in the refining of petroleum, coal, and shale oils. Dated 16th May, 1870.
1402. A. Pooock, of Bishopsgate-street. Improved apparatus for enabling invalids and other persons to drink in a recumbent position. Dated 16th May, 1870.
1411. J. H. Player, of Birmingham. Improvements in apparatus for the manufacture of phosphorus. Dated 17th May, 1870.
1414. J. Agnew, of Liverpool. A new and improved medicinal preparation of cod-liver oil, called cod-liver oil jelly. Dated 17th May, 1870.
1418. F. G. Cleaver, of Red Lion-street. Improvements in apparatus for moulding and stamping soap and for other similar purposes, part of such improvements being also applicable to charging and discharging apparatus used in various other manufacturing operations. Dated 17th May, 1870.
1425. J. Castelaz, of Paris. Improvements in the manufacture of artificial alkaloids derived from coal-tar, and in the preparation of salts of the said alkaloids. Dated 18th May, 1870.
1447. R. Oxland, of Plymouth, Devon. Improvements in the manufacture of sulphuric acid. Dated 19th May, 1870.
1463. J. J. Denoual, of New Cross, Surrey. Improvements in enveloping medicinal and other liquids. Dated 20th May, 1870.
1499. H. B. Brook, of Westminster. An improved medicinal compound or stomachic cordial. Dated 24th May, 1870.
1546. H. Blandy, of Nottingham. Improvements in the construction and arrangement of vessels employed in the manufacture of nitrous oxide gas, and for other similar purposes. Dated 27th May, 1870.
1547. H. Rose, of Regent's-park. Improvements in the mode of attaching mineral teeth to a plate or "back," which improvements also serve to strengthen the teeth. Dated 27th May, 1870.
1562. A. Maubré, of Baker-street. Improvements in apparatus applicable to the conversion of cereal and vegetable substances into saccharine matter, in treating and purifying saccharine substances obtained from starch, malt, fruits, and vegetables, in treating fatty matters, and in the manufacture of chemical products. Dated 28th May, 1870.
1583. L. Gardner and F. Bushby, both of Manchester. Improvements in pill-making machines. Dated 31st May, 1870.
1586. S. Cobnè, of Cheapside. An improved disinfecting and cleansing powder or saponaceous compound, and vessel to contain the same. Dated 31st May, 1870.
1592. C. D. Abel, of London. Improvements in the manufacture of phosphorus. Dated 1st June, 1870.
1639. L. Rose, of Leith, Scotland. An improved stopper for bottles, and bottle for containing gases or gases combined with liquids, such as aerated beverages, whereby an improved mode of stoppering such bottles can be effected. Dated 7th June, 1870.
1650. A. Piccaluga, of Paris. Improvements in apparatus for manufacturing iced syrup or cream and soda-water beverages. Dated 8th June, 1870.
1668. Z. T. Graigne and E. L. C. D'ivernois, both of Paris. Improvements in magneto-electric machines. Dated 9th June, 1870.
1676. P. Spence, of Newton Heath, Manchester. Improvements in the manufacture of alum, and in obtaining by-products in such manufacture, applicable to certain useful purposes. Dated 9th June, 1870.
1697. E. T. Hughes, of London. Improved methods of preparing pure carbonate and bicarbonate of soda, and also soda in its crystallized state. Dated 13th June, 1870.
700. R. Blackbee, of Dalton. Improvements in the construction of surgical instruments known as "specula." Dated 14th June, 1870.

1704. A. Ford, of Elgin-creseent. An improved method of applying moisture and heat medicated or otherwise, to the animal frame. Dated 14th June, 1870.
1710. F. Dupuy, of Paris. An improved anti-hæmorrhoidal apparatus, or anti-hæmorrhoidal plate. Dated 15th June, 1870.
1766. B. J. B. Mills, of London. Improvements in the process and apparatus for making soup. Dated 21st June, 1870.

Letters Patent have been issued for the following:—

3472. W. Spence, of London. Improvements in the manufacture of soda-crystals. Dated 1st December, 1869.
3581. A. A. Croll, of Coleman Street. Improvements in the treatment of ammoniacal liquor of gasworks to obtain therefrom salts of ammonia. Dated 11th December, 1869.
3645. A. M. Clark, of London. Improvements in the manufacture of superphosphate of lime. Dated 16th December, 1869.
3647. A. R. Stoeker, of Horsleydown. Improvements in stoppers for Infants' feeding and other bottles, and in the manufacture, construction, combination, and employment of the whole or part of the articles to be used. Dated 17th December, 1869.
3662. W. E. Gedge, of London. An improved system of pessary. Dated 18th December, 1869.
3684. E. T. Hughes, of London. Improved garments to be worn next the skin for sanitary purposes. Dated 20th December, 1869.
8745. E. P. H. Vaughan, of London. Improvements in the manufacture of fluoride of potassium and sodium and of hydrate and carbonate of potash and soda. Dated 27th December, 1869.
740. W. E. Gedge, of London. An improved apparatus for subcutaneous extractions and injections. Dated 4th March, 1870.
819. G. W. Fox, of Manchester. Improvements in the treatment of cod-liver, castor, and other medicinal oils in order to render the same more palatable. Dated 19th March, 1870.

Specifications published during the month. Postage 1d. each extra:—

- 1869.
2989. L. A. Lesage. Closing hermetically. 8d.
2991. C. L. Page. Packing cases for bottles, etc. 6d.
3009. J. W. Robinson and T. Murray. Burning liquid carbons. 1s. d.
3033. P. Jacques. Purifying and decolouring blood-albumen. 4d.
3046. W. B. Robins. Syringes. 10d.
3954. G. Scharr. Liquid soap. 4d.
3061. W. E. Newton. Preserving animal or vegetable substances. 4d.
3064. H. Brooks. Metallic cap or cover for bottles, etc. 10d.
3065. J. Becker. Apparatus for stopping bottles. 8d.
3084. R. Scott and Mac Ivor. Utilizing sulphuric acid residues. 10d.
3086. T. Deichmann. Preserving meat. 4d.
3093. W. R. Lake. Manufacture of white lead. 6d.
3102. D. Spill. Preparing and using solvents of xyloidine. 4d.
3119. W. A. Ross. Preserving metals from oxidation. 4d.
3146. R. J. Everett. Manufacture of salts of ammonia from ammoniacal gas liquor. 4d.
3335. G. F. Coruelius. Manufacture of paint and varnish. 4d.



A FEW days ago the Continent of Europe was, or appeared to be, on the verge of a war, which, if it had occurred, would probably have been one of the most cruelly murderous on record. Now prospects appear somewhat brighter. The Hohenzollerns have shown a magnanimity, which, though only what might be looked for in persons of ordinary rank, is perhaps somewhat unusual, and therefore the more commendable, among princes. But the fact still remains, and if we were among the inhabitants of the Continent of Europe we should be far better able to appreciate it in all its bitterness, that at the caprice of some little German prince, still more at the bidding of one or other of the great potentates who have assumed to themselves the right to arrange the mortal destinies of some few hundreds of millions of mortals, many of whom are intrinsically as important as themselves, all these may be plunged into misery, death be scattered freely through these lands, and most of the transactions of ordinary life be brought to a standstill in numbers of now prosperous districts. Surely the time cannot be far distant when men will decline to throw away all their health, strength, happiness, and hopes on such absurdly simple grounds as those on which the probable war which has been so near, would have been founded.

From a private source the following thoughtful remarks on the principles of co-operative stores have reached us, which, we think, will be read with much interest at the present time. The writer asks, "Is co-operation a virtue or a vice? My own opinion is," he proceeds, "that it is neither the one nor the other. I do not see that co-operation is in any respect a question of morality, nor can I see any ground for legislative interference in connection with this matter."

"In the olden time, men produced the raw material for themselves, and consumed it for themselves; but they found that this was a great waste of labour, and that they could get on more comfortably and with less labour, and would have more time for improving themselves and the country by a division of labour. Accordingly, in all civilised countries, the consumers employed persons to perform the acts of production and manufacture for them, and other persons were employed to retail the manufactured goods. All these classes, the producers, the manufacturers, and the retailers, or tradesmen, are still indirectly or directly employed, appointed, and paid by the public, and their welfare is dependant on the good will of the public.

"Now, supposing co-operation to be perfectly carried out, the public would be reverting to the old system of producing, manufacturing, and retailing for themselves; but, reasoning from analogy, they would find that they could not do all this for themselves, and would soon have to appoint servants, whom they would have to pay and to trust to do their work for them, while they, the public, attended to their own business. I cannot see in what these servants would differ from the present tradesmen. I think they would soon get the public in their power quite as much as the present tradesmen have done, and more so; for now there is much competition, and if a tradesman behaves badly the public leave him and go to another; but with co-operation carried out fully, competition would have ceased, and no skilled servant would be found to take the place of the one discharged. The servants, too, would find it easier to combine, when paid a fixed salary, and no longer stimulated by the desire which now exists among tradesmen to rise at the expense of their neighbours, and by a strike they might bring the whole co-operative machinery to a dead lock.

"The servants would, I think, then become quite as independent of their employers as tradesmen now are, and the result would be that the relations between the public and their servants would soon regain their present footing. For this reason, I say, it would be a matter of little or no permanent importance, even if co-operation were fully carried out. I do not think it advisable that it should be so carried out, and if there were any immediate chance or probability of it, I think the legislature might, perhaps, interfere, on the ground that it would ruin many men, and do no permanent good to any. But, on general grounds, I consider that any interference on the part of the legislature with the interests of the subject and the freedom of contract can only be warranted by most exceptional circumstances. So far I have merely considered co-operation as it would be were the co-operative principle fully carried out and perfected.

"I will now briefly consider co-operation as it is; and, firstly, as to the principle of subsidising tradesmen by co-operative societies. I consider this form of co-operation a mistake for the following reason: it tempts the tradesman to impose on the public. He is tempted to join the association by the prospect of a cheap advertisement. He then finds the advertisement has taken effect, but is expected to supply ticket-holders with first-rate goods at less than their market value. He has, accordingly, three courses open to him: either to sell goods below their market value and at a loss, and so pay for his advertisement; or he may leave the society and lose his advertisement, which is perhaps the best thing he could do; or, lastly, he may sell second-rate goods at their market value, and persuade the ticket-holders that they are buying first quality goods at less than their market value.

"Secondly, there is for consideration the establishment of co-operative stores. The goods obtainable at such stores are almost always moderate, in some cases good, and in some few cases bad; and they cost less than the same articles would do at ordinary retail shops, owing to the salaries paid to the co-operative servants being a little less than the retailers' fair profits. But, on the other hand, there is little or no variety in the quality of the goods supplied. You cannot get articles of so good a quality as are obtainable at the best shops; the public have to wait long before they are served, and there is a great want of interest in their requirements shown by their servants. This might be remedied, but would cost money and raise the price of the goods. Again, goods are not sent out

without extra charge, which is a great drawback for most customers.

"People like deluding themselves into the belief that they are getting first-rate goods cheap, and hence the popularity of co-operative stores; and they are so pleased with their own cleverness, that they persuade themselves that the goods they buy are perfection.

"Co-operation is a mistake, no better and no worse, and can never, for any length of time, compete with trade. The public generally are willing to pay tradesmen fairly for the trouble they take in supplying their wants. There is, too, plenty of competition, and any tradesman supplying the best articles at reasonable prices need not fear co-operation.

"I believe that co-operation has nearly run its course, and will, in a few years, die a natural death. If it does not, it will exist only because it is needed by some, and if it dies, it will be no great loss to anyone."

As illustrating the peculiar difference often to be found in estimates for a given quantity of work, we may mention that the premises of the Patent Plumbago Crucible Company (Morgan's Patent) at Battersea are about to be enlarged by the erection of a new wharf, having a river frontage of 62 feet, and an average depth of 70 feet. The designs for this work were prepared by Mr. R. M. Ordish. The first contract—for the wharf walls and basement story—has been let to Messrs. Jackson and Shaw for £1,600. The highest tender was that of Messrs. Ebbs and Son, for £2,570; the next being Messrs. Manley and Rogers, for £2,365. It would be curious to know upon what principle the practice of tendering is carried out, for if Messrs. Jackson and Shaw could see their way to a profit—and we presume as men of business they did—out of £1,600, what was the kind of percentage the other firms who tendered expected to realise? We suppose the difference lies between a desire to obtain an exorbitant profit, and an inadequate knowledge of the requirements of the work to be done.

Our comments on other matters more or less connected with trade subjects generally have already extended so far as to leave us but little space for our usual full report of the position of the drug and chemical markets. Our Prices Current, however, which is made up to the latest dates, will contain all the information, and we must content ourselves with merely indicating the variations in price, which, as it happens, have not been many during the month. The chemical markets have continued very firm, the export orders being still considerable. Mercury and its preparations are dearer, and, with trifling exceptions, this is the only variation of price to be noted among chemicals.

Drugs.—Cape Aloes are rather easier. East India: Fine dry Socotrine are wanted, and would sell readily. Camphor: More business has been doing, but at prices in favour of buyers. China on the spot at 80s, and Japan, afloat to some extent, at 82s 6d per cwt. Cardamoms have been quiet since our last, from the high prices demanded, but some good Malabar have realised 11s, Madras 7s 9d for long and skinny, and Ceylon from 3s to 3s 4d. RHUBARB: all descriptions except fine is selling at low rates. Colombo is more inquired for, and fine fresh root sells at good prices. China is wanted, and good root would command ready buyers. Asafetida sells readily at good prices. Animi is still very scarce and wanted. Arabic is generally rather lower, from large arrivals and further parcels advertised for sale; the quantity offered during the month comprised 1273 chests, of which about two-thirds sold good bold bright 80s, good pale and amber sorts mixed with red 68s to 75s, small and dark 65s to 68s, good red garblings 50s to 55s, inferior and dark 25s to 42s down to 18s for very low, good siftings 27s to 32s 6d, small and mixed 14s to 21s 6d per cwt. Australian is rather easier, except for the fine pale; 161 packages Fremantle all sold, clean pale red drop 36s to 37s 6d, dull reddish unsifted 26s to 28s, dull red and drossy 22s to 24s, siftings and blocky 10s to 22s. Cape sells readily, 54 packages at sale partly roll, good pale 53s 6d, rather yellow and dark, some block fair 46s to 47s, block, 22s. Copal continues to arrive freely, and is as freely offered. Gamboge is lower. Myrrh continues scarce and wanted at our quotations. Shellac has taken a decided improvement during the last week or so, and prices are generally from 5s to 6s higher.

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mining line for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

CHEMICALS.	1870.		1869.	
	January.	January.	January.	January.
ACIDS—	s. d.	s. d.	s. d.	s. d.
Acetic	0 4 to	0 0	0 4 to	0 0
Citric	2 5½	2 6	2 7	2 7½
Hydrochlor.	4 0	7 0	4 0	7 0
Nitric	0 5	0 5½	0 5	0 5½
Oxalic	0 8	0 0	0 7½	0 7½
Sulphuric	0 0½	0 1	0 0½	0 1
Tartaric crystal ..	1 3½	1 3½	1 2½	0 0
powdered	1 3½	0 0	1 3	0 0
ANTIMONY ore.....	360 0	420 0	250 0	300 0
crude	40 0	0 0	26 0	0 0
regulus.....	74 0	75 0	50 0	0 0
star	75 0	0 0	50 0	0 0
ARSENIC, lump.....	16 0	16 6	16 0	16 6
powder.....	7 3	7 6	7 3	7 6
BRIMSTONE, rough ..	160 0	0 0	145 0	0 0
roll	11 0	0 0	11 0	11 6
flour.....	12 0	13 0	13 0	13 6
IODINE, dry	0 9	0 9½	0 9½	0 10
IVORY BLACK, dry... per cwt.	0 0	0 0	0 0	0 0
MAGNESIA, calcined.. per lb.	1 2	0 0	0 0	0 0
MERCURY..... per bottle	157 0	0 0	137 0	138 0
MINIUM, red	20 6	21 0	20 9	21 0
orange	31 6	32 6	31 6	32 6
PRECIPITATE, red .. per lb.	2 9	0 0	2 6	0 0
white	2 8	0 0	2 5	0 0
PRUSSIAN BLUE	0 0	0 0	0 0	0 0
SALTS—				
Alum	145 0	155 0	145 0	150 0
powder	160 0	165 0	165 0	170 0
Ammonia:				
Carbonate	0 5½	0 6	0 5½	0 6
Hydrochlorate, crude,				
white.....	450 0	560 0	460 0	540 0
British (see Sal Ammoniac)				
Sulphate	320 0	330 0	325 0	0 0
Argol, Cape	50 0	67 6	65 0	80 0
France	40 0	50 0	45 0	60 0
Oporto, red	22 0	24 0	23 0	25 0
Stiely	32 0	40 0	40 0	45 0
Naples, white ..	0 0	0 0	55 0	65 0
Florence, white ..	0 0	0 0	70 0	75 0
red	0 0	0 0	60 0	65 0
Ashes (see Potash and Soda)				
Bleaching powd... per cwt.	8 6	9 0	9 0	9 3
Borax, crude	25 0	40 0	25 0	35 0
(Tincal)	45 0	60 0	45 0	60 0
British refnd. ..	68 0	70 0	68 0	70 0
Calomel	2 8	0 0	2 5	0 0
Copper:				
Sulphate	23 6	24 0	23 6	24 0
Copperas, green .. per ton	50 0	60 0	52 6	60 0
Corrosive Sublimate.. p. lb.	2 0	0 0	1 11	0 0
Cr. Tartar, French, p. cwt.	88 0	90 0	84 0	85 0
Veuetian grey ..	90 0	96 0	0 0	0 0
brown	0 0	0 0	65 0	75 0
Epsom Salts	6 0	7 0	7 6	8 6
Glauber Salts	4 6	6 0	4 6	6 0
Lime:				
Acetate, white, per cwt.	12 6	23 0	12 6	23 0
Magnesia: Carbonate ..	42 6	0 0	42 6	0 0
Potash:				
Bichromate per lb.	0 5½	0 0	0 5	0 5½
Carbonate:				
Potashes, Canada, 1st				
sort	31 0	0 0	31 0	0 0
Pearlshashes, Canada, 1st				
sort	46 6	0 0	32 0	0 0
Chlorate	0 9½	0 10	0 11½	0 0
Prussiate	1 0	0 0	0 11½	0 11½
red	1 9½	1 10	1 9½	1 10
Tartrate (see Argol and Cream of Tartar)				
Potassium:				
Chloride	9 6	0 0	7 10	8 0
Iodide	12 0	0 0	12 0	0 0
Quinine:				
Sulphate, British, in				
bottles	5 10	0 0	5 0	0 0
Sulphate, French ..	5 6	5 7	5 1	5 2
Sal Acetos	0 10	0 0	0 10	0 0
Sal Ammoniac, Brit. cwt.	41 0	42 0	36 0	38 0
Saltpetro:				
Bengal, 6 per cent. or				
under	23 0	24 0	20 9	22 6
Bengal, over 6 per cent.				
per cwt.	21 9	22 9	20 0	20 6
Madras	0 0	0 0	19 0	19 9
Romb. & Kurrachee p. ct.	0 0	0 0	18 0	19 0
European	25 0	26 0	0 0	0 0
British, refined ..	26 6	27 6	25 0	26 0
Soda: Bicarbonate, p. cwt.	10 0	0 0	10 0	0 0
Carbonate:				
Soda Ash..... p. dog.	0 1½	0 2	0 1½	0 0
Soda Crystals per ton	77 6	80 0	70 0	0 0
Hyposulphite... per cwt.	18 0	0 0	18 0	0 0

DRUGS.	1870.		1869.	
	s. d.	s. d.	s. d.	s. d.
Soda:				
Nitrate	16 0	0 0	14 6	15 3
SUGAR OF LEAD, White, cwt.	39 0	40 0	41 0	42 0
Brown	26 0	28 0	19 0	30 0
SULPHUR (see Brimstone)				
VERDIGRIS	1 0	1 2	1 0	1 2
VERMILION, English.. per lb.	2 7	2 9	2 6	3 0
China.....	3 0	3 1	2 7	0 0
ALGEE, Hepatic.... per cwt.	60 0	160 0	80 0	180 0
Socotrine	100 0	220 0	120 0	300 0
Cape, good.....	26 0	28 6	28 0	32 0
Inferior	17 0	25 0	16 0	27 0
Barbadoes	80 0	220 0	80 0	200 0
AMBERGRIS, grey..... oz.	25 0	30 0	27 6	32 6
BALSAMS—				
Canada	1 0	0 0	1 3	0 0
Capivi	1 9	1 10	1 9	1 11
Peru	9 9	10 0	11 0	11 6
Tolu	2 3	2 6	2 3	0 0
BARKS—				
Canella alba per cwt.	22 0	34 0	30 0	45 0
Cascarilla.....	20 0	34 0	26 0	36 0
Peru, crown & grey per lb.	0 10	2 4	0 10	2 3
Calisaya, flat ..	3 4	3 0	3 2	3 6
quill	3 4	3 7	3 2	3 6
Carthagona	1 0	1 9	0 9	1 6
Pitayo	0 10	1 6	0 6	1 5
Red	1 6	5 6	3 0	9 0
Bucho Leaves	0 3	0 6	0 3½	0 7
CAMPHOR, Chiua.. per cwt.	78 0	0 0	97 6	100 0
Japan	82 6	0 0	107 6	0 0
Refin Eng. per lb.	1 3	0 0	1 6	0 0
CANTHARIDES	3 0	0 0	2 8	2 9
CHAMOMILE FLOWERS p. cwt.	40 0	72 6	50 0	90 0
CASTOREUM	4 0	32 0	4 0	32 0
DRAOON'S BLOOD, lump,	90 0	200 0	100 0	160 0
FRUITS AND SEEDS (see also Seeds and Spices.)				
Anise, China Star pr cwt.	110 0	115 0	110 0	0 0
German, &c. ..	25 0	40 0	26 0	38 0
Beans, Tonquin .. per lb.	1 0	1 6	1 0	1 6
Cardamoms, Malabar				
good	10 0	12 0	7 9	8 4
inferior	7 6	9 6	5 0	7 0
Madras	5 6	10 0	4 6	8 0
Ceylon	3 0	3 11	2 6	3 3
Corozo Nuts.... per cwt.	11 0	12 0	16 0	19 0
Cassia Fistula..	16 0	35 0	20 0	35 0
Castor Seeds ..	10 0	12 0	11 0	13 0
Cocculus Indicus	19 0	20 0	25 0	0 0
Colocyath, apple.. per lb.	0 4	0 8	0 5	0 9
Croton Seeds .. per cwt.	60 0	72 6	58 0	65 0
Cubeb	27 6	32 6	36 0	40 0
Cummiu.....	40 0	60 0	65 0	70 0
Dividivi	12 0	14 0	10 6	12 6
Fenugreek.....	13 0	15 0	9 0	14 0
Guinea Grains ..	29 0	32 0	38 0	39 0
Juutper Berries ..	10 6	9 0	7 0	8 0
Myrobalans	8 0	16 0	9 0	16 0
Nux Vomica....	11 0	15 0	11 0	15 0
Tamarinds, East India ..	10 0	16 0	12 0	26 0
West India, new ..	10 6	20 0	14 0	22 0
Vanilla, large ... per lb.	36 0	40 0	21 0	25 0
inferior	27 0	28 0	12 0	20 0
Wormseed	35 6	0 0	25 0	30 0
GINOER, Preserved, in bond				
(duty 1d. per lb.) per lb.	0 6	0 8	0 6	0 9
GUMS (see separate list)				
HONEY, Narbonne ..	45 0	55 6	30 0	35 0
Cuba	22 0	36 0	21 0	36 0
Jamaica.....	31 0	52 0	25 0	45 0
IPECACUANNA	5 6	0 0	5 6	5 9
ISINGLASS, Brazil ..	3 0	4 6	2 6	4 5
Tongue sort ..	3 2	4 10	3 1	5 1
East India ..	1 9	4 1	2 3	4 4
West India ..	3 9	4 3	4 0	4 4
Russ, long staple	5 0	8 0	5 0	8 0
leaf	3 0	5 0	3 0	5 9
Simovia	1 6	2 6	1 6	2 6
JALAP, good	2 0	3 0	3 2	4 0
infer. & stoms ..	0 6	2 7	0 6	3 0
LEMNOR JUICE ... per degree	0 1	0 1½	0 1	0 1½
LIQUORICE, Spanish per cwt.	0 0	0 0	63 0	68 0
Italian	40 0	60 0	48 0	67 0
MANNA, flaky ... per lb.	3 0	3 6	5 0	5 6
small.....	1 9	0 0	2 0	2 6
MUSK..... per oz.	18 0	35 0	19 0	35 0
OILS (see also separate List)				
Almond, expressed per lb.	1 0	0 0	1 3	0 0
Castor, 1st pale ..	6 4½	0 5	0 5½	0 5½
second	0 4½	0 4½	0 4	0 5
infer. & dark ..	0 4	0 4½	0 4½	0 5
Bombay (in casks)	0 4	0 4½	0 4½	0 0
Cod Liver	5 0	6 6	5 0	7 0
Croton..... per oz.	0 3½	0 4½	0 3	0 4
Essential Oils:				
Almond	42 0	0 0	40 0	0 0
Anise-seed	8 3	0 0	8 6	9 0
Bay	65 0	70 0	65 0	70 0
Bergamot	8 0	15 0	9 0	16 0
Cajepnt. (in bond) per oz.	0 2½	0 3	0 1½	0 2
Caraway	5 6	6 3	5 3	5 9
Cassia	4 3	0 0	4 10	5 0
Cinnamon	1 0	4 6	1 0	4 6
Cinnamon-leaf ..	0 2	0 6	0 6	0 0

		1870.		1880.		1870.		1869.	
		s.	d.	s.	d.	£	s.	£	s.
Essential Oils, continued:—									
Citronelle	per oz.	0 2	0 2	0 2	0 2	40	0	40	0
fine		0 2	0 2	0 3	0 3	37	16	35	0
Clove	per lb.	2 6	0 0	2 8	0 0	36	10	37	0
Juniper		1 9	2 0	1 9	2 0	35	0	37	0
Lavender		3 0	4 8	3 0	4 0	32	0	33	0
Lemon		5 0	9 6	4 0	7 0	51	0	53	0
LEMONGRASS	per oz.	0 3	0 3	0 4	0 4	47	0	47	10
Neroli		0 5	0 6	0 5	0 6	50	0	50	0
Nutmeg		0 4	0 7	0 4	0 8	49	0	50	0
Orange	per lb.	5 0	7 0	5 0	8 0	0	0	50	10
Otto of Roses	per oz.	13 0	20 0	14 0	20 10	50	0	49	0
Patchouli		0 0	0 0	6 0	0 0	44	0	45	0
Peppermint:						38	0	43	0
American	per lb.	15 0	15 6	19 0	19 6	32	0	37	0
English		36 0	33 0	34 0	41 0	0	0	0	0
Rosemary		1 0	2 0	1 9	2 0	45	0	40	0
Sassafras		3 0	0 0	4 0	5 0	40	0	41	0
Spear-mint		4 0	16 0	4 0	18 0	31	15	32	10
Thyme		1 10	2 0	1 10	4 0	0	0	41	10
Maac, expressed	per oz.	0 1	0 2	0 1	0 2	44	10	45	0
Oerum, Turkey	per lb.	83 0	35 0	26 0	30 0	42	10	42	15
inferior		23 0	32 0	16 0	24 0	48	0	42	0
QUASSIA (bitter wood)	per ton	100 0	150 0	170 0	0 0	45	10	40	0
RHUBARB, China, good and fine	per lb.	4 6	8 0	4 6	8 9	29	0	27	0
Good, mid. to ord.		0 7	4 3	0 8	4 0	70	0	72	0
Dutch trimmed		9 0	10 0	10 0	0 0	35	0	35	0
Russian		0 0	0 0	0 0	0 0	30	3	28	0
ROOTS—Calumba	per cwt.	27 0	42 6	40 0	50 0	0	0	14	0
China		25 0	35 0	27 0	35 0	0	0	1	6
Galangal		17 0	19 0	15 0	20 0	1	0	0	10
Gentian		25 0	26 0	19 0	20 0	0	0	0	0
Hellebore		22 0	30 0	22 0	30 0	48	0	39	10
Orris		50 0	52 0	38 0	44 0	42	10	42	10
Pellitory		58 0	60 0	58 0	60 0	45	10	40	0
Pink	per lb.	0 7	0 10	0 7	0 10	29	0	27	0
Rhatany		0 8	0 10	0 5	0 10	70	0	72	0
Seneca		2 10	3 0	1 9	2 0	35	0	35	0
Snake		1 0	0 0	1 2	1 3	0	0	28	0
SAFFRON, Spanish		50 0	56 0	26 0	31 0	30	3	14	0
SALEP	per cwt.	110 0	0 0	110 0	120 0	0	0	14	0
SARSAPARILLA, Lima	per lb.	0 6	0 7	0 7	0 8	0	0	13	0
Pará		1 0	1 3	1 0	1 3	0	0	28	0
Honduras		1 2	1 6	1 0	1 6	0	0	10	0
Jamaica		2 6	4 4	1 8	2 6	58	0	56	6
SASSAFRAS	per cwt.	0 0	0 0	13 0	14 0	0	0	0	0
SCAMMONY, Virgin	per lb.	28 0	32 0	28 0	34 0	0	0	13	0
second & ordinary		10 0	23 0	10 0	23 0	0	0	13	0
SENA, Bombay		0 3	0 6	0 3	0 5	0	0	13	0
Tiannivelly		0 3	1 4	0 2	0 11	58	0	56	6
Alexandria		0 4	1 7	0 10	1 8	0	0	14	0
SPERMACERI, refined		1 6	1 7	1 5	1 6	0	0	13	0
American		1 5	0 0	1 5	0 0	59	0	58	0
SQUILL		0 1	0 2	0 1	0 2				
GUMS.									
AMMONIAC drop	per cwt.	105 0	120 0	200 0	230 0				
lump		60 0	90 0	120 0	200 0				
ANIMI, fine washed		300 0	340 0	280 0	320 0				
boldscraped		220 0	200 0	200 0	280 0				
sorts		10 0	200 0	100 0	190 0				
dark		75 0	100 0	80 0	110 0				
ARABIC, E. I., fine									
pale picked		75 0	80 0	80 0	84 0				
srs, gd. to fin		65 0	74 0	70 0	78 0				
garblings		35 0	55 0	45 0	62 0				
TURKEY, pick, gd to fin		170 0	210 0	170 0	220 0				
second & inf.		90 0	160 0	90 0	160 0				
in sorts		75 0	100 0	70 0	107 0				
Gedda		38 0	44 0	38 0	45 0				
BARBARY, white		75 0	82 6	83 9	85 0				
brown		63 0	68 0	70 0	75 0				
AUSTRALIAN		20 0	42 0	25 0	45 0				
ASSAFETIDA, com. to gd		30 0	90 0	60 0	90 0				
BENJAMIN, 1st qual.		280 0	460 0	280 0	500 0				
2nd		140 0	200 0	140 0	220 0				
3rd		50 0	100 0	50 0	120 0				
COPAL, Angola red		90 0	100 0	100 0	107 6				
Benguela		90 0	100 0	100 0	110 0				
Sierra Leone	per lb.	0 4	1 3	0 5	1 4				
Manilla	per cwt.	30 0	52 0	32 0	50 0				
DAMMAR, pale		70 0	80 0	95 0	105 0				
EUPHORBUM		18 0	14 0	15 0	16 0				
GALBANUM		160 0	250 0	220 0	260 0				
GAMBOGE, pckd. pipe		800 0	340 0	240 0	310 0				
GUAIACUM	per lb.	0 9	1 6	0 8	1 4				
KINO	per cwt.	60 0	140 0	60 0	120 0				
KOWRIE, rough		35 0	45 0	46 0	60 0				
scraped		48 0	105 0	65 0	112 6				
MASTIC, pickd.	per lb.	7 6	8 0	5 0	5 6				
MYRRH, gd. & fine	per cwt.	190 0	260 0	200 0	260 0				
sorts		92 0	185 0	90 0	170 0				
OLIRANUM, p. sorts		80 0	83 0	80 0	85 0				
amber & ylw.		70 0	78 0	70 0	78 0				
garblings		20 0	46 0	25 0	45 0				
SENEGAL	per cwt.	77 6	90 0	77 6	82 6				
SANDARAC		60 0	97 6	75 0	98 0				
THUS		13 0	14 0	13 0	14 0				
TRAGACANTH, leaf.		220 0	380 0	250 0	380 0				
in sorts		115 0	210 0	115 0	230 0				
OILS.									
SEAL, pale	per tun	£38 6	0 0	£39 0	0 0				
yellow to tinged		36 0	37 0	34 0	37 0				
brown		34 0	35 0	31 0	32 0				
SPERM.		80 0	88 0	92 0	0 0				
headmattor		0 0	0 0	0 0	0 0				
Oils, continued:—									
COD		40 0	0 0	40 0	0 0				
WHALE, South Sea, pale		37 16	35 0	37 16	35 0				
yellow		36 10	37 0	36 10	37 0				
brown		35 0	0 0	35 0	0 0				
East India, Fish		32 0	33 0	32 0	33 0				
OLIVE, Gdipoli		51 0	0 0	51 0	0 0				
Trieste		47 0	47 10	47 0	47 10				
Levant		50 0	0 0	50 0	0 0				
Mogador		49 0	50 0	49 0	50 0				
Spanish		0 0	0 0	0 0	0 0				
Sicily		50 0	0 0	50 0	0 0				
COCOANUT, Cochin.	per ton	44 0	45 0	44 0	45 0				
Ceylon		38 0	0 0	38 0	0 0				
Sydney		32 0	37 0	32 0	37 0				
GROUND NUT AND GINGELLY:									
Bombay		0 0	0 0	0 0	0 0				
Madras		45 0	0 0	45 0	0 0				
PALM, fine		40 0	0 0	40 0	0 0				
LINSEED		31 15	0 0	31 15	0 0				
RAPESEED, English, pale		44 10	45 0	44 10	45 0				
brown		42 10	42 15	42 10	42 15				
Foreign pale		48 0	0 0	48 0	0 0				
brown		45 10	0 0	45 10	0 0				
COTTONSEED		29 0	35 0	29 0	35 0				
LARD		70 0	0 0	70 0	0 0				
TALLOW		35 0	0 0	35 0	0 0				
TURPENTINE, American, cks.		30 3	0 0	30 3	0 0				
PETROLEUM, Crude		0 0	0 0	0 0	0 0				
s. d.		s. d.	s. d.	s. d.	s. d.				
refined, per gall.		1 7	0 0	1 7	0 0				
Spirit		1 0	0 0	1 0	0 0				
SEEDS.									
CANARY	per qr.	48 0	60 0	48 0	60 0				
CARAWAY, English	per cwt.	40 0	45 0	40 0	45 0				
German, &c.		25 0	34 0	25 0	34 0				
CORIANDEr		0 0	0 0	0 0	0 0				
HEMP	per qr.	44 0	43 0	44 0	43 0				
LINSEED, English	per qr.	0 0	0 0	0 0	0 0				
Black Sea & Azof		61 0	0 0						