

## Editorial Notes.

### NO OUTSIDERS NEED APPLY.

SOME years ago, John Leech published a sketch representing a couple of navvies, whose conversation is thus recorded:—Cheery Bob (addressing surly Bill)—“Well Bill, how are you?” To him the unhappy one thus replieth: “What odds to you, you ben't my medical 'tendant;” which was not a polite recognition of Bob's friendly interest. May we venture to make a present of this little anecdote to the Council of the Pharmaceutical Society of Great Britain. We are not their medical attendant, it is true, nor their literary attendant either. We fear we occupy that position towards them, accursed of all others, of a good-natured, honest, outspoken friend. What are we 'to do? We cannot avoid taking an affectionate interest in their proceedings, and yet, time after time have we been reminded in one way or another, that we are not their “medical 'tendant.” The last repulse is a very decided one. Twice have we asked to be allowed to send a reporter to the parliament of the trade, and twice have we been refused. But this year it seemed as if some among them would be willing to condone our past offences, and send us an invitation; and they even got so far as to the appointment of a committee to consider the matter. The discussion is not on record; but the conclusion is, that only their own “medical 'tendant” shall be admitted to the secret chamber.

The resolution come to as to the admission of reporters will be found in its proper place. The new plan is to be that the reporter for the *Pharmaceutical Journal* is to take reports, which will be subject to his own and the Editor's supervision only, and will not be filtered through the triumvirate as heretofore. We have no desire to complain of this decision, it is a matter which the Council has a right to decide. But surely every member of the Society, as well as ourselves, must have been a little astonished at the curious course adopted by the Council in reporting the first part of this particular discussion almost in full, and summarising the latter and most important part in half-a-dozen lines. This is one of those “dark ways” for which our esteemed friends are peculiar.

### OUR FOREIGN CORRESPONDENCE.

It has always been our aim to render the “CHEMIST AND DRUGGIST” as cosmopolitan as possible, in both senses of the word; that is to say, we have endeavoured to obtain from all parts of the world the most reliable information of pharmaceutical movements; and, also, from this centre we have never ceased to cultivate relations with the English reading pharmacists of other lands. In both respects we have been successful. We have special correspondents in America, France, and Germany; and, as our readers know, we not unfrequently publish contributions from other lands. None of our contemporaries, either at home or abroad, has ever attempted, we believe, to establish any such system; and the consequence is, that we often find them printing some item of foreign news three or four months after the same thing has appeared in our columns. We refer with some satisfaction to the thorough analysis of the new German Pharmacopœia, which our correspondent at Dresden has written for us, the first part of which, at least, was published by us before the appearance of the work itself. This review of the newest and apparently the most thorough Pharmacopœia in Europe ought to be valuable in the extreme

to practical pharmacists. We also think it right to direct prominent attention to the passage in the letter of our New York correspondent, suggesting that British manufacturers should send specimens of their specialities to the Pharmaceutical Exhibition, which will shortly be held in connection with the meeting of the Association at Cleveland, Ohio. The reduction of duty on many pharmaceutical and chemical products, recently decided on by the American Legislature, ought to stir up our manufacturers to special efforts in the United States.

French manufacturers of pharmaceutical specialities are looking towards English trade in earnest, and our chemists here will find it very advantageous to watch the novelties which are thus introduced. Many of them are such as will find considerable favour with the profession and the public at home, when they are known. For some years past, we have introduced our journal with untiring zeal to the pharmacists of America and the British possessions abroad. We have been aided by some of the best firms in the world, and the consequence is, that now we have, perhaps, one of the handsomest foreign subscription lists which is accorded to any London journal. The “CHEMIST AND DRUGGIST” is read all through the United States, from Boston to San Francisco; it is the established organ of the trade in Australia, New Zealand, and Canada; it is well known to the Indian and China Mail; and every month it is scattered about in the West Indies, round the African coast, and in the European settlements of South America. We are proud to be thus honoured, and we shall spare no pains henceforth, as we have not done hitherto, to maintain the interest and usefulness of our journal.

### ANTICIPATIONS OF BRIGHTON.

THE British Pharmaceutical Conference will commence proceedings at Brighton, at 10 a.m. on Tuesday, August the 13th. One of the principal rooms of the Pavilion will be set apart for the session, and while some good pharmaceutical papers are sure to be forthcoming, it is also anticipated that a free discussion of the important subject of pharmaceutical education will occur. An influential and energetic local committee with Mr. Savage as chairman, and Mr. Glaisyer as secretary, is paving the way for the pleasure of those who take part in the meeting, and with the boundless attractions of Brighton they will be sure to succeed. They propose to invite their brethren from a distance to a dinner on the Tuesday evening, and with fair weather on their side they may also show us some of the surroundings of the Queen of Watering-places (Scarborough and other fashionable resorts will please excuse the introduction of this perfectly original expression). From a circular which will soon be issued, we extract the following paragraph:—

“Brighton is generally well known and much appreciated for the extent and beauty of its sea-front: from Hove on the west to Kemp Town on the east is a drive of three miles unequalled in the kingdom. The Promenades (East and West), with the two piers, each extending nearly a quarter of a mile out to sea, are favourite resorts. The Marine Aquarium, the largest in the world, is expected to be opened in time for the visit of the British Association and the British Pharmaceutical Conference. The Public Free Library and Museum, a building of considerable extent erected on the Pavilion Estate by the Town Council, is fully

expected to be opened in the course of a few weeks. The contents of the old museum, with considerable additions, will be transferred to the new buildings, and form sources of great attraction. In the neighbourhood of Brighton is the old county town of Lewes, with its numerous churches, and a portion of the old castle containing an antiquarian collection; also Arundel Castle, Keep, and Park, the property of the Duke of Norfolk. From the Devil's Dyke, five miles from Brighton, a fine view, extending over portions of seven counties, may be obtained."

We believe we may also state, though we hesitate to do so, that Mr. Thomas Glaisyer, 12, North-street, Brighton, as local secretary, will cheerfully arrange for lodgings or give any information to friends who may seek his aid.

Finally, we must in this place allude to the munificent endowment which Mr. T. H. Hills has a second time—and this time permanently—conferred on the Conference. His generous gift will be sure to be appreciated, and we sincerely hope it will fulfil the wishes of the donor.

#### MR. LOWE'S OPINIONS.

ENGLISH tradesmen are much indebted to Sir T. Chambers for introducing the question of Civil Service Co-operative Stores into the House of Commons, and for again drawing out the Chancellor of the Exchequer thereupon. Mr. Lowe's mind is so constituted, that however firmly he may try to resist the inroads of justice and common-sense, he cannot choose but yield, sooner or later. On Thursday evening he stated that, "if it lay in his power he should be glad to stop the system" of trading, notoriously carried on by Civil servants. This, he told the House of Commons, "he had said to a deputation sometime ago." The deputation will, perhaps, be rather surprised to hear this. Mr. Lowe certainly spoke sympathisingly to some extent, but he did not manage clearly to convey his decided objection to the system carried on by the Civil servants. The Treasury minute quoted by Mr. Lowe, the other evening, and which he has discovered since the time when the deputation waited upon him, has been infringed in spirit, if not in letter, ever since the stores were started. Of course, the Civil servants of the Crown have a perfect right to combine together, as Mr. Lowe says, "for the purpose of obtaining goods intended for their own use cheaper." No man has a right to complain of that any more than he would have if a Civil servant chose to live on shin-bones of beef. The time for complaining comes when the salaried officers of the nation find their proper work so light that they enter into unfair competition with the taxpayers who support them. Mr. Lowe and the National Chamber of Trade are gradually getting their views into harmony, and for their own sakes we would advise the Civil servants of the Crown to "kindly accept this intimation."

#### MR. E. T. CHAPMAN.

MR. CHAPMAN'S name is well-known in connection with organic chemistry, and especially as the co-author with Mr. Wanklyn of the highly-esteemed little work on the "Analysis of Potable Waters." This gentleman has lately met his death in the prosecution of his scientific researches. At his laboratory, situated at Rübeland, in the Hartz, he had lately been chiefly engaged in experiments on the production of nitrate of methyl. On the morning of June 25th, a tremendous explosion occurred, which smashed the bomb-proof building where he was working, killing himself and three workmen who were also with him, damaging the surrounding houses, and seriously wounding ten other persons. The

brief comments in *Nature*, on Mr. Chapman's short but brilliant career from the pen of Frederick Guthrie, we transfer to our own pages:—

"Mr. Chapman was only in his twenty-seventh year when his career was thus prematurely closed. A pupil of Hoffmann and Kolbe, he was a prolific author of original researches in organic chemistry. Perhaps the best known of Mr. Chapman's researches is his study of limited oxidation. This process, in his hands and those of others, furnished chemists with a valuable method of chemical diagnosis. The little work on the "Analysis of Potable Waters," by Mr. Chapman and Mr. Wanklyn, is a well-known work of reference on this important subject.

"Mr. Chapman was an enthusiastic worker. His manipulative skill was of a high order, and his acquaintance with organic chemistry very extensive, his researches in this branch of science being very numerous. If he had lived, and had an opportunity of continuous scientific work, it is impossible to doubt that he would have contributed his quota towards rescuing our country from the too just reproach of rapidly becoming more and more sterile in chemical discoveries.

"His intimate friends esteemed him highly, for he was a man of varied culture and singular conversational power. It was always a matter of regret to all true friends of science that a man of such proved ability and promise should have been compelled in a manner to banish himself in order to gain a livelihood. His letters show that even in the remote place of his exile, his brain was busy with chemical and physical questions. He must have been killed instantly, and therefore without pain. And certainly as a brave and loyal soldier of science, slain on the battle-field of the laboratory, his death, like his life, showed his unwearied devotion to science. We can ill afford to lose such men."

#### THE CLOSING OF THE SESSION.

THE date warns us that another session is nearly numbered with the past; the reaping is well-nigh ended, and it remains but to see who shall bring home most sheaves rejoicing. Already we enjoy by anticipation the social amenities and the delights of science offered by the approaching annual conference, and we are ready to welcome those of our confraternity in America, whose visit we expect. Let the chiefs manage their affairs as best they may; our business is with the soldiers in the ranks, the labourers in the field, and the runners in the race. Little have we to remark, and nothing new, but we are never tired of inculcating hope or of proclaiming the gospel of encouragement.

To those who have let the sword hang ingloriously in the scabbard, we say, take heart of grace and try the fight again. To others who have begun to plough and allowed the voice of temptation to whisper in their ears, "turn back," we say, look at the corn white for the harvest, waiting to reward stronger toilers—take heart of grace and strive once more. While to such as have bravely run their race and thankfully hung their crown in the quiet home, we say, be not weary in well-doing, take heart of grace, and so continue as to finish your course with joy. Leave to the discontented the wail about poor returns and narrow prospects. We plead for the intellectual life, and of this rest assured that its pursuits *do* satisfy the cravings of the mind, and that in its right hand, in the truest sense, there are pleasures for evermore.

JOSEPH INCE.

THE lights and shadows of a doctor's life are illustrated by the statement which we notice, that Mr. David Davies, surgeon, of Leominster, has been fined £1 and costs for having twice kissed a lady who came to consult him as to the beating of her heart, and which he declared beat "naturally enough." Mr. Davies has probably found his system of treatment more successful in some cases.

## Foreign Correspondence.

## FRANCE.

PARIS, July 5.

IF any body of pharmacists have reason to complain of their condition it is those of Paris. Your readers may think I mean it for a joke when I describe the Parisians as the most contented people on earth—and yet to an extent it is quite true. Doubtless there have been occasions, not very remote either, when floods of fury have burst forth so extreme and so horrible, as to establish themselves at once and for ever as landmarks of history. But during the intervals, things run on in France more placidly perhaps than in any other country in the world. Our National Assembly supplies us with such political excitement as is necessary to our existence, and certainly tranquillity is not the prevailing characteristic of its *séances*. But socially there is no sign of any discontent. Those who work, work cheerfully, and those who merely amuse themselves, do so much less sadly than in England. Hours of business here, for instance, are much longer than in London; but who ever heard of the assistants of the pharmacies clamouring for early closing. They would prefer existence in Paris on any terms to exile in sombre old England under the most favourable conditions. But as I was going to say, Parisian pharmaciens might grumble with some reason just now if they had any inclination that way. To say nothing of the long interruption to business which was occasioned by the siege and the Commune, they have been hit rather severely in other ways. To begin with; you may be aware that formerly, only the pharmaciens of the first-class were permitted to carry on business in this city. But a little before the war this was altered. And it came about in this manner. There was a certain Dr. Conneau of but very moderate professional pretensions, but who had some influence at Court. He had been a *confère* of the Emperor in bad times; and Napoleon, selfish and treacherous though he proved himself to be in many acts of his life, was not quite the man to desert an old comrade. This Conneau therefore had the power of asking for a favour; and one favour that he asked was that a certain friend of his, a pharmacien of the second-class, might be permitted to open a pharmacy in Paris. To grant this it was necessary to alter the law, which was accordingly done; and with the one came at least a hundred of the second-class pharmaciens. This was rather hard on those who were in possession; for many of them had gone to the great extra expense and labour of obtaining a first-class diploma expressly for the purpose of being able to open a pharmacy in Paris. Now, it happens, as is well-known that since the siege and the Commune, Paris has lost a large portion of her resident population, that portion being almost exclusively of the better class. Our population is at least 300,000 less than it was four years ago, and of course tradesmen who depend on the resident natives feel this loss severely. The English and American pharmacies have no reason to complain, for the influx of visitors has been very large, and they catch most of them. Then, to crown the edifice of unfavourable circumstances, our excellent President is now desirous of laying a tolerably stiff tax on most of the raw materials used in the manufacture of pharmaceutical products. Such a tax has been coolly advocated on the ground that it would scarcely affect consumers at all, the idea apparently being that the patient pharmacien would still smile and suffer. Of course there is opposition, and doubtless some of the proposals of the Government will be modified, but it is almost certain that an impost will be granted to some extent.

A queer story was told in the Paris *Figaro*, the other day, which, whether true or not, is worth reproducing. A very respectable pharmacien in Paris, we are informed, by name M. D——, announced some time ago that he was prepared to embalm dead bodies. About six months back a carriage drove up, and a young gentleman got out and entered the pharmacy. He was well-dressed and very sorrowful. He had lately lost his father, and had brought with him the corpse to have it embalmed. The pharmacien undertook the task, and informed his visitor that two days would be required; at the expiration of which time the young gentleman was to call again. The body was embalmed with sulphate of alumina and various spices and

perfumes, and the two days passed, but the young gentleman did not return. Day after day went by, and when a fortnight had elapsed M. D—— comprehended that he had been swindled. As a desperate manœuvre he then placed the embalmed corpse in his window, and labelled it

## MOMIE DE RAMESES IV.

## ROI D'EGYPTE.

It was not long before this extraordinary curiosity attracted, as a customer, M. le Baron de C——, who was tempted to add a Pharaoh to his museum. But this nobleman's astonishment may be imagined, when, examining the mummy, he recognised his old friend M. de L——. The pharmacien confessed the truth, and tried to lay all the blame on the well-dressed youth who had so ingeniously avoided funeral expenses. But M. le Baron was not to be deceived again. It was a well-known fact that the young gentleman had absconded, and here there seemed tolerably conclusive proof that he and the pharmacien were accomplices in a most repulsive swindle. M. D—— was therefore arrested at the instance of the Baron, and—there the story closes for the present.

The French language admits many shades of expression, and it is not to be wondered at if the names of pharmaceutical preparations should get ill-used occasionally in this as in other tongues. For examples:—*Huile de Ricine* is frequently known as *huile d'hérissou* (oil of hedgehog), and is sometimes called *huile de Henri Cinq*. A general name for *l'huile de foie de morue* (cod-liver oil) is *l'huile de foie d'amoureux* (oil of affectionate liver). *Nitrate d'argent* (nitrate of silver) is often described as *mitraille d'argent* (silver grape-shot), and *l'iodure de potassium* has been known to be ordered as *l'ordure d'exportation*, which may be elegantly translated as "manure for export." These are a few further proofs that "language was given us to conceal our thoughts."

## UNITED STATES.

NEW YORK, June 25.

SINCE my previous letter, Congress has adjourned, and our fraternity feel at ease on the tariff question. While the legislative body of our nation remained in session, all were in doubt as to what goods were to be placed on the free list, how much of the duties would be remitted on others, and what remain as they were. In the wholesale trade it affected purchasers, and all were cautious, while the apothecary was hoping for large reductions, and thus be the gainer. But the deed is done, and save the uncertainty of the Custom House officials interpreting the law as others desire (for there are always some uncertain or doubtful interpretations to every tariff law), we can now look for a lower cost of goods used by the drug trade. The general spirit of the bill is to admit all crude articles free, or nearly so, and to greatly reduce the rate on manufactured articles. While, on the latter class, many of them are still taxed sufficiently high to exclude them as imports, and thus advance the cause of the producer in our land, yet the rate has been in general so much reduced that foreign manufactures have but little cause to complain. A casual glance at the bill leads us to judge that the reduction on drugs, chemicals, and medicinal articles must be equal to at least 30 per cent. from the previous tariff bill. The writer is not inclined to express political views, or discuss the merits of free trade or its antipodes, protection, but he ventures the opinion that the modification of the tariff is most wise and excellent, that the revenues are likely to be sufficient for their proper uses, that the home manufacturer is sufficiently provided for, and the foreign manufacturer has no right to complain.

The administration of our national affairs during the past three years has been marked by constant prosperity at home a gradual and marvellous reduction of our national debt, the respect of all the nations of the world, and the rapid recovery of all portions of our union from the devastations caused by our war.

That the present administration will be endorsed by the people at the next national election, and our present President, General U. S. Grant will be re-elected, is almost a certainty. The nominee of the so-called "Liberal Repub-

licans," the Hon. Horace Greeley, has not the united support of even those who nominated him, and the leaders of that party have time and again expressed in public their views of his incapacity of holding a position as a leader of public opinion in any official capacity. For what he has done to advance the cause of the negro race, and other noble deeds in past years, give him the respect he deserves; but his vacillating opinions, his political complications and associations during the past eight or ten years, would be enough to lead any intelligent person to lose all confidence in his ability to safely, wisely, or competently direct the momentous affairs of this nation.

In a few days the Democratic party are to hold a convention to nominate candidates for the highest gifts at the disposal of a "generous Republic." It seems a foregone conclusion among the majority of our people that they will "go" for Greeley, while a large minority incline to the opinion that another candidate will be named. Time alone can tell; but it is to be hoped that the ultimate verdict of the people will be the re-election of President Grant, and Henry Wilson as his associate. Enough of tariff and political items for this letter.

In the May letter it was stated that a new bill on the subject of Pharmacy was before the Legislative body of the State of New York. The bill, after some modifications, was passed, although it met with severe opposition in the Legislature, and an attempt was made to influence the Governor to refuse his signature as approving it. He, however, gave his assent, and the bill became a law. The College of Pharmacy of the City of New York met on the first Monday in June, and elected, as a "Board of Pharmacy," to serve three years, William Neergaard, William Manlius Smith, M.D., Francis H. Weismann, M.D., Theobald Frohwein, and Paul Balluff. Subsequently William Neergaard was elected President of the Board, and Dr. Francis H. Weismann Secretary, and the Board are now about to have meetings on four days of each week to "Register" those who are Graduates in Pharmacy, or Licentiates in Pharmacy. After this, they are to examine all persons in the City of New York who dispense medical prescriptions, who have not been already examined and registered. The Board receive no compensation, with the exception of the Secretary.

Owners of stores pay a registration fee of two dollars, clerks one dollar, and all who come up for examination pay an examination fee of five dollars. The law embraces the feature of a poison law, as in England.

In Philadelphia, a law (passed by the Legislature of Pennsylvania) has become operative, and by its provisions the mayor of that city, selected, from names offered by the Philadelphia College of Pharmacy, as the Examining Committee: James N. Marks, Robert England, Prof. Edward Parrish, James T. Shinn, and Charles L. Eberle. The law in Philadelphia is essentially different from that in New York. It registers all persons engaged in business on their own account, at the time the law went into effect, all persons who are graduates of colleges of pharmacy to register, but no one can hereafter engage in business unless he is a graduate or licentiate in pharmacy.

It compels, however, the examination of all others who dispense medical prescriptions.

Of the practical working of these laws, and the various Boards of Pharmacy, I will write you hereafter.

Our "National Text Book," the U.S. Pharmacopœia, is anxiously looked for by all the fraternity. The body who met in Washington, in May, 1870, delegated the work to a publishing committee, and it is believed that the work is ready for the printer now, if not some portions already in proof. It doubtless will be a work reflecting credit upon its faithful labourers.

There are but two other things that I will allude to in this letter.

First, to again call the attention of those of your readers "at home," and ask some of the *confrères* of H. B. Brady, President of the British Pharmaceutical Conference, to imitate his example, and see our broad land, and be sure to be at Cleveland in September, at the meeting of the American Pharmaceutical Association. The hearty welcome that he received is the assurance that his worthy associates will find as good awaiting them. English manufacturers of chemical and pharmaceutical products and allied articles are invited to forward specimens for the Exhibition in Cleveland.

Our colleges of pharmacy are preparing for the next session, and the "prospective pharmacist" has the choice of several good schools, where he has a more easy road to acquire the information he seeks than did his preceptor. The College of Pharmacy in this city has secured much larger and better accommodation, and hopes and expects a very large class. It is providing every facility to assist the student by means of its cabinet, library, its regular courses of lectures, as also special opportunities for technical instruction in the chemical laboratories of the School of Mines, and instruction in botany. To incite the activity of its students to emulate each other, it offers six prizes amounting to three hundred dollars, and a magnificent microscope, with accessories, each prize being accompanied by a certificate of the facts attested by the officers of the college. The prospectus of the other colleges not having come to hand, I cannot give further information. B.

## GERMANY.

### THE NEW GERMAN PHARMACOPŒIA.

(Continued from page 183.)

DRESDEN, July 1.

*Fel Tauri depuratum siccum.*—Equal parts of fresh ox bile and rectified spirit are mixed, allowed to settle, filtered, and the alcohol distilled off. To the remainder are added in small quantities moist animal charcoal, previously purified by hydrochloric acid, till a filtered portion of the liquor shows a yellowish colour, then filter the whole, and reduce to a dry extract. 100 parts of fresh ox bile yield 7 parts of dry fel tauri.

*Ferrum citricum oxidatum.*—Dissolve 1 part of citric acid in 4 parts of water, and add by degrees a sufficient quantity of freshly precipitated and still moist hydrated peroxide of iron, so that after a longer digestion at a gentle heat, and frequently repeated shaking, a small quantity only remains undissolved. The filtered liquor is evaporated at a moderate heat to a thick syrup, spread on porcelain or glass plates and dried. It is easily and entirely soluble in water. The solution mixed with liquid ammonia yields no precipitate.

*Chinium ferro-citricum.*—The formula given for this preparation does not differ considerably from the Brit. Pharm. formula. Six parts of citric acid are dissolved in 100 parts of water, then are added 3 parts of powdered iron; and when the evolution of hydrogen gas has ceased, the solution is filtered and evaporated, till a fourth part remains; after this is added one part of quinine, dissolved, and the whole evaporated to a thick syrup, spread on plates and perfectly dried at a moderate heat. Scales of a yellow-greenish colour, insoluble in alcohol.

*Ferrum iodatum.*—The proportions of ingredients are 3 parts of iron, 8 parts of iodine, 18 parts of water; 2 parts of iodine more than the British Pharmacopœia orders. Ten parts contain 8 parts of iodine. To be prepared *extempore* according to this formula, when ordered for mixtures; for pill masses the solution is to be evaporated to proper consistence.

*Ferrum oxidatum saccharatum solubile.*—To a mixture of equal quantities (by weight) of solution of perchloride of iron and simple syrup, add in small portions, and continuously stirring, 40 parts of solution of soda; put aside for twenty-four hours, then pour the clear liquid in 300 parts of warm distilled water, stir up and allow to settle, wash the precipitate with distilled water as long as the water passes through the filter colourless and shows a strong alkaline reaction. After having freed the precipitate from the superfluous water, mix with 90 parts of sugar, evaporate, stirring continuously to dryness, and add sufficient sugar to make 100 parts. A brown powder of sweet, mild, ferruginous taste, entirely soluble in 5 parts of water. 100 parts contain 3 parts of metallic iron. This preparation represents the *Ferrum solubile Sierberti*.

*Ferrum pyrophosphoricum cum ammonio-citrico.*—Dissolve 84 parts of pyrophosphate of soda in 500 parts of distilled water, and mix it in small portions with 84 parts of solution of perchloride of iron, previously diluted with 800 parts of water. Wash the precipitate carefully, and while still moist put the latter in a mixture consisting of 26 parts of citric acid dissolved in 50 parts of distilled water, and sufficient liquid ammonia, that the latter slightly prevails. After solu-

tion has been effected, evaporate the yellow liquid at a gentle heat to a thick syrup, spread on porcelain plates and dry. Scales of green-yellow colour, mild, ferruginous taste, easily and entirely soluble in water; the solution mixed with liquid ammonia yields no precipitate; heated with solution of potash it evolves ammonia, and yields a yellowish-white precipitate. 100 parts contain 18 parts of metallic iron. As the stomach will bear this preparation much better than many other iron preparations, it is at present largely used here.

*Ferrum sulphuricum oxidatum ammoniatum*.—300 parts of solution of persulphate of iron, 28 parts of sulphate of ammonia, and 100 parts of distilled water are mixed in a porcelain dish, and evaporated till a film is formed on the surface, and set aside to crystallize. The crystals obtained are quickly washed with a small quantity of water and dried by exposure to the air. It is principally used for testing the strength of solution of chlorine and chloride of lime. 100 parts of solution of chlorine, mixed with 4 parts of the salt dissolved in water, will not discolour solution of permanganate of potash. As the protoxide of iron in 100 parts of the salt requires 9.06 parts of chlorine to transform it into peroxide, 4 parts would therefore require 0.362 parts of chlorine, which figure represents the percentage of the officinal solution of chlorine.

Under *Flores chamomillæ Romanæ* (*Anthemis nobilis*), a caution appears not to confound them with *Pyrethrum parthenium* and *Achillæa ptarmica*. *Matricaria chamomilla* (which is commonly used here) is not to be confounded with *Pyrethrum inodorum*, *Anthemis Cotula et arvensis*. *Flores kosso* (the Prussian pharmacopœia wrote *kusso*), before being used, are to be freed from the thicker branches. As mother-plant of *Galbanum*, *Ferula rubescens* is mentioned.

*Gelatina lichenis Islandici*.—Heat 3 parts of Iceland moss for half-an-hour in a water-bath, with 100 parts of water, strain, add 3 parts of sugar, and evaporate till 10 parts remain. To be prepared *extempore*.

*Gelatina lichenis Islandici, saccharata sicca*.—To 16 parts of Iceland moss and 1 part of purified carbonate of potash, add sufficient water to cover it, let stand for twenty-four hours, strain and wash the moss carefully till all bitter and alkaline taste has disappeared. Then heat the moss with 200 parts of water in a water-bath for four hours, strain and repeat the treatment. To the mixed liquors add 6 parts of sugar, evaporate and dry well, add sufficient sugar, so that the dry powder obtained shall consist of equal parts of gelatine and sugar.

*Glycerinum*.—The following tests are given:—Oxalate of ammonia and sulphuretted hydrogen water should cause no turbidity; heated with solution of potash, it should not turn brown, and this mixture should not assume a red colour by the addition of sulphate of copper; mixed with diluted sulphuric acid and evaporated, it should not turn black; mixed with alcohol and concentrated sulphuric acid, it should evolve no smell of butyric ether.

*Acacia nilotica*, *A. leyal*, *A. tortilis* are mentioned as the trees yielding *Gummi arabicum*.

*Hydrargyrum chloratum mite vapore paratum*.—A very fine, white powder; when rubbed with great force in a mortar, it assumes a yellow colour. As to its effect, this variety of calomel stands between the sublimed and the precipitated sorts—an assertion which is likewise confirmed by the microscope. When magnified 300 times, it will be seen that the granules of the calomel *à la vapeur* are smaller in size than those of the sublimed, but larger than those of the precipitated variety.

*Infusa* are to be prepared by pouring boiling water on the ingredients, and putting the whole in a water-bath for five minutes; strain when cold. The proportions for *Infusa concentrata* and *concentratiss* are the same as for *Decoct. concent.*, etc.

*Iodoformum*.—Very small crystalline scales of yellow colour and saffron-like odour, insoluble in water, soluble in 80 parts of cold and 12 parts of boiling alcohol, and in 20 parts of ether.

*Liquor kali arsenicosi seu Fowleri*.—Arsenious acid and pure carbonate of potash, of each 1 part; boil with 1 part of distilled water till solution is effected, then add 40 parts of water, filter and add sufficient water to make 90 parts. For what earthly reasons this liquor has not been made a 1 per cent. solution it is difficult to understand, as it would then

have been in correspondence with the decimal system of weights. The omission of all colouring or aromatic matter will not meet with approval on all sides.

*Liquoratri carbonici*.—Mix 5 parts of pure carbonic acid with 1 part of solution of soda and 4 parts of distilled water. Specific gravity 1.060 to 1.065; reaction slightly alkaline. To be prepared when ordered.

*Magnesia citrica effervesces* is not merely "so-called citrate of magnesia," but actually represents what the name implies. The mode of preparation is as follows:—25 parts of carbonate of magnesia and 75 parts citric acid are mixed with sufficient water to make a thick pap, which is dried at a temperature not exceeding 30° C. (80° F.) To the dry mass add 13 parts of bicarbonate of soda, 6 parts of citric acid, 3 parts of sugar, mix thoroughly, moisten with alcohol, stir assiduously till the powder begins to aggregate, rub through suitable sieves lined with tin, and dry the obtained granules at a gentle heat.

*Magnesia lactica*.—Mix one part of lactic acid and 10 parts of distilled water, heat slightly and add sufficient carbonate of magnesia to neutralize the acid, and evaporate the filtered liquor to crystals. Prismatic crystals, or crystalline crusts, soluble in 26 parts of cold and 3½ parts of boiling water, insoluble in alcohol.

*Mel depuratum*.—Dissolve 1 part of honey in 2 parts of water, heat for an hour to nearly 100° C., without boiling, filter and evaporate at a temperature of 40 to 50° C., to a thick syrup. Formerly it was ordered to mix the honey with charcoal; this has now been omitted.

*Mistura gummsa*.—Finely-powdered gum arabic and sugar, of each 15 parts, dissolved in 170 parts of distilled water. To be prepared when required. *Mucilago gummi arabici*, 1 part of gum arabic and 2 parts of water. *Mucilago salep*. Put 1 part of powdered salep tubercules in a bottle containing 10 parts of cold water, mix well by shaking, then add 90 parts of boiling water and shake till the mixture is nearly cold; *extempore*.

*Natrum pyrophosphoricum ferratum*.—Dissolve, without heat, 200 parts of pyrophosphate of soda in 400 parts of cold distilled water, to this liquor add gradually, constantly stirring, 81 parts of solution of perchloride of iron, previously diluted with 220 parts of distilled water in such a manner that no new portion is added before the precipitate formed each time is re-dissolved. In the filtered greenish liquor pour in 1,000 parts of alcohol, wash the obtained precipitate with a small quantity of alcohol, dry between sheets of filtering paper at a very gentle heat. A whitish powder, slowly soluble in cold water; the watery solution becomes decomposed by boiling, yielding a white sediment.

*Oleum chamomille infusum*.—Mix 2 parts of chamomile flowers with 1 part of rectified spirit, let stand in a closed vessel for several hours, then add 20 parts of olive oil, heat in a water-bath till all alcohol is volatilized, strain, allow to settle for several days, and lastly filter. *Oleum cocois*.—A white, fat oil, solid and even granular in the cold, soft at 15° C., melts at 23° C.; mother-plant *Cocos nuxifera*.

*Oleum camphoratum*.—Linimentum camphoræ, B.P. One part of camphor and 9 parts of olive oil. [Linimentum ammoniato camphoratum is 4 parts of camphor oil and 1 part of liquid ammonia].

*Opium* in the dry state shall at least contain 10 per cent. of morphium.

*Oxymel colchici*.—Colchicum vinegar 1 part, clarified honey 2 parts; evaporate in a water-bath till 2 parts remain, then strain.

*Pilula odontalgica*.—Opium, belladonna root, pyrethrum root (*Anacyclus officinarum*), of each 5 grammes, yellow wax 7 grammes, almond oil 2 grammes, oil of cajuput, oil of cloves, of each 15 minims, beat all together in a warmed mortar into a uniform mass, of which 5 centigrammes pills are formed and dusted with powdered cloves.

*Pulvis arsenicalis cosmi*.—Cinubar 120 parts, animal charcoal 8 parts, dragon's blood 12 parts, arsenious acid 40 parts; mix thoroughly. The original formula contained powder of burnt old shoe-soles.

*Pulvis ipeccac. comp.* is of the same strength and composition as in the Brit. Ph. The Saxon Pharmacopœia had sugar of milk instead of sulphate of potash.

Of *Radices*, the Pharmacopœia counts 30, while the Prussian Pharmacopœia contains only 20; but the additions present no new features.

*Rhizomata* are 13 in number, 5 more than the Prussian Pharmacopœia contained.

The *Aromatic spirits* are usually to be prepared by distillation, spirit of scurvy grass from the fresh herb. *Spiritus menthe crispæ et piperitæ anglicus*, 1 part of oil and 9 parts of alcohol. *Spiritus sinapis*, 1 part and 50 parts.

*Syrupus ferri oxidati solubilis*.—The precipitate moist, and mixed with sugar, obtained in the preparation of *Ferrum oxidat. saccharat. solub.* is set in a water-bath for two hours, the evaporated water restituted from time to time; when cool, sufficient simple syrup is added that the whole may amount to 300 parts. 100 parts contain 1 part of metallic iron.

*Tincturæ* are prepared either by maceration or digestion; time, one week. It is not allowed to make good the loss of spirit during the process. *Tinctura belladonnæ*, 5 parts of the fresh leaves and young branches are crushed and macerated with 6 parts of rectified spirit. After the same method are to be prepared *Tinct. digitalis*, *thujæ*, *toxicodendri*. *Tinct. digitalis atherea*, 1 part of dry foxglove leaves, spirit of ether (1 to 3) 10 parts, macerate for one week. *Tinct. iodi decolorata*: take of iodine, hyposulphite of soda, distilled water, of each 10 parts, dissolve by applying a gentle heat, then add 16 parts of spirituous liquid ammonia, (*Liquor ammonii caustici spirituosus Ozondii*), and after shaking a little while, add 75 parts of rectified spirit, put aside for three days, then filter. A clear, colourless liquid of peculiar and slightly ammoniacal smell, specific gravity 0.940 to 0.945. *Tinct. iodi*, 1 and 10, contains no iodide of potassium. The simple, not narcotic, tinctures are prepared in the proportion of 1 part of the drug to 5 parts of alcohol, except *Tinctura castorei Canadensis et sebirici*, which are 1 to 10; those tinctures which contain resins are made with rectified spirit; simple narcotic tinctures prepared from the dry drugs are in the proportion of 1 to 10. To the same class belong further *Tincturæ arnicæ* and *croci*. *Tinctura cannabis indicæ*: 1 part of extract of Indian hemp and 19 parts of rectified spirit, so that it almost precisely corresponds with the English tincture; formerly it was 1 to 9. *Tinctura moschi*: 1 part of moschus, distilled water, and proof spirit, of each 25 parts; one week's maceration. This is five times weaker than the preparation of the Saxon Pharmacopœia; it was not official in the Prussian Pharmacopœia of 1862. 200 parts of *Tinct. opii benzoicæ* contain the soluble matter of 1 part of opium; 10 parts of *Tinct. opii crocata and simplex* contain the soluble matter of 1 part of opium respectively.

*Unguent arsenicalis Hellmundi*.—*Pulvis arsenicalis cosmi* 1 part, *Ung. narcotico-balsamic Hellmundi* 8 parts. Prepare when required. *Ung. dicerhylon Hebra*: simple lead plaster and linseed oil, equal parts of each, melt and mix well. *Ung. kali iodati*: 20 parts of iodide of potash, 1 part of hyposulphite of soda, dissolve in 15 parts of distilled water, and mix with 165 parts of lard; a white ointment. *Unguent. narcotico-balsamicum Hellmundi*: acetate of lead, finely powdered 10 parts, extract of hemlock 30 parts, wax ointment 240 parts, Peruvian balsam 30 parts, tincture of opium with saffron (*Tinctura opii crocata*) 5 parts, mix thoroughly. *Ung. sabinae*: 1 part of extract of savin, 9 parts of wax ointment. After the same manner are to be prepared *Ung. belladonnæ*, *digitalis*, etc.

*Vinum Chincæ*.—5 parts of yellow Cinchona bark, 100 parts of red wine; after one week's maceration, filter. *Vinum colchici* prepared from the seeds, 1 to 10. *Vinum ipecacuanhæ*, the same proportions, that is, double the strength of the English preparation. *Vinum pepsini* has been already mentioned.

*Zincum sulpho-carboticum*.—Colourless crystals, of very slightly carbotic acid smell, slightly soluble in water and alcohol. 100 parts contain about 15 parts of oxide of zinc.

At length has been fulfilled that which we have so ardently wished. All German chemists are bound to one rule, and whatever faults a zealous critic may trace out, one thing is certain: the new Pharmacopœia marks a turning-point in the history of German pharmacy, and we all hail it with welcome and satisfaction.

The Reichstag has been closed, and the different petitions for and against free trade in pharmacy have not been laid before the plenum. The discussion of this question will therefore have to stand over till next year, a delay which will serve to cool down the somewhat excited feelings on both sides, and allow sufficient time to the deputies for a

full and unbiassed consideration of the question. Meanwhile, the full report of the Petition Committee has been published; this report denies the necessity of limiting the number of pharmacies by administrative regulations, and points out the irregularities to which this measure has given rise. In the gubernatorial district of Oppeln, there are 20,000 inhabitants to one pharmacy, and 5,385 in that of Aurich; 13,000 to 14,000 in the district of Posen, and in Berlin, 15,300 inhabitants to one pharmacy, in which estimate the many thousand persons who make an occasional stay in Berlin are not included; (another striking example is afforded by Dresden-Neustadt, with a population of 50,000 and two pharmacies); in fact, 330 more pharmacies would be required to come up to the regulation number of one pharmacy to 10,000 inhabitants. Such a fact speaks for itself. The report contains a passage which is of special interest to your readers. It is said there:—"In contrast with the very unfavourable judgment generally passed here upon English pharmacy, it deserves mentioning that the official Prussian report of the London Exhibition of 1862 spoke of English pharmacy in a very commendable manner." Now, within the last few years, the English pharmacists have striven very hard to elevate the standard of their profession, and they have done so with great success, but so much the more is it to be regretted that we, here in Germany, still regard English pharmacy with so much prejudice, merely on the ground that there is free trade, the dreadful consequences of which are that it allows every qualified man to make the best use of his faculties, opens for him the prospect that by intelligence and industry he can win a home of his own, and does not condemn him, if he is not in possession of a fortune, to spend the whole of his lifetime in the employ of others. It is my firm belief, however sharp the undue competition which the English pharmacist has to combat, he certainly does not long for limitation and government protection and supervision with its whole burden of laws and regulations, and therefore it has taken me entirely by surprise to see a letter published by Danckworth, President of the North German Chemists' Association, in which he declares:

"When the petitions for free trade were presented to the Reichstag, in the beginning of this year, I wrote to several pharmacists of high standing in England and the United States, asking their opinion about it. The replies I received were so decidedly in favour of the further maintenance of the protective system, that I delivered them to the Bundesrath, praying to institute further inquiries on this subject by the German ambassadors and consuls in these countries."

Does any English chemist really wish to see the German system adopted in England with all its bureaucratic apparatus? An answer will oblige. If on the other hand the present system cannot be abolished without inflicting great hardships on the present owners, the best course would be to grant licences more liberally than hitherto, which licences might again become open to competition at the retirement or death of the owners. Such a course would equally meet the requirements of the public, satisfy the not unjust demands of those assistants who, although qualified, but without a fortune sufficiently large to buy a business, are anxious to establish themselves, and it would do the smallest possible amount of injury to the holders of privileged businesses. In this manner, the way for entire freedom in pharmacy could be paved. I will add that a committee has been appointed by the German chemists, charged with the protection of their interests, and the collection of money for this purpose; Dr. Schacht, of Berlin, acts as chairman.

By order of the Bundesrath, the new Pharmacopœia will appear on the 8th of July, and take effect on the 1st of November.

Another poisoning case has occurred with Morphium muriaticum, wrongly supplied by a wholesale house instead of Chinium muriaticum. The head of the establishment was prevented from examining it by the illness of one of his assistants, and ordered the bottle to be put aside till he should find time to analyse it; but after the lapse of several days, the contents of the bottle were taken into use, and the consequence was the death of a young man, 18 years of age. An equally sad case of poisoning occurred under very peculiar circumstances. A physician ordered for a farmer's wife thirty bottles of Karlsbader wasser, which Mr. K—, chemist in the little country town of L—, procured from a Berlin

mineral water wholesale house, and in the package, as an enclosure, a bottle of carbolic acid. Having to go on a little journey, he left instructions to his assistant to deliver the box to the customer, as soon as it arrived, but unhappily forgot to mention the carbolic acid. The husband received the box with the water, and, according to the directions of the physician, poured a quantity of a liquid contained in a bottle wrapped in paper in a glass, with warm water, and gave it to his wife to drink. She immediately fell down senseless and expired before a doctor could be called in. Of course, the unfortunate woman had swallowed the carbolic acid. The chemist was charged with manslaughter, and he tried to throw the blame upon his assistant, on the ground that the latter ought to have examined the box before delivery, but the court ruled that, as the assistant had no knowledge of the enclosure, no blame rested with him, and the chemist alone was responsible. He was sentenced to three weeks' imprisonment.

The North and South German Chemists' Association will meet in Frankfort on-the-Main, from the 24th to the 26th of September. The chief subject of discussion will be the intended union of both associations.

Chemists have frequently to complain that *Extractum filicis*, after some time, separates in several layers. To avoid this, it is necessary to employ a powdered *Rhizoma filicis*, perfectly dried by means of quicklime, and use an ether of 0.725 to 0.728 specific gravity, which contains no water and, at the most, mere traces of alcohol.

To parties whose business affords them opportunities of examining urine, it will, perhaps, be of interest to hear of another very delicate test for grape sugar besides Fehling's solution. To solution of subacetate of lead, add a diluted solution of crystallized acetate of copper; five c.c. of this liquid are mixed with urine, and heated till the latter begins to boil. If grape sugar be present, the liquid assumes a yellow colour, and after some time gives a yellow precipitate. 1-100th per cent. of grape sugar can be detected by this method. Should the liquid contain more than 1 per cent., it turns orange-red after some minutes' boiling, and yields a precipitate of the same colour, which soon changes to a dirty yellow. Cane sugar is not affected by this test. A diluted solution of milk sugar shows the same reactions as grape sugar: a concentrated solution turns red, and gives, also, a red precipitate. *Vice versa*, a solution of grape sugar mixed with solution of subacetate of lead can be advantageously used for detecting traces of copper.

According to the June number of the *Archiv. des Nord Deutschen Apothekervereins*, this association counted 1,305 members, at the end of the year 1871; but within the last few months, a great many chemists have joined the association, mainly on account of the pressing questions of the day, which rendered it advisable to win strength by union.

Formulæ for adhesive plaster are not wanting; but certainly the following one for *Emplastrum adhæsivum fluidum* given by Mr. Enz, of Sembach, offers some interesting features:—Take of dammar resin, finely powdered, 560 parts; oil of almonds, 142 parts; castor oil, 70 parts; best glycerine, 30 parts; melt till the mass flows smoothly, and when half cold, add, by degrees, 225 to 240 parts of spirit ether in which red aniline, free from arsenic or any other colouring matter, has been dissolved. The plaster thus obtained is of the consistence of a balsam. The dammar resin is easily soluble in fat oils; by the addition of spirit of ether, it is partly precipitated, but in a very finely divided, doughy state. *Dammaryl* and hydrate of *Dammaryl* are not soluble in alcohol, and impart to the mixture an extraordinary sticking power. This plaster can be directly applied to wounds, and then dressed with cotton or linen, or spread thereon by means of a brush. What renders this plaster especially useful is, its easy miscibility with other ingredients; for example—Acid carbolicum purum, Hydrarg. chlorat. corrosiv., morphium and its salts, iodide of potash, which are all soluble in alcohol; further, with powdered cantharides, belladonna, hemlock, etc.

A good emulsion of cod-liver oil with glycerine and combined with phosphates, which is nearly tasteless, is introduced by Messrs. Fuller and Co., of Norwich, under the title of Phosphodynized Cod-liver Oil and Glycerine Emulsion.

## THE PHARMACEUTICAL COUNCIL.

THE usual monthly meeting of the Pharmaceutical Council was held on July 3rd. We obtain our information of its proceedings from the *Pharmaceutical Journal*. There were present—

Mr. A. F. Haselden, F.L.S., President, in the chair; Mr. W. Scott Brown, Vice-President. Messrs. Baynes, Betty, Bottle, Frazer, Greenish, Hampson, Hills, Mackay, Owen, Radley, Sandford, Savage, Schacht, Shaw, Stoddart, Sutton, Urwick, and Williams.

The minutes of the last meeting were read and confirmed.

The reporter was requested to withdraw whilst the Council considered the report of the Committee appointed last month with regard to the reporting. After an interval, he was recalled and informed that in future his reports of the proceedings of the Council must be furnished direct to the editor, who alone would exercise any supervision over them, and that, subject to this editorial control, he must use his own discretion in condensation or otherwise.

The following being duly registered as Pharmaceutical Chemists, were respectively granted a diploma stamped with the seal of the Society:—

Boutell, Harold .. ..	Sudbury.
Bradford, Cordley .. ..	Spalding.
Jameson, William Edward .. ..	Bristol.
Jasper, Frederick William .. ..	Penzance.
Rammell, Edward .. ..	Crediton.
Shenstone, Wm. Edward .. ..	Colchester.
Townley, Thomas William .. ..	Ambleside.
Warren, William .. ..	Chertsey.

The following Pharmaceutical Chemists were elected Members, and their diplomas were stamped with the seal of the Society:—

Hughes, James .. ..	Sydney.
Wilson, John Henry .. ..	Calcutta.

The SECRETARY drew attention to the fact that the two newly elected Members were resident abroad, and stated that the general practice in such cases was for the gentlemen elected to pay the first year's subscription only. He suggested that foreign members should be required to pay a life membership subscription.

Mr. SANDFORD and other gentlemen were of opinion that the Council had no power to make such a regulation. If members residing abroad discontinued their subscriptions, they would be treated in the ordinary way, and required, in accordance with the bye-law, to return their certificate of membership.

The following registered chemists and druggists were elected members of the Society:—

Cocker, Benjamin .. ..	London.
Folkard, George Frederick .. ..	Putney.
Goddard, William Henry .. ..	Barrow-in-Furness.

The following having passed their respective examinations, and being in business, were elected "Associates in business" of the Society:—

*Minor.*

Adams, Frederick Joseph .. ..	Dover.
Footitt, Charles M. .. ..	Marlow.
Howse, Henry William .. ..	London.
Upjohn, Francis William .. ..	London.

*Modified.*

Hepburn, John .. ..	London.
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The following having passed their respective examinations, were elected Associates of the Society:—

*Minor.*

Bonnett, Frederick .. ..	Bridgend.
Brookes, Frederick James .. ..	Selby.
Colling, Robert .. ..	Stockton-on-Tees.
Dunston, Alfred .. ..	Spalding.
Goldsmith, John Jackson .. ..	Abingdon.
Greaves, Abraham Walter .. ..	Chesterfield.
Jones, Owen Williams .. ..	Flint.
Leake, Thomas Whaplate .. ..	London.
Newton, Thornton Albert C. .. ..	Devonport.
Tansley, Arthur James .. ..	Cheadle.
Thirlby, William Arthur .. ..	Ashby-de-la-Zouch.
Watson, William .. ..	Chatham.

*Modified.*

Binge, Alfred .. ..	Islington.
Biss, John William .. ..	Southsea.
Gorton, Charles .. ..	Whitechapel.
Hilton, William .. ..	Whitefield.
Kitchen, George Seaton .. ..	Stamford.
Knight, Geo. Edward Moses .. ..	Southampton.
Pride, Arthur Edwin .. ..	Nottingham.
Prythreth, Rees .. ..	Llandoverly.

## BENEVOLENT FUND.

The report of the Benevolent Fund Committee was received and adopted.

Grants of fifteen pounds were made in each of the following cases:—

A registered chemist and druggist at Sheffield (2nd grant).

The widow of a late member at Tring.

A former member of the Society at Clapham.

The names of George Bagot Keunett and Sophia Pedley Henson were placed on the list of candidates for election as annuitants in October next.

## PROVINCIAL EDUCATION COMMITTEE.

The Report of this Committee was read, recommending that the document drawn up by Mr. Schacht, be in principle adopted by the Council.\*

Mr. SCHACHT having read it to the end of the "Scheme," said that the details which he had appended were not to be considered as complete, and it was the opinion of the Committee that if the general principles were adopted by the Council, they should be referred back to the Committee for further consideration and completion. It was also hoped that by the publication of the paper he had prepared, the suggestions of members throughout the country might be available for the Committee. He moved—

"That the Report be received and adopted; that this Council approves generally the principles and scheme presented, and refers the same back to the Provincial Education Committee for further consideration and report."

Mr. STODDART said he could heartily commend the principle of the scheme, particularly as it did not countenance the idea which was far too prevalent, that young men should be coaxed into study and improvement. The real principle was to afford every facility possible to those who really wished to improve themselves, and therefore the scheme now brought forward was admirable, if it was considered to go far enough.

Mr. HILLS thought the only fault in the scheme was that it was not liberal enough. He did not think they should require from every town a complete account of all the results that had been accomplished, and that if a certain number of men known to the Council would guarantee that the funds should be applied to the object of Pharmaceutical education, that was all that was required. If any amount were raised in any locality for the purpose of education, he thought it should be augmented by the Society to a certain extent, either by one-half or one-third of the amount locally raised.

Mr. BAYNES heartily endorsed the scheme in its general principle, but suggested that a small capitation fee should be given to associations for students who had attended the classes a certain number of times.

Mr. BROWN remarked that the last sentence of the scheme left it open to the Council to make a grant to any association, however small. He thought the system of payment for results would get over the difficulty which always met them, that the money of the Society might be bestowed on persons who never contributed anything to its funds.

Mr. MACKAY also approved of the scheme, though he doubted the propriety of employing lecturers.

The resolution was then carried unanimously.

## PARLIAMENTARY COMMITTEE.

The Report of the Parliamentary Committee was read, stating that they had considered the correspondence with reference to the registration of certain persons as chemists and druggists, and recommended the Council to give the Registrar the necessary authority to remove their names from the Register. The details of several cases were given, in one of which the solicitor having written to the party concerned and received no reply, it was recommended that proceedings be at once taken against him for selling poisons, etc., he not being registered as a chemist and druggist. In another case the excuse made was that the party was a homeopathic chemist and druggist, and it was recommended that evidence be obtained of his having sold poisons. The Committee also recommended the immediate readjust-

ment of the schedule of poisons with regard to vermin killers, and that the first convenient opportunity be taken for obtaining the sanction of the Privy Council thereto.

Mr. WILLIAMS regretted that the Committee had not seen their way to recommend proceedings being taken against a surgeon whose false and improper representations had led to the registration of one of the parties now about to be removed.

Mr. BETTY thought the nature of the readjustments of schedules should be mentioned.

The PRESIDENT said that was not stated in the Report of the Committee.

Mr. WILLIAMS suggested that the last clause of the resolution respecting vermin killers should be omitted. This was a very important matter, and the practical result of altering the schedules and putting strychnine in Part 1, would be to prohibit the sale of vermin killers containing such compounds by booksellers, stationers, and other persons not on the register. This would have the further effect, that vermin killers containing those substances would fall into disuse, and only those would be sold containing phosphorus or other poisons. This was a very serious thing affecting the trade and commerce of the whole country, and he hoped it would not be done without consideration.

Mr. SCHACHT said if the Committee had come to a distinct conclusion, it ought to have been included in the report; and as they had not done so, it must go back to them again.

The following names were ordered to be erased from the Register:—

Harriet Buxton ..... New Cross.  
Thomas Taylor ..... Skelton-in-Cleveland.  
Shemelds Taylor ..... Skelton-in-Cleveland.

## REPORT OF THE BOARD OF EXAMINERS FOR ENGLAND AND WALES, JUNE, 1872.

## Candidates.

Examinations.	Examined.	Passed.	Failed.
Major .. .. .	13 ..	8 ..	5
Minor .. .. .	42 ..	26 ..	16
Modified .. .. .	44 ..	27 ..	17
	99	61	38

## PRELIMINARY—Certificates received in lieu of this examination:—

University of Cambridge .. .. .	2
" Durham .. .. .	1
" Oxford .. .. .	1
College of Preceptors .. .. .	2
	6

The PRESIDENT read a letter from a candidate at the recent major examination, complaining of the manner in which that examination had been conducted, and asking that he might be allowed to compete for the Pereira medal, notwithstanding that he had not passed with honours.

A considerable amount of discussion ensued, but the general feeling of the Council was, that they could not interfere with the decision of the Board of Examiners.

## APPOINTMENT OF PROFESSORS.

Professor Redwood was re-appointed Professor of Chemistry and Pharmacy for the ensuing year.

Professor Bentley was re-appointed Professor of Botany and Materia Medica for the ensuing year.

Professor Atfield was re-appointed Professor of Practical Chemistry and Director of the Laboratory for the ensuing year.

William Augustus Tilden, D.Sc., was re-appointed Demonstrator for the ensuing year.

Mr. John Moss was re-appointed Assistant-Demonstrator for the ensuing year.

Mr. URWICK said the expense of the laboratory was a great weight upon the Society, and he believed ten years ago, when the expenses were very much less, better results were shown.

Mr. WILLIAMS said he had paid a deal of attention to this subject, and would remind Mr. Urwick that, although the laboratory for the past year had not quite paid its expenses, on taking the average for the last few years, it had been a paying part of the institution; that is to say, it received as much from the students as was expended on the professors and demonstrators.

Mr. Collins was re-elected curator.

\* We print this document in a revised form elsewhere.



## NORTH BRITISH BRANCH.

The lease of the new premises at Edinburgh for the use of the North British Branch of the Society was submitted by the Solicitor to receive the seal of the Society, and it was ordered to be appended. Mr. MACKAY explained that the Society would not take possession until November, in consequence of the damp weather in the spring having prevented its being in a fit state to receive their specimens and books, which had accordingly been stored in the meantime, and a temporary room was taken when required for examinations. He added that they had power under the lease to leave at the expiration of a year and a-half if the rooms were not found suitable.

## BENEVOLENT FUND INVESTMENT.

Mr. BAYNES moved the following resolution, of which he had given notice:—

“That the sum of £10,000, or thereabouts, part of a large sum now standing to the credit of the Benevolent Fund, in Consols, be invested in real securities, so as to produce a higher rate of interest, and that the Finance and Benevolent Fund Committee be requested to inquire, and if necessary, confer with the solicitor, as to the best means of carrying out this resolution, and to report to the Council.”

He said that the bye-laws restricted the investment of the funds to Government and real securities, or he should have wished that a wider scope could have been given to them, and that Perpetual Preference Railway Stock or India Bonds might have been purchased. Therefore, if any alteration were made in the bye-laws, as was contemplated by the previous resolution, that might be taken into consideration at the same time; but at any rate he thought they should endeavour to get the largest interest possible, compatible with perfect safety, on the moneys invested for the benefit of the Benevolent Fund.

Mr. SHAW seconded the resolution, saying it had often occurred to him that they might get a much larger amount of income than they did from their investments. He had made inquiries in Liverpool with regard to one of the largest insurance companies there, and found that they had invested nearly a million and a quarter of money on mortgage of freehold and leasehold property, yielding 4 per cent.

After some conversation the resolution was withdrawn, and the following substituted, which was carried unanimously:—

“That it be referred to the Finance Committee to consider whether any more eligible investments can be found for the capital of the Benevolent Fund than at present, and to consult the solicitor thereon and report to the Council.”

## THE JOURNAL ACCOUNTS.

The SECRETARY read some correspondence which had passed between himself and Mr. Wootton, a member of the Society, the latter having applied to know whether the accounts of the *Pharmaceutical Journal*, both during its monthly and weekly publication were open to the inspection of members, and, if so, at what time it would be convenient for him to inspect them; the answer returned to him being that the matter would be submitted to the Finance Committee.

Mr. SHAW said the question was simply whether any member had a right to inspect the account books of the Society, which he presumed was not the case.

Mr. SURTON said if there was a printed statement of accounts vouched by the auditors, that might be shown to any member, but he apprehended that nothing further could be seen. They did not wish to keep anything back which ought to be properly open for inspection; they could not, however, have any one looking through their books for all manner of details.

The PRESIDENT said he had examined carefully the bye-laws and found nothing which gave any member a right to demand an inspection of the books. As a matter of courtesy he opined that a member would not be refused an opportunity of looking at the statement of accounts referring to any particular subject, but they could not admit the principle that anybody might come and examine the weekly and monthly journal accounts.

It was ultimately decided that the printed statement of

accounts as passed by the auditors for the last year should be sent to Mr. Wootton.

The PRESIDENT stated that he had received from the Société de Prévoyance des Pharmaciens de la Seine a gold medal presented by that Society to the subscribers to the Fund raised for the benefit of the pharmacians who sustained losses during the Franco-Prussian war. It was resolved—

“That the medal be accepted on behalf of the subscribers to the Fund, and thus become the property of the Society.”

## BRITISH PHARMACEUTICAL CONFERENCE.

A MEETING of the Committee was held on Tuesday, July 2nd. There were present:—Messrs. Atfield, Cartidge, Greenish, Hanbury, Mackay, Moss, Savage, Schacht, and Williams.

The hon. sec., Professor ATFIELD, read the minutes of the last meeting, which were confirmed, and then laid before the Committee the following report of the business transacted since last meeting:—

*Year Book, 1871.*—Since the previous meeting of the Committee, 2,000 copies of the Year Book of Pharmacy, 1871, had been printed; of these there remained in hand 257 copies. Of the 1743 which had been distributed, 1,600 had been delivered to members, 115 had been sold, and 28 presented to Journals and Societies.

*Subscription.*—Professor ATFIELD further reported that in November, 1871, he had issued 1,600 applications for subscriptions; in May, 1872, he had found a repetition of the applications necessary to the extent of 400, and on June 21st, 1872, had a third time applied for 300 of the subscriptions. At the end of the year, June 30th, 214 remained unpaid.

*Subjects for Research.*—In March of the present year, 1,900 copies of the List of Subjects for Research, 1872, were posted to members. This list, before printing, was revised and extended by Professor Atfield, and a few questions added by some members of the Committee.

*Finance.*—Professor ATFIELD reported that after paying all expenses for the current year, including the editing, printing, binding, publishing, and delivery of the Year Book, a fresh expense of £9 12s 6d. for foreign journals required by the editor of the Year Book, general printing, and salary to assistant secretary, there remained a balance in hand of £47 4s. 1d.

This amount was about the same as that left at the end of last year. It would thus be seen that the income of the Conference just balanced its expenditure.

*Year Book, 1872.*—The editor of the Year Book had reported to Professor Atfield that the MS. of the Year Book for 1872 was in a forward state; it would be completed quite as soon as that of last year. The printers had promised the volume in a shorter space of time than before.

Mr. SCHACHT then read the following letter from T. H. Hills, Esq.:—

“338, Oxford-street, June 6th, 1872.

“DEAR MR. TREASURER SCHACHT,—At the meeting of the British Pharmaceutical Conference, held at Exeter, 1869, I had the good fortune of presenting to your then Treasurer, and now the President, my friend, Mr. H. B. Brady, a cheque for fifty guineas, suggesting that the Executive of the British Pharmaceutical Conference should present books or chemical apparatus of the value of £10 or guineas, to the Association of the Chemists and Druggists in the city or town in which the Conference met, for the purpose of assisting apprentices and assistants in their studies, and for the advancement of pharmaceutical chemistry.

“As this fund must be nearly exhausted, and as I learn or understand that the experiment has proved useful, I venture to ask you, on behalf of the President and Council of the British Pharmaceutical Conference, to accept the accompanying (4) Russian bonds of £50 each, producing an income of £10 a year, which, I trust, may be kept as a permanent fund; the interest of which, £10 a year, can be used yearly for the purchase of books or apparatus, and presented to the Associations of Chemists and Druggists in the cities or towns in which the British Pharmaceutical Conference meets.

"Although I make these suggestions, I give the bonds without conditions otherwise than that the interest of the same shall be spent yearly for the advancement of Pharmaceutical education and research, under the direction of the President and Council of the British Pharmaceutical Conference.

"I remain, dear Mr. Treasurer Schacht,

"Yours very sincerely,

"T. H. HILLS."

The CHAIRMAN moved, and Mr. SAVAGE seconded, the acceptance of Mr. Hills' gift, and that the letter be entered on the minutes of the meeting.

Moved by Mr. SCHACHT, seconded by Mr. MACKAY, and carried unanimously:—

"That the members of the Executive Committee of the British Pharmaceutical Conference hereby record their opinion that the thanks of the entire Pharmaceutical community are due to Thos. Hyde Hills, Esq., for his munificent gift, which they regard as calculated to be of lasting benefit to the cause of scientific pharmacy.

"As representing the section of pharmacists which constitute the British Pharmaceutical Conference, they declare their high appreciation of the confidence reposed in them by Mr. Hills in thus constituting their Association the medium of his generosity, and they beg him to accept the assurance of their gratitude, and the expression of their warmest thanks."

After some discussion on the best mode of applying Mr. Hills' gift, it was resolved that a note be addressed to Mr. Hills to the effect that, bearing in view the fact that the Council of the Pharmaceutical Society is at present engaged in furthering some scheme for promoting Pharmaceutical education, the Executive Committee of this Conference prefers to postpone decision upon the principles of the process by which his generous gift shall be distributed.

The following gentlemen were unanimously elected members of the conference:—

Adams, Frank; Adlington, W. B.; Appleby, Calvert; Bolls, J.; Barrett, E. L.; Barry, E.; Barry, T.; Blake, A.; Bland, H.; Both, W. G.; Brooke, Chas.; Brown, A. H.; Bremridge, R.; Chapman, F.; Chantler, R. P.; Cocksedge, H. B.; Cook, Richard; Cornelius, J.; Cosway, E. C.; Crawford, S.; Cross, William, M.D.; Davenport, G. A.; Delves, George; Dunkley, E.; Evans, J. O.; Eve, Charles; Foulger, S.; Garner, J.; Geary, —; Goodliffe, G.; Gopal, Pandurang; Goodwin, J.; Green, S.; Greaves, J. B.; Gunn, W.; Hadingham, J. W.; Hardy, S. C.; Higgins, W.; Hobbs, D.; Hodgkinson, C.; Hogg, J., F.R.G.S.; Horner, Edward; Horner, Edward, jun.; Howlett, W. H.; Huskisson, H. O.; Iliffe, T. P.; Kirkman, C. J.; Lazenby, J. W.; Lewis, R.; Lingwood, W.; Lloyd, Edward, jun.; McNaught, A.; Marcham, J.; Martin, T.; Matthews, F.; Meldrum, D.; Moyle, J.; Newport, W.; Nickson, J.; Palmer, G. D.; Pattinson, J. S.; Pearce, C. M.D.; Pocklington, H.; Powell, W. A.; Pratt, W.; Probyn, C.; Purdy, J. T.; Rawlings, T.; Rich, S. W.; Richardson, T. J.; Riches, W. J.; Skoulding, W.; Slinger, F.; Smith, J., M.D.; Smith, J. S.; Smith, P. S.; Speechey, E.; Symes, E. W.; Thompson, G. B.; Todd, T.; Townshend, R.; Vizer, E. B.; Watts, C. C.; Wells, W.; Whittle, J.; Wills, E.; Wilford, J.; Wilkes, J. S.; Wright, T.; Young, J., M.D.; Young, T.

#### THEORETICAL CHEMISTRY.

WE referred last month to the Faraday lecture delivered by Professor Cannizzaro on May 30. We are able now to print a very excellent report of the lecture, which we extract from *Nature*:—

"This lecture was delivered on May 30. The lectureship was founded by the Chemical Society in honour of the illustrious Faraday, to be held by some eminent foreign *savant*, who, during the term of his tenure is to deliver a discourse before the Society.

"Dr. Frankland, in introducing the lecturer, said that in 1869, M. Dumas had honoured them with his presence there, and on that night they were to listen to Prof. Cannizzaro, of Palermo. After alluding to the numerous investigations which the Professor had made in organic chemistry, and

amongst others the discovery of benzylic alcohol, the first normal aromatic alcohol that had ever been prepared, and to the important theoretical views which he had originated, the President, in the name of the Society, presented to him the Faraday medal, struck in honour of his visit.

"Prof. Cannizzaro said that when he received the flattering invitation to deliver the Faraday Lecture, he was placed in very unfavourable circumstances to respond to it, as he had no definite results to lay before the Society, and was, moreover, on the point of suspending his labours and abandoning his old laboratory in order to remove to Rome, and establish a new one there. In this difficult a subject for a discourse fortunately presented itself, one which the celebrated French chemist, Dumas, had promised to treat of in 1847, namely, the form which the theory of chemistry should take at the present time. Although this could not be fully discussed in so short a space of time, it would at least have the advantage of directing the attention of chemists to a question of great importance in the transition stage which our science is at present going through.

"In recalling the promise which M. Dumas had made to the Academy of Sciences of Paris in 1847, to examine the form which theoretical instruction in chemistry should take in the present state of the science, the lecturer proposed to consider in his discourse the limits within which the exposition of general theories should be included in teaching chemistry, and the form that it was desirable that they should assume. Whilst giving a broad sketch of the progress of modern chemistry, he showed that the atomic theory had become more and more intimately interlaced with the fabric of chemistry, so that it is no longer possible to separate them without rending the tissue, as it were, of the science; and that up to the present time we have been unable to enunciate even the empirical laws of chemical proportion, independently of that theory; for those who employ the term equivalent in the sense that Wollaston did, commit an anachronism. Consequently, in the exposition of the value and use of symbols, formulæ, and chemical equations, not only are we unable to do without the atomic and molecular theory, but it is inconvenient to follow the long and fatiguing path of induction which leads up to it. By one of those bold flights of the human mind we can at once reach the height whence we discern at a glance the relations between facts.

"He then went on to show that the solid basis, the corner stone of the modern molecular and atomic theory, the crown of the edifice of which Dalton laid the foundation—is the theory of Avogadro and Ampère, Koenig and Clausius, on the constitution of perfect gases, to which chemists, unknown to themselves, have been led in the progress of their science. He thought the time had arrived for reversing the order which had hitherto been followed in teaching chemistry, that instead of setting out from the criteria for determining the weight of molecules, and then showing their ratio to the vapour densities, they ought, on the contrary, to commence with the latter, with the theory of Avogadro and Clausius, demonstrating it from physical considerations; to found upon that the proof of the divisibility of simple bodies, that is to say, the existence of atoms; and to show, as occasion presented itself, that the weights of the molecules and the number of the atoms deduced by the application of this theory, are in accordance with those which are deduced from chemical criteria. By this means we can measure the degree of confidence to be placed in the latter criteria; since so-called compound equivalents do not suffice to determine the weight of molecules, or even to prove their existence, although they may be deduced from a single principle, the theory of the constitution of gases. This is the natural transition from physics to chemistry.

"The Professor then stated in detail how he applied the principles he had laid before them. He introduced his pupils to the study of chemistry, by endeavouring to place them on the same level as the contemporaries of Lavoisier, and to teach them to appreciate the importance of the principle of the conservation of the weight of matter, showing them that this is quite independent of any idea of its nature or constitution. They are thus led to examine the ponderable composition of substances, so that the student passes rapidly from the epoch of Lavoisier to that of Proust, and then to that of Berzelius at the time when he commenced his researches on proportions. At this stage the same im-

pulse is given to the pupils as Berzelius received on becoming acquainted with the hypothesis of Dalton. The latter is laid before him without any accessory, the use of symbols and formulæ being introduced dogmatically. There will now arise in his mind the same doubts and difficulties that assailed Berthollet, Sir Humphrey Davy, and Wollaston in the application of Dalton's theory, and at the same time a desire for an explanation of the simple relation which exists between the vapour volumes of bodies which react on one another and of the products which are obtained. Now is the moment to state or recall to mind the physical theory of the constitution of the perfect gases. Commencing with a rapid glance at their general and special characters, he insisted, that in this part of the instruction the mind of the student should not be diverted from the numbers expressing their relations, by considerations of the variations caused by changes of temperature and pressure. In applying the theory of the constitution of gases, it will be perceived that the molecules of simple bodies are not always the atoms of Dalton, and a certain confusion will thus be produced in the mind of the beginner in the conception of the ideas of atoms and molecules. The hypothesis of Dalton can now be laid aside, substituting as a starting-point the theory of the relation of molecular weights to the vapour densities. A table must be prepared of the vapour density compared with that of hydrogen as two, that is to say, the weights of their molecules compared with the weight of the semi-molecule of hydrogen taken as unity. We must then compare the composition of the molecules containing the same element—including, or not, the molecule of the element itself—and thence deduce the law of the existence of atoms, that is to say, the amount of each element which always enters, by whole multiples, into the molecules which contain them. We here have the atoms of Dalton which, in the present state of the science, express not only all that Dalton discovered, but also the composition of equal volumes of their vapours, and in the choice of which those doubts can no longer arise which embarrassed Davy and Wollaston. The ideas of molecules and atoms suggested to the student by this law are devoid of all considerations of form, size, continuity, or discontinuity; the only property indissolubly connected with them is that of ponderability; the very definition of matter.

"Recollecting that no physical theory of the constitution of matter had yet been advanced which thoroughly conformed to chemical ideas, he insisted upon the advisability in teaching the molecular and atomic theory, to keep it free from all that is not absolutely essential, so it may preserve sufficient plasticity to adapt itself to the progress of our physical and mathematical knowledge. For this purpose he thought it useful to allow the student in the first place to glance at the changes in the hypothesis of the constitution of matter, and then to cause him to estimate the degree of confidence they merit in the actual state of our knowledge. Having thus placed upon a solid basis the fundamental notions of atoms and molecules by the comparison of the composition of equal volumes of the bodies in the gaseous state, it becomes necessary to consider the difficulties which arise in the application of these notions when the vapour densities are wanting; he explained and justified the use of the various auxiliary criteria to which we have recourse in these cases, proving them in the first instance by the touchstone of the theory of Avogadro and Clausius, by showing that they gave results in accordance with that theory whenever the two methods can be employed simultaneously.

"He believed that we should never lose sight of the starting point, nor give the formulæ of all compounds as of equal probability. 'It is not by concealing the obscurity of these questions that we shall enlighten the student; on the contrary, we should estimate each fact at its true value by showing him that our science does not merit an equal degree of confidence on all points.' This forms the introduction, the preparation for the study of the transformations which matter undergoes; the real object and aim of our science.

"The comparison of the atomic composition of molecules has led chemists to the law of substitution, to the theory of types of Dumas, then to that of Williamson and Gerhardt, and lastly to the theory of the different valency of atoms and their modes of union, or the so-called theory of atomicity which includes the former. Although at present

it is impossible, in teaching chemistry, entirely to eliminate this latter theory, which gives a summary of several laws, and guides us ordinarily in the co-ordination and oven provision of a large number of facts, yet it is difficult to keep it within just bounds so as to avoid infusing into the mind of the beginner illusions which are dangerous for his intellectual education. In order to avoid this, it is advisable to bear in mind the progress of this doctrine and the actual phase of development which it has at present reached. It is still far from being a complete and well-established theory, but is in a state of transition; for although doubtless it embraces a large number of facts, as yet it does not embrace them all. It is only a partial representation of the reality, and that from a restricted point of view, showing but little relation to our views of the constitution of matter, for it is the result of a comparison of diverse facts expressed by means of the atomic and molecular theory. It is convenient, therefore, to consider each part of this doctrine exclusively in relation to the group of facts which has suggested it.

"It is unadvisable to define the valency of atoms as a property inherent in them, and then to deduce as a corollary their different modes of union; on the contrary, it is preferable to regard each portion of this doctrine as a deduction from the observation and comparison of a determinate group of facts, until an opportunity offers to unite these fragments into one whole, not forgetting, however, to notice the gaps which exist, never going beyond what the facts themselves suggest, and never applying to all bodies indiscriminately the laws which suit only a single group. For instance, we must not pass over in silence the facts that whilst certain elements are bi-tetra, or even hexa-valent, others are tri- and penta-valent; but the pupil should be prevented from acquiring mechanical and geometrical ideas of the cause and effects of the valency of atoms, by frequently reminding him that chemical facts show nothing about the size, form, continuity, or relative positions of atoms. If we are sometimes obliged to employ the expression, 'relative position of atoms in the molecules,' and even to represent them graphically, we must warn the student that these are only artifices to express certain transformations and that we are really ignorant of the relative position of the atoms either in space or in the mutual action of different portions of matter. With these reservations, it is possible, in teaching to derive considerable advantage from the theory of atomicity and at the same time to avoid its inconveniences.

"In the study of the transformations which matter undergoes, we should direct the pupil's attention, not only to the ponderable changes in the composition of molecules, but also to the electrical and calorific phenomena which accompany these transformations. Even from Lavoisier's time it has been recognised that we cannot separate the study of matter from thermic considerations; and every day the connection which exists between chemical and thermic phenomena becomes more apparent.

"As in the study of ponderable changes we were guided by the law of the conservation of weight, so in the connection between chemical and dynamical phenomena we are guided by the law of the conservation of force; the two studies mutually supplementing and illustrating one another. Not only will the atomic and molecular theory and that of atomicity help us to compare dynamical phenomena, but the study of dynamical phenomena will show us analogies and differences between chemical actions which would not be observed in the ponderable equations. We should therefore instruct the student in the little definite knowledge which we at present possess concerning thermic and electric phenomena, and especially fix in his mind the fundamental notion of a mechanical equivalent, and the manner of comparing it with chemical action as expressed by the atomic theory. In this we should be aided by the previous or simultaneous instruction of the student in physics under the form and language of the thermodynamic theory.

"The lecturer concluded by observing that in the choice of methods and of matter for a course of chemistry, it should always be borne in mind that it was eminently a progressive science, and that even at the time of its most rapid development. The student should start not only with a knowledge of certain definite and fixed principles, but with an aptitude and sufficient preparation to enable him to follow the science in its unceasing transformation and progress, whether he

intends expressly to cultivate chemistry, or has only learnt the elements of the science as an auxiliary to other studies or professions. Moreover, the end of chemical instruction for both these classes of students is not only to fix in their memory a certain amount of knowledge, but to assist in their intellectual education. For this, chemistry of all sciences is one of the best, offering both in verbal and practical instruction—excellent occasions for the exercise and harmonious development of all the faculties of the human mind.

"He had desired to call attention to what he considered to be the most efficient means of imparting a knowledge of chemistry so that it might serve as an instrument of intellectual education, and that the student, by following it in its ulterior developments, might judiciously apply it to the study of the other branches of natural science. If the attention of the eminent chemists and professors there present were once attracted to this subject, he felt certain that a bright light would be thrown on it, and that our young professors would find numerous suggestions to direct them in teaching chemistry, and that at the very moment when instruction in our science had become so difficult, on account of the rapid transformation which it was undergoing.

"Dr. WILLIAMSON said that those who were there present ought not to separate without some expression of the pleasure that they had felt on listening to so learned, vast, and eloquent a discourse, treating as it did of a most difficult and important problem. There was scarcely anything of greater moment in the scientific education of youth than the rightly setting before them those wonderful transformations of matter which it is the province of chemistry to explain. These great and growing truths, for, as the lecturer had said, they were growing truths, should be set before youth in such a manner as to form a coherent whole. He hoped to study this masterly discourse with profit and delight, and would now propose a vote of thanks to his illustrious colleague for the honour which he had done them in delivering to them the Faraday lecture.

"PROFESSOR TYNDALL said he had heard the discourse with deep interest, for it showed that the lecturer knew the importance of a teacher's vocation, and that his province was not merely to communicate knowledge, but to do it in such a manner as to arouse an interest in and love of the subject in the pupil by presenting it in its proper relations. He would have welcomed the lecturer to that Institution, even had he come to tear in pieces the notions which he cherished regarding atoms and molecules; how pleasant it was then to find such a broad agreement between their views. The chemist cannot halt at equivalent proportions—he must ask himself whence they arise, and the inevitable answer is some form of the atomic theory. This theory, however, cannot be confined to chemical phenomena. The motions of those atoms and molecules underlie all our explanations of the physical cause of light and heat, and it is already taking up the field of magnetism and electricity. Consider, for example, the heat of gases, both as regards the motion of translation of the molecules which produce temperature, and the motions of rotation and vibration of their constituent atoms, which, though they do not express themselves as temperature, constitute a portion of the heat. Clausius has shown that even in the simplest gases nearly two-fifths of the whole heat is due to these internal motions; while in gases of complex molecular constitution which condense on combining, the ratio of the total heat to the heat of temperature is still greater. The experiments of Regnault, which show that the specific heat of a perfect gas at a constant volume is constant, proves, as Clausius has shown, that the one kind of motion is proportional to the others.

"The lecturer had also referred to atoms of the same kind combining together, so that, free oxygen and free hydrogen being considered as composed of molecules each containing a pair of atoms, has certainly simplified the results. But it must not be forgotten that this combination of like atoms is widely different from that of unlike atoms. The union of oxygen with oxygen or nitrogen with nitrogen produces no such effects upon the luminiferous ether as the union of oxygen with nitrogen. With the same quantity of matter the amount of *vis viva* sent forth as radiant heat may be augmented a thousandfold, perhaps a millionfold, by the

act of diverse combination. This act seems to carry with it a condensation of the ether to a dense atmosphere around the atoms. Had a cannon the power of gathering round itself a dense atmosphere, it would send forth a greater amount of *vis viva* as sound. A gun fired at Chamouni may be heard upon Mont Blanc, while the same gun fired on Mont Blanc may not be heard at Chamouni, because the air on which the concussion takes place is denser in the one case than in the other. In the same way the diverse atoms vibrating in the denser atmosphere formed on combination show their vast superiority as radiators over like atoms which, except in such special cases as ozone, etc., are incompetent to produce a similar condensation. The speaker then asked them to echo the resolution so well put to the meeting by Professor Williamson."

#### HISTORICAL NOTES ON POISONING.

BY DAVID FERRIER, M.A., M.D.,  
Professor of Forensic Medicine at King's College, London.\*

IT is, however, with the use of poisons for the express purpose of taking away life, that we more particularly associate the term poisoning; and it is on this that so much has been written, and at the same time, so much has been fabled. It was but natural that men should turn to some account the knowledge of the deadly effects of many substances with which they could not help becoming acquainted, and to employ them for ridding themselves of objects of jealousy, hate, envy, or revenge, especially as this could so often be done secretly and securely; and it was also natural that the same means should recommend themselves as a rapid and pleasant mode of suicide. Poisons were also employed for State purposes, as a means of execution. The most celebrated instance of this is the *κρόνειον* or State poison of the Athenians, which has derived its chief interest in connection with the death of Socrates. The description given by Plato of its mode of action has given rise to considerable discussion as to its nature. Apart from its name, which would be no satisfactory guide, it has been generally identified with the *conium maculatum* or hemlock. Some have doubted whether it were only a simple infusion of hemlock, and think that it must have had other ingredients. Whatever it was, it does not appear to have been very powerful or rapid in its action; for we are told that mental excitement was apt greatly to interfere with its effect, and sometimes more than a single dose was necessary. The carrying out of the sentence of capital punishment by means of poison was not, however, confined to the Athenians, and we have numerous instances in other countries where the same method was adopted. It was allowed as a special mark of favour in some cases; and in later days, when scientific men were eager to study the effects of poisons in an exact manner, it was permitted by the State, and criminals were quite willing to submit themselves to be experimented on with poisons, rather than undergo the horrors of public execution. The mode of execution by poison was strongly advocated by many medical writers of the last century. Celsus, a German writer, thought it was a mark of very great simplicity and stupidity in his countrymen not to have adopted it; and Gruner, in a very eloquent and feeling manner, extols the comfort and tranquillity of being quietly put out of the way, without becoming, under the hands of the executioner, a horrible and bloody spectacle in the eyes of a cruel mob. A curious incident in reference to this mode of execution is quoted by Pierre Fabre from the "History of the Apostles," in which it related that the Apostle John was present at the execution by poison of two criminals in the public forum at Ephesus.

It was a strange custom that prevailed among the inhabitants of the island of Ceos. The old men, when they found that they were no longer of service to the State, and felt themselves a burden to their children, assembled together at a banquet of death, and, with their heads crowned with chaplets, joyfully drank a happy despatch (*εὐλογοῦν ἐξαγωγὴν*) in cups of hemlock. A more sensible custom obtained among the ancient inhabitants of Marseilles—one which might with advantage be revived at the present day, if only those most interested would subscribe to its provisions.

\* Continued from the June number. Extracted from the *British Medical Journal*.

Valerius Maximus relates that the inhabitants of the town kept a public poison, intended for the special use of those who wished to commit suicide. Before, however, the applicant was supplied, he had to go before a jury of six hundred—the Timarchi—and satisfy them that he was miserable enough to be allowed to put an end to his troubles by poison.

The kings of Persia were also in possession of a poison which caused a speedy and painless death, which they carefully preserved for their own special use against an evil day.

In times of trouble, and in ages of barbarous cruelty, men who took an important part in public affairs, and thus exposed themselves to the machinations of numerous enemies, often carried on their persons a sufficient quantity of some deadly poison, to which they resorted as a means of escape from torture worse than death. I may cite numerous instances of this practice in various ages, but one or two well-known examples will suffice. I have already alluded to the death of Themistocles, which was popularly set down to the effects of blood, but which, in all probability, was due to some poison which he carried on his person. Demosthenes, when all hope of escape from his enemies, the Macedonians, were gone, committed suicide by taking a dose of poison, which he is said always to have carried about with him in a quill. The story of Hannibal is likewise familiar to you all. After being hunted about from place to place by his relentless enemies, the Romans, he was obliged to sacrifice himself, in order to save his protector, Prusias. He is said to have carried the means of death in a ring which he constantly wore. Though we can admit the possibility of this, we have no means of ascertaining the nature of the poison, nor the method in which it was introduced into the system. Perhaps the most celebrated instance is the case of Mithridates, King of Pontus, who was, according to accounts, quite an adept in toxicology, and left behind him a work on that subject; which, however, has unfortunately been lost. Mithridates, like some oriental monarchs of the present day, lived in constant fear of being poisoned. To guard against this he invented an antidote, which became so famous that the name of Mithridatium was applied to antidotes generally. Of this, however, we shall have to speak by and bye. By the use of this antidote, but more probably by the habitual use, in small doses, of the poison which he feared, he is said to have rendered his system insusceptible to the action of poison; so that, when he came to require its aid it proved faithless to him, and he was obliged to have recourse to his sword. The story of Mithridates would seem to show that it was one poison only, or at most very few, which were known, or at least had recourse to by poisoners of that time.

It is, however, to the secret crime of poisoning that we attach the chief interest, both in a popular and medico-legal sense. It is often difficult to arrive at the real truth in many of the narrated accounts, surrounded as it is, and mixed up with, so much that is evidently mythical. It is remarkable that this crime should have prevailed in some countries to a much greater extent than in others, and that so many women should have acquired such a notoriety in this art. A great many of the accounts, however, which we have received regarding the proficiency which so many women are said to have attained, especially in the art of preparing slow and secret poisons, must be estimated at the same value as the similar tales of sorcery and witchcraft. As women were supposed to be specially addicted to these black arts, so they got a similar amount of credit for the art of secret poisoning; and, in ancient statutes, the word which signified witch was also used to signify poisoner (*φαρμακίς, venefica*). Most of the old statutes regarded sorcery as a *veneficium*, and punished it with the same penalties. In the laws of the Twelve Tables already alluded to, persons who administered poisons, or uttered an incantation against the life of another, were punished with death; and, in the Institutes of Justinian, capital punishment was inflicted on those who, by odious arts, whether by poison or by "magical whispers," took away the life of another. "*Et venefici capite damna tur, qui artibus odiosis, tam venenis quam 'susurris magicis' homines occiderint.*"

The crime of poisoning does not appear to have been common among the ancient Egyptians or Jews, judging from the absence of any special legislation against it. The existence and character of the laws against this crime afford a

fair indication of its frequency, for in ancient times it was those who made the laws that had often the most reason to fear. The crime was very common among the Persians. This we have on the direct testimony of Xenophon; and certainly the punishment was such as might be expected to deter evil-doers. Those who were found guilty of poisoning were laid with their head on a flat stone, and then beaten about the head and face with another stone till the skull was smashed in pieces. And, judging from the story of Statira, the Persians must have arrived at considerable dexterity in the art of preparing and administering secret poisons. It is related that Parysatis, wife of Darius, wishing to get rid of Statira, the wife of Artaxerxes, smeared with poison one side of the knife with which she carved a fowl. She sent the poisoned side to Statira, while she ate the other herself; so that Statira died apparently from causes which left no room for suspicion.

The crime was not common among the Greeks. When it did occur, the malefactors were condemned to death by the Areopagus. The Romans are said to have learnt the art of poisoning from the Persians. In this they soon excelled their masters, and indeed almost every other nation.

The first great outbreak of the crime is reported by Livy, which occurred about the year B.C. 330. At this period, the morals of the upper classes of society had become so scandalous, that the more virtuous and honourable members of the Senate set themselves to stem the torrent of vice. Soon afterwards, the frequent occurrence of sudden death among the illustrious senators filled the city with alarm, and led to an investigation. By the evidence of a slave, who had been privy to their councils, a secret society of patrician women was discovered, whose avowed object was to get rid of the obnoxious senators by means of poison. They vehemently denied the charge; asserting that their preparations, which were found, were only medicines for the poor. As a test, they were compelled to drink their medicines, which proved fatal to them all. Their accomplices, to the number of one hundred and seventy, were thrown into prison, where they perished. Two hundred years after this occurrence, secret poisoning again became extremely frequent, and led to the passing of the famous law "*de veneficis et sicariis*" by the dictator L. Cornelius Sulla. This law is still preserved in the Institutes of Justinian. By it the crime of poisoning is held as more heinous than any other form of homicide, and was punished with corresponding severity. ("*Plus est hominem extinguere veneno quam occidere Judio.*") Under the Roman emperors, particularly about the time of Nero, poisoning was so frightfully common, that few of any note were safe. The chief instrument in the perpetration of the numerous villainies which characterised the life and times of Nero was the famous Locusta. So necessary did this woman appear to the success of the schemes of Nero, that she was maintained by him as an "*instrumentum regni*," and had pupils entrusted to her that the valuable art should not become lost. It was Locusta who prepared the poison by which Agrippina despatched her husband, the Emperor Claudius, and by which, among others, Nero despatched his brother Britannicus. In the writings of Tacitus, Suetonius, and other writers of that epoch, there is much curious and interesting information regarding the experiments of Locusta, the nature of the poisons used, and what were considered at that time as the symptoms and signs of their administration. The poisons were chiefly derived from the vegetable and animal world, mineral poisons not having become known till a later period. Aconite seems to have been frequently employed. Ovid says:—

"Lurida terribiles miscent aconita noceræ."

And Pontia, celebrated for poisoning both her children, and subsequently committing suicide, is represented as saying:

"Confiteor puerisque meis aconita paravi."

The epitaph of Pontia is still preserved.\*

\* "Pontia Titi Pontii filia  
Heic sita sum  
Quæ duobus natis a me  
Veneno consump is  
Avaritiæ opus misere mihi  
Mortem conscivi.  
Tu quisqu' es qui heic tran-is,  
Si plus es, a me oculos averte."

It is also probable that aconite or some equally powerful poison formed the really active ingredient in many of the compounds which were by popular rumour supposed to own their deadliness to substances which we now know to be wholly or almost wholly inactive. It was the popular belief that the poison which carried off Claudius was prepared from toads, and administered to him in a dish of mushrooms. We could more readily credit the account, if it had been stated that he was poisoned by toad-stools, the poisonous properties of which were well known. It has, however, long been a vulgar belief that toads are poisonous—an idea probably originating from their repulsive appearance, and from the fact that they do secrete an acrid fluid in their cutaneous glands. Modern research has not, however, confirmed this notion; and there is reason to believe that as many toads as frogs are eaten by epicures. That toads are poisonous will in all likelihood continue to be believed as long as Shakespeare is read.

“Marked by the destinies to be avoided,  
As venom toads or lizards' dreadful stings.”

And again—

“Toad, that under coldest stone  
Days and nights has thirty-one  
Sweltered venom sleeping got,  
Boil thou first i' the charmed pot.”

And many passages to a similar effect might be quoted.

Probably the same method of reasoning led to the belief in the poisonous nature of the *aplysia* or sea-barc. Further than having a disgusting appearance and fetid odour, and having the power of emitting a coloured liquid when irritated, it does not seem to possess any specially poisonous qualities, though the subject might perhaps be worthy of further investigation. Nero is said to have frequently used this as a poison, and it is with this that Domitian is said to have poisoned his brother Titus.

The symptoms and signs which were accepted at that date as evidence of poisoning are interesting in a medico-legal point of view. They were, as may be supposed, sufficiently crude to inspire us with considerable doubt as to the reliability of many of the narrated cases of poisoning. That there were certain *post-mortem* appearances which were generally considered as evidences of death by poison, appears from the writings of Cicero, Tacitus, and others. Cicero speaks of “*ea que solent esse indicia et vestigia veneni* ;” and in the account given by Suetonius of the death of Germanicus, who was poisoned by Piso, at the instigation of Tiberius, we find them enumerated as livid spots on the face and body, foam at the mouth, and the fact that the heart remained unconsumed when the rest of the body was burnt. It was also believed that worms did not become generated in the bodies of persons who died of poison. There were no judicial *post-mortem* examinations; and, in such inspections as were made, medical men were not specially employed. The body was simply exposed to the people, who were supposed to be able to form a sufficiently accurate judgment for themselves as to the cause of death. It is related by Dion Cassius that Nero, fearing lest his murder of Britannicus might be discovered, concealed the lividity of the face by a coating of chalk; but that a shower of rain washed away the chalk, and displayed to the people the evidences of his fratricidal crime. It was not till the time of the Emperor Justinian, about the middle of the sixth century, that the aid of medical men was specially required in the judicial investigation of the questions which now fall to the province of the medical jurist. Even then, little room was left for the expression of an independent opinion, as the cases were, for the most part, decided on the authority of the learned Hippocrates.

The provisions of the Justinian code were incorporated in the capitularies of Charlemagne, and the foundations of State medicine were laid. They were not yet, however, destined to be built upon. At the breaking up of the empire, there was a lapse into darkness worse than the first, and for many long years all progress was in a backward direction. What little had been gained in medicine was carried off to Arabia, or shut up in the monasteries. Much more might have been done by the monks, but the study of medicine was proscribed to them by several of the oecumenical councils of the twelfth century, as causing too great distraction from their religious duties. Superstition, bred

of ignorance, was rampant, and led to results often far more disastrous than the worst of crimes. The art of poisoning had not been lost, however, as we have sufficient evidence to prove, though credulity and superstition often saw it where it did not really exist. The history of the Italian republics in the middle ages is replete with instances of poisoning and assassination.

(To be continued.)



#### DR. CLERTAN'S PEARLS.

WE have not had before us for a long time a pharmaceutical novelty of such elegance and usefulness as these “pearls” of Dr. Clertan. They are like small capsules, but most perfectly made, and with a very thin membrane. The medicines enclosed in them are ether, turpentine, chloroform (an excellent plan of administering chloroform to travellers by sea for the prevention of sea-sickness), valerian, assafoetida, castoreum, digitalis, and creasote. The dose provided of each is definite, and it is claimed that the action of the medicines is more marked if taken in this form, on account of the sudden diffusion in the stomach when the pearls melt. This is doubtless the case with ethereal medicines, a great part of the virtue evaporating before the stomach is reached. The following quotation is from Trousseau and Pidoux's work on “Therapeutics,” vol. ii., p. 289:—

“Dr. Clertan, of Dijon, has had the ingenious idea to introduce, under the name of pearls, incoercible fluids, into gelatine envelopes. Ether is, in this manner, swallowed with great ease, just like a small pill; then, all on a sudden, the stomach is overflowed with a sensation of very agreeable coolness, which is the consequence on the rupture or the melting of the capsule. We are very anxious to recommend this new manner of administering remedies.”

English pharmacists will be much pleased with these French pearls. They are manufactured by *Maison L. Frere*, of Paris, and are supplied in England, wholesale, by Mr. Jozeau, of the Haymarket.

#### QUINA LAROCHE.

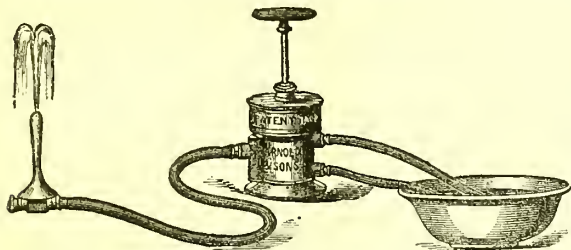
THIS is another French speciality, which is well worth introducing into England. It is a kind of quinine liqueur, very grateful to the palate, and combining the virtues of the various cinchona alkaloids. The medicine holds a high reputation in France, and we believe its enterprising proprietors intend to introduce it thoroughly into this country. It may be mentioned that the preparation may be obtained either pure, or in combination with iodine and steel. It is also supplied in the form of pilules. Messrs. Newbery and Wilcox are agents in England.

#### THE DESIDERATUM TOOTH BRUSH.

MESSRS. BIDWELL AND SONS, of Wood-street, have shown us a new principle of construction, on which they manufacture this particular kind of tooth-brush. After the holes are bored, through which the bristles pass, a second process follows, by which each hole is countersunk, in order to avoid the sharp edges which so often cut off the hairs when the brush is in use. In other respects too the brushes are excellently made.

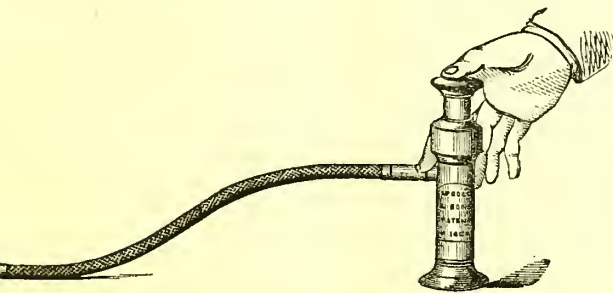
## ENEMA APPARATUS.

Our illustrations represent two new forms of Enema apparatus, which have been constructed by Messrs. Arnold and Sons, of West Smithfield, from the design of Mr. W. J. Shepard, M.R.C.S., late tutor at St. Bartholomew's. The first is called the "Simplex." It is placed in a basin containing the injection. The liquid is drawn up through a valve at the bottom of the instrument. The working of the instrument is very simple, as the engraving shows. A metal



cylinder works smoothly inside another one, and presses down a spiral spring. On rising, it draws up the liquid like a piston, and at the next depression the injection is forced through the tube.

No. 2 is called the "Facilis." Its principle of action is



the same as that of the "Simplex," but instead of the inlet valve being at bottom of the instrument, the liquid is drawn up through a tube the extremity of which may be in a bottle or any other vessel. This is for patients in bed, delirious, etc. A second tube is provided to carry back any waste injection to the vessel.

Mr. Shepard claims the following advantages for his instruments, and the claim, we think, is just:—

First, they are very easy to use, needing only one hand to work them. Second, they are portable, the "Simplex" being only 4 inches high and 1½ inch in diameter at its widest part. The "Facilis" is 3 inches high and 2 inches in diameter. Third, there is no packing on the piston, and they are so simple in construction that it is next to impossible they should get out of order. Fourth, they can be taken to pieces to clean, and put together again in a few seconds and without trouble. Fifth, they are made entirely of metal, and the springs are of plated steel, so they are not likely either to rust or become weakened. India-rubber enemas, as he also points out, though very convenient in many cases, are not adapted for oily or turpentine injections.

## PHYTHIAN'S QUININE CORDIAL.

Messrs. PHYTHIAN AND SONS have introduced a very palatable preparation of quinine, a very important feature being that it is quite free from alcohol. This quinine cordial should attract the attention of the medical profession.

## CIVIL SERVICE CO-OPERATIVE STORES.

IN the House of Commons, on Thursday evening last, Sir T. CHAMBERS asked the Chancellor of the Exchequer whether the system of trading as carried on by servants of the Crown, under the designation of Civil Service Co-operative Associations, was not opposed to the rules of the service; whether heads of the departments were not in some instances salaried officers of the Co-operative Association; whether servants of the Crown were not prohibited from engaging in trade or mercantile pursuits, and whether the Government were willing that an inquiry should be instituted into the whole question of civil servants of the Crown, and their connection with co-operative trading societies.

The CHANCELLOR of the EXCHEQUER said he must make a distinction between Civil Servants of the Crown combining together for the purpose of obtaining goods intended for their own use cheaper and other forms of co-operation. As to the former, he saw no objection whatsoever to such a mode of proceeding, nor did he believe he had the power to interfere with it in any way. (Hear, hear.) The question, however, suggested that there was another system of trading carried on by the Civil Servants which did not content itself simply with providing for the wants of the members, but sought, by means of co-operation, to make a considerable profit by buying goods and selling them at an increased rate to persons who were not in the service. He was not aware that there was any rule of the Civil Service which was thereby infringed, but he at the same time felt bound to say, as he had said to a deputation some time ago, that if it lay in his power he should be glad to stop such a system. There was a Treasury Minute of the 27th of March, 1849, which bore upon the question, and which was to the following effect:—That as the public were entitled to the whole of the time of its Civil Servants, and as the officers held situations which required daily attendance, they should not be allowed to accept situations as directors of companies requiring their attendance elsewhere during office hours. The Minute went on to say that their lordships did not require officers already engaged in such concerns to abandon them at once, unless it should appear that their public duties would be thereby infringed upon, but that they would in future strictly restrain any officers from entering on such duties:—That was the only record on the subject which he could find, and he was not, therefore, able to say that there was any rule of the service which would enable the Government to restrain those operating in the way the hon. and learned gentleman seemed to think lay in their power. In answer to the second question, his reply must be that he had no means of obtaining information with respect to it. The Civil Servants, he might add, were absolutely prohibited from engaging in mercantile pursuits, if those pursuits took up any portion of the time which they owed the public. He had no doubt, further, that if a Civil Service officer engaged in pursuits which would take away his time from the duties which he owed to the Crown, and thus those duties were not properly discharged, the Government would feel bound to call on him to elect between the two vocations. With regard to the last part of the question he had to say that he was not willing to enter into any inquiry, for the facts were patent enough, and must come under one or other of the two heads he had mentioned.

## THE NEW SCHEME OF PHARMACEUTICAL EDUCATION.

HERE follows the scheme of pharmaceutical education drawn up by Mr. Schacht, and submitted to the last meeting of the Pharmaceutical Council, by whom it was, in principle, approved unanimously, and referred back to the Committee for further consideration. The copy from which we print has been specially revised by Mr. Schacht:—

## PRINCIPLES.

1st.—It is desirable that Scientific Pharmaceutical Education throughout the country be promoted by the Pharmaceutical Society of Great Britain, and be assisted by its funds.

2nd.—It is desirable that such assistance be given to those efforts only that are directed to the systematic and persistent teaching of the sciences connected with Pharmacy.

3rd.—It is desirable that such assistance be distributed upon a method as far as possible just and universal.

#### SCHEME.

The Council of the Pharmaceutical Society of Great Britain shall announce that they are prepared to propose an annual grant of money for the purpose of assisting Scientific Pharmaceutical Education throughout the country upon conditions to be enumerated below.

The plan upon which this assistance will be given will consist, essentially, in affording a limited and partial aid or stimulus towards founding and maintaining local Pharmaceutical Educational Associations.

The sciences towards instruction in which aid will be given are Chemistry, Botany, and Materia Medica.

The processes through which this aid will be given are:—

- 1st.—Examinations to be held at all places whose local Pharmaceutical Associations have applied for aid, and which have fulfilled the requisite conditions.
- 2nd.—Payments of money to the local Pharmaceutical Associations on the result of these examinations and donations of prizes to the competing candidates.
- 3rd.—Grants towards the fitting up and illustration of the libraries, museums, and laboratories of local Pharmaceutical Associations, or for any portion of their schemes which have a distinct scientific educational object.

#### General Details.

Every local Pharmaceutical Association claiming aid from the Pharmaceutical Society of Great Britain must have been enrolled as "an Association in connection" with it at least three months before the date of the annual examination.

The conditions of enrolment shall be; that it be a *bonâ fide* Association of Chemists and Druggists, acknowledging a fixed set of rules and a money subscription for membership; that it possess a responsible Committee of Chemists and Druggists whose names are on the register, a Chairman and a Secretary; that it include in its scheme courses of lectures by competent teachers upon Chemistry or Botany, for the use of its members and associates, of not less than twenty-five lectures on different days of one hour's length; and that it shall be prepared to carry out in its integrity the educational system of the Pharmaceutical Society.

The Pharmaceutical Society of Great Britain will hold annually, about May, through the agency of the enrolled associations, written examinations in Chemistry, Botany, and Materia Medica in any place in England, Wales, and Scotland, from which a proper application has been received. On the results of these examinations, payments will be made to the enrolled Associations, and prizes will be awarded to the students themselves.

There will be two grades of success, the 1st and the 2nd. All candidates who succeed in passing in the 2nd or lowest class will earn for the Association with which they are connected £1 each. All who pass in the 1st class £2 each. All who pass in the 1st class will also earn for themselves a prize.

Persons eligible to earn prizes and payment for results will be Chemists and Druggists, their Apprentices, Pupils, and Assistants, with the exception of such as have passed the major or minor examination of the Pharmaceutical Society of Great Britain.

Students presenting themselves for examination in the same subject a second or third year will still be considered as entitled to earn payment for results; but if they have already earned one payment, subsequent payments earned in the same subject will be one-half the original amount, and will not be repeated beyond the third payment; nevertheless students may present themselves for examination in any subject as many times as they please.

Payments for results and prizes will only be awarded where the evidence is sufficient to show, on the one hand that good systematic teaching has been supplied, and, on the other, that the candidate has been a diligent student. It will be necessary, therefore, in the first case, that the

local Associations are careful to provide really efficient teachers, and that a proper daily record be kept of the pupil's attendances at each lecture. Forms for these purposes ( ) will be supplied, which must be returned when application is made for examination papers. It will be imperative that at least twenty lectures shall have been attended by each candidate.

#### Examinations.

When an enrolled Association wishes to participate in the aid granted by the Pharmaceutical Society, an application, stating on what subject or subjects examination will be required, and giving the precise number of candidates to be examined in each subject, must be made by the Secretary of the enrolled Association on a printed form ( ) and sent to the Secretary of the Pharmaceutical Society days before that fixed for the examination.

The local Association will then provide a proper room with the requisite accommodation for carrying out the detailed instructions which will be sent them ( ), and a Committee, consisting of the Secretary and one other responsible Chemist and Druggist, not personally interested in the result (but not the teacher), must attend in the room throughout the examination to see that perfect fairness prevails, and that the printed details are absolutely complied with.

On the morning of the day appointed for the examination a packet containing the lists of questions, one for each student, will be received by post by the Secretary of the local Association, which packet must be opened for the first time when all are assembled in the examination-room and the candidates are in their places. The answers will be collected, enclosed in one wrapper, sealed and forwarded by post to the Secretary of the Pharmaceutical Society.

Instructions for the exact guidance of the Committees and Candidates during examination will be forwarded at the proper times.

The examination on either subject will be conducted in every locality throughout the country on the same day and at the same hour.

The answers will be examined and their values estimated as speedily as possible, and the list of successful candidates will be published in the *Pharmaceutical Journal*, no mention being made of those who do not succeed in passing.

The claim for payment must be made on a printed form ( ) to be supplied on application. It must be signed by the Chairman and Secretary of the local Association, and forwarded to the Secretary of the Pharmaceutical Society within one month of the time of publishing the examination-lists, and if found to be correct the money will be forwarded to the Secretary of the local Association.

#### Prizes.

The prizes for those candidates who pass in the first-class will consist of books. Candidates will be at liberty to select their own prizes from a list published in the *Pharmaceutical Journal*.

In addition to these there will be three medals distributed annually in each subject—one gold, one silver, and one bronze—to those whose papers stand respectively first, second, and third in order of merit throughout the country, provided the Examiners consider them sufficiently excellent to justify such a recognition.

#### Examiners.

The Council of the Pharmaceutical Society of Great Britain shall appoint a Professional Chemist and professional Botanist to conduct the examinations in their respective sciences. They will be in no way engaged in teaching any class of pharmaceutical students nor be personally interested in the result of the examination.

It will be the duty of the Examiner to frame a list of questions, to each of which he will attach a certain numerical value, and he will do his best to keep the questions he has selected a perfect secret.

When the answers are returned to him he will estimate their values also in figures, and those candidates who have earned an aggregate number of marks equal to 80 per cent. of the highest possible number will be placed in the first class, and those whose marks are less than 80 per cent., but equal to 50 per cent., will be placed



in the second class. The rest will be considered to have failed.

The Examiners will report to the Council the general character of the replies, and will present the names of the successful candidates with the number of marks they have respectively earned.

The fees for the professional services of the Examiners will be paid by the Council of the Pharmaceutical Society of Great Britain.

#### Grants for Museums, &c.

Inasmuch as the above scheme may not be possible of application in localities where Chemists and Druggists are few in number and widely dispersed, the Council of the Pharmaceutical Society shall have the power to award a grant of money, to the extent of one-half the required expenditure, to any enrolled Association or class in aid of any portion of their scheme which shall have a distinct scientific educational object. For this purpose every application will be judged of on its own merits.



[The following list has been compiled expressly for the CHEMIST AND DRUGGIST by L. de Fontaine-mereau and Co., Patent Agents, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 33, Rue des Minimes, Brussels.]

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

277. J. E. T. Woods, of Camberwell. Improvements in reverberatory and other furnaces for chemical purposes. Dated 29th January, 1872.
- 490 R. Graham and M. D. Wood, of Stockton-on-Tees, Durham. Improvements in apparatus used in the production of artificial teeth, known as dental articulators. Dated 16th February, 1872.
502. A. Bell, of Huddersfield, and J. Walker, of Heckmondwike, York. An improved appliance to distilling, brewing, and other chemical processes or purposes. Dated 16th February, 1872.
1456. W. Clark, of London. An improved method of extracting anthracene contained in coal tar and the pitch accruing therefrom, without either carbonizing or decomposing the pitch. Dated 18th May, 1872.
1464. L. A. E. McKinnon, of Great St. Helens. Improvements in means or apparatus for use in extinguishing fire by the aid of carbonic acid gas. Dated 14th May, 1872.
1485. S. Russell, of Bayswater. Improvements in means and apparatus for stoppering bottles containing aerated and other liquids. Dated 16th May, 1872.
1516. J. Baird, of Glasgow. Improvements in treating oils for lubricating and other purposes. Dated 18th May, 1872.
1540. H. and H. Kenyon, and J. Swindells, of Warrington, Lancashire. Improvements in the manufacture of chlorine and sulphuric acid. Dated May 21, 1872.
1566. P. Michaelis, of Great Winchester-street-buildings. Improved means or apparatus for stoppering bottles. Dated 22nd May, 1872.
1577. A. J. Murray, of Camberwell. Improvements in the treatment of sewage deposits. Dated 23rd May, 1872.
1586. W. R. Lake, of London. Improved processes and apparatus for the extraction of oil and the production of flour from maize. Dated 24th May, 1872.
1596. H. Figatner, of Finsbury-square. Improvements in voltaic or galvanic batteries. Dated 25th May, 1872.
1600. F. G. Cheesbrough, of Liverpool. Improvements in machinery and apparatus to be used in the process of manufacturing oil from seeds. Dated 27th May, 1872.
1616. J. H. Dennis, of Liverpool. Improvements in the treatment of copper precipitate, and in the utilization of impurities contained therein. Dated 28th May, 1872.
1638. H. Highton, of Putney. Improvements in galvanic batteries. Dated 30th May, 1872.
1651. J. Bolt, of Halifax, York. An improved stopper for bottles. Dated 31st May, 1872.
1665. W. Darlow, of Canning Town, Essex. Improvements in the construction of portable magnets for curative and other purposes. Dated 1st June, 1872.
1690. W. Riddell, of Bishopsgate-street. Improvements in the manufacture of paper pulp from vegetable fibres and in apparatus therefor, which apparatus is also designed to be employed in making chloride of lime for bleaching pulp and in other similar processes. Dated 4th June, 1872.
1693. J. H. Johnson, of London. Improvements in apparatus for applying colouring or mucilaginous solutions. Dated 5th June, 1872.
1694. G. S. Fleming, of Oxford-street. Improvements in stoppers for bottles. Dated 5th June, 1872.
1695. J. Stevenson, J. Carille, and J. Stevenson, all of Glasgow. Improvements in the manufacture of bichromates of soda and potash. Dated 5th June, 1872.

1699. J. T. Dann, of North Brixton, Surrey. Improvements in the manufacture of phosphorus. Dated 5th June, 1872.
1704. J. H. Brown, of the Strand. An improved method of securing corks and stoppers in bottles, jars, and other receptacles for wine, spirits, beer, ale, aerated compounds, corrosive acids, and other liquids. Dated 5th June, 1872.
1740. C. A. Faure, of Lambeth. Improvements in the manufacture of thermo-piles or thermo-electric batteries or apparatus for producing or exciting electric currents. Dated 10th June, 1872.
1742. C. A. Faure, of Lambeth. Improvements in the process or processes of applying electric currents to chemical decompositions and combinations, including the manufacture of alkalis. Dated 10th June, 1872.
1802. C. W. Smith, of Highfield, near Stroud, Gloucestershire. Improvements in the extraction of indigo and other similar substances from plants containing such substances. Dated 15th June, 1872. Letters Patent have been issued for the following:—
3261. J. J. Knight, of Penketh, near Warrington, Lancashire. Improvements in the manufacture of caustic soda and potash, phosphates of soda and potash, muriatic acid and chlorine. Dated 2nd December, 1871.
3401. A. J. Eli, of Bedford-square. Improved apparatus for stopping bottles and vessels, and for drawing off liquids therefrom. Dated 15th December, 1871.
3448. A. Morris, of Royal Exchange. Improvements in the production of iodine and bromine and in apparatus therefor. Dated 20th December, 1871.
3493. J. Anderson, of New-buildings, Londonderry, Ireland. Improvements in reducing oxides, and in obtaining iron, sodium, potassium, phosphorus, chlorine, or their compounds, and in apparatus therefor. Dated 27th December, 1871.
3501. W. A. Alcorn, of Bagshot Sheet, Albany-road, S. E. An improved method for the protection of bottles and other fragile substance. Dated 28th December, 1871.
64. J. A. Coffey, of Bucklersbury. Improvements in the manufacture, sublimation, and distillation of sulphur salts, tar, oil, fats, quicksilver, and other substances of a similar nature. Dated 8th January, 1872.
103. J. H. Johnson, of London. Improvements in the treatment and utilization of acid gas tars. Dated 12th January, 1872.
317. W. Weldon, of Putney. Improvements in the manufacture of chlorine and in apparatus and arrangements for that purpose. Dated 1st February, 1872.
326. G. Fletcher, jun., of Derby. Improvements in the evaporation and granulation of sugar, and in the apparatus or machinery connected therewith. Dated 1st February, 1872.
370. F. G. Prange and W. Whitehead, both of Liverpool. Improvements in the utilization of sewage. Dated 6th February, 1872.
575. W. C. Sillar, of Blackheath, Kent, R. G. Sillar, of Bolton, Lancashire, and C. Rawson, of St. Swithin's-lane. Improvements in treating and deodorizing human excreta, and thereby facilitating the disposal and utilization thereof. Dated 22nd February, 1872.
935. E. Meldrum, of Dechnonut, Llanthrogau. Improvements in the purification of paraffine oils and paraffine. Dated 28th March, 1872.
1140. B. J. B. Mills, of Lon-lou. Improvements in apparatus for the extraction of oil, fat, or resin, from vegetable or other solid matter by chemical agency and the recovery of the chemical employed. Dated 17th April, 1872.
1257. W. R. Lake, of London. Improved processes of treating phosphatic rock, and other phosphatic substances, for the extraction of the phosphoric acid or soluble phosphates therefrom. Dated 26th April, 1872.
1272. J. Ducomet, of Paris. An improved construction of packing case. Dated 27th April, 1872.

#### Specifications published during the month:—

Postage 1d. each extra.

1871.

2539. W. A. Gibbs. Drying agricultural and chemical products. 4d.
2726. W. Latham. Ambulance carriages or field hospitals. 10d.
2759. A. V. Newton. Electric batteries, &c. 6d.
2769. J. B. Pow. Treating sewage. 1s.
2763. W. Crooks. Disinfectant and deodoriser. 4d.
2770. H. H. Stephens. Obtaining sulphate of ammonia from urine. 4d.
2786. C. O. Heyl. Extracting and purifying oil, &c. 1s.
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This work is now under preparation, and the first edition will be ready by September 1st for the supply of foreign agents. Advertisers are requested to give early intimation of the space they will require.

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### DRUGGISTS' RESPONSIBILITIES.

A SUBJECT has recently come before us which we take up now with some reluctance, but at the same time with an earnest conviction that it is a moral duty devolving upon us in our position as journalists for the chemists and druggists of this country. We by no means dictate our views to the trade; all we ask for is a candid and conscientious consideration of our arguments.

We refer to the large, and, as we believe, increasing sale of opium or morphia preparations intended for administra-

tion to very young children. Especially to that class, which under comparatively innocent titles, wins its way to the confidence of mothers and nurses, through their ignorance of the dangerous character of the specific which they so fondly imagine themselves to have discovered.

A letter appears in this impression of *THE CHEMIST AND DRUGGIST* from Messrs. Jeremiah Curtis, Sons, and Co., the English manufacturers of perhaps the most popular of these nostrums—"Mrs. Winslow's Soothing Syrup." We accept readily their contradiction of the analysis which we last month quoted from the *Pacific Medical and Surgical Journal*, and thank them for giving it. They are wrong in assuming that the assay of morphia in such a mixture as theirs is such a very simple matter. We doubt whether any chemist in England would care to stake his reputation on the result which he might think he had obtained in making such an assay. All our readers know that it is next to impossible to make a quantitative analysis of an unknown organic mixture like this, and especially to estimate morphia when sugar is also present. Therefore, we willingly accept the manufacturers' assertion in preference to that of the Californian chemist.

But this does not very greatly affect what we now write about. Let the quantity of morphia be what it may, it is at any rate large enough to produce its effect with marvellous quickness and certainty. The writer whom we quoted last month, estimated that, through this nostrum alone, the babies of the United States must consume annually 14,000,000 grains, or not much less than a ton of morphia! Allowing for 50 per cent. of exaggeration, and then considering how many other preparations are also administered for similar purposes, not only in the United States, but also in Great Britain and her colonies, we shall then have a total of this deadly poison given to the future generation of Anglo-Saxons which it is truly frightful to contemplate. Is there any one sceptical of the ruinous influence of opiates on the mind and body of those who take them? Surely not: their effects are too hideously apparent, and who can calculate what ruin they insidiously work when thus recklessly administered to very young children. True, they do not, in this country at least, produce a race of opium-eaters, but it is not unreasonable to assume that they induce a morbid craving for some such stimulant, and thus, probably, powerfully support and assist the ravages of the demon of drink which not enthusiast only, but calm, cool-headed statesmen, assert to be the most terrible foe of English manhood. The continued use of opium debilitates the mind and more or less paralyses the will of those who indulge in it, and if that be the case with grown-up men, is it not a mathematical corollary that the tender constitutions of young children may receive a life-long blight from its administration—a curse which falls directly on themselves, and subsequently on their offspring, their country, and the human race?

If our case is correct, and it will hardly be disputed, there is one consideration which follows inevitably. The purveyors of this poison are almost exclusively chemists and druggists. With them is a vast influence, and with them, therefore, rests a great responsibility in this matter. They have neither the power nor the right to stop the traffic arbitrarily; but they have the power, and duty and chivalry call them to exercise it, of checking the baneful consumption. Surely, if they perceive the danger they will not reply with the poor common-places of "supply and demand," "no business of mine," and "am I my brother's keeper?" If they have superior knowledge to their customers, they are responsible for its exercise. Do we not execrate the publican who greedily or carelessly closes his

hand over the drunken father's hard-earned coin which he spends thus, to the ruin of himself and of those dependent on him? A somewhat similar charge of carelessness at least may be laid against those who believing in such theories as we have stated, neglect to use their opportunities and their superior knowledge to the use of their fellow-creatures.

We have sometimes opposed ourselves to the superfine ethics, which denounce as quackery anything out of the genteel carriage-road in which the censor drives. This is not a question of professional etiquette. We submit it to the consideration of the honourable trade which we represent as a matter of responsibility, of moral duty, and of chivalry.

#### MR. SCHACHT'S SCHEME OF PHARMACEUTICAL EDUCATION.

THE difficulties surrounding the subject of provincial pharmaceutical education aided by the Pharmaceutical Society have been apparent to most pharmacists, and have been discussed several times in this journal. The problem may be stated in a very few sentences, and it is desirable that it should be so stated, so as to be clear to all the trade what is wanted and what is offered. The Pharmaceutical Society had last year a net surplus of nearly £2000. Of course the provinces contribute the chief proportion of this amount, and therefore, their representatives claim that this sum ought to be shared among them to aid in the arduous task of providing efficient pharmaceutical education. There is an almost unanimous agreement that, of all things, it is first of all important to maintain a central institution in the metropolis, which shall be thoroughly efficient, and creditable to the united efforts of British pharmacy. Such an institution we have. For its special appliances and arrangements adapted to the teaching of the various branches of pharmacy, it is unsurpassed in the world. The most earnest advocate of aid from the parent Society to the provinces will scarcely urge that this central institution should be in the least degree beggared, if he will consider the subject. It happens to be in London, certainly, but it is useful to the whole kingdom, and pharmacists at Land's End and Aberdeen, are more or less influenced by the central educational power in Bloomsbury.

But there is a surplus of about £1,800. Can we with this money give such aid to those who are working in the provinces as shall brace and not emasculate their energies? Another difficulty is, to provide a scheme which shall be at the same time comprehensive, and within our means. Many suggestions have been put forward more or less imperfect, and in some instances a little something like clamorous demand has been raised for assistance; but except in a very limited area, the Council, has hitherto, very properly as we consider, resisted all such claims, until a system could be established, which should appear fair to the whole country. The question was the leading one at the last election, and the wish of the constituents was very clearly manifested by the election of Messrs. Baynes, Radley, and Schacht, whose candidature was based chiefly on the ground that they proposed to advocate some scheme for the expenditure of money over the provinces in the manner indicated.

A scheme is now before the body, drawn up by Mr. Schacht, of Clifton, whose experience in the matter amply justifies the respect with which his proposition has been received. We print it on another page, but in this place, we may remark that, to our minds, it appears to be in almost every respect a just and wise measure. It ha

seemed to us somewhat doubtful whether "it is desirable" altogether that the Pharmaceutical Society should take the initiative in providing means of education. It would have been a much more healthy sign if the demand for such provision had come from the student-class of young men themselves. Several large towns have tried to establish laboratories and lectures for the purposes of pharmaceutical instruction, and from no fault of the promoters, failure only has resulted. It remains to be seen whether the same efforts, backed up by the Society, will ensure better results. But, granting the desirability of the Council entering the field, there cannot be two opinions about the desirability of the second "principle" enunciated by Mr. Schacht, namely, "that such assistance be given to those efforts only that are directed to the systematic and persistent teaching of the sciences connected with pharmacy." Throughout the scheme, as our readers will see if they will examine it, a most rigid determination is manifest, that no society's funds shall be employed for an instant, to aid anything like mere coaching for the minor. Wherever money is granted, it is to be spent in conjunction with other money for the elevation of pharmaceutical education generally, and for the thorough teaching of the sciences on which the art is based. A system of payment by results is to be adopted. The associations are only to be entitled to such payments as they can honestly win by bringing their students to a certain pitch of proficiency, to be tested by independent examiners with one standard. This is excellent, and cannot be cavilled at by either side. Another point in the scheme which is worthy of remark is the careful manner in which the claims of large and small towns have been adjusted. The idea involved is the unquestionably just one, that to whom much has been given, from them much will be required. Large towns will have to show themselves willing to establish at least satisfactory courses of lectures; but it is stipulated that the Council may also judge for itself of the merits of any case where this is not practicable, and may render aid to small places, provided, presumably, that earnest effort, after "a distinct scientific educational object," is indicated.

The examinations are to be held once every year simultaneously, and on the results of these are to depend the grants which any association can claim. These examinations are not of course the pharmaceutical examinations themselves, nor are they proposed in lieu of them; but the provision that associations must bring forward their students for these, prepared at least to some extent, is the safeguard that the society provides against an unfair advantage being taken of the system which they offer to aid. If we may judge from past experience we may assume that the conditions imposed are too severe to produce any severe strain on the surplus. But they are not one fraction too severe. The offer of prizes of books to such students as pass in the first-class is to our minds a defect. Let the gold, silver, and bronze medals be offered as proposed, and that will be sufficient. Anglo-Saxon young gentlemen, who cannot appreciate the solid advantages offered, and to whom the competition with all-comers is not sufficiently attractive, are not worth tempting with a further prize. This point, we hope, will be re-considered, and we shall watch with much interest the development of this really statesmanlike scheme. It is worthy of the closest attention and the freest possible discussion among all who interest themselves in the progress of pharmacy.

At the Staffordshire sessions, Frederick Henry Ethell, chemist, who had been committed on the charge of stealing two brushes, a quantity of soap, half-a-pound of tea, and other articles—the property of his employer, Mr. James Wilshaw, of Kingswinford—was found not guilty, and acquitted.



### JULIUS CÆSAR\*

"Cowards die many times before their deaths;  
The valiant never taste of death but once.  
Of all the wonders that I yet have heard,  
It seems to me most strange that men should fear;  
Seeing that death, a necessary end,  
Will come when it will come."

**M**OST cordially do we recommend this little work and its companions in the series to our students and apprentices. A few well-known literary men, not specially associated with what are called the classics, have ventured to present to the English reader some of those celebrated productions of antiquity which, having won the admiration of the scholar, are, nevertheless, not familiar to the general public. Choosing Blackwood as their publisher, and trusting to the editorial care of the Rev. W. Lucas Collins, they give a fair, and by no means superficial, notion of authors, such as Virgil, Horace, Æschylus, Xenophon, Cicero, or Sophocles; in fact, of men whose writings have created and moulded the world of literature, and whose thought, though venerable with age, even in this nineteenth century, is fresh with eternal spring. Horace has been confided to Theodore Martin; Cæsar to Anthony Trollope. Our task is to describe the latter manual, which is short, of the modest price of half-a-crown, and which, being intensely readable and retaining the peculiar charm of the novelist, may serve either to lead to severer study, or to be the companion of a quiet summer evening.

Mr. Trollope does not aim at a critical explanation of the text, and it is foreign to his purpose to throw light upon Cæsar's construction; but he tells us who Cæsar was, what he did, what other people tried to do, and what the two mysterious Commentaries—"De Bello Gallico" and "De Bello Civili"—are about. This, we think, a matter of great importance, and it must save the student from much of that dreary, *unprofitable* (observe the word is in italics), hopeless tug with dictionaries and grammars, in which formerly he was engaged for years, while labouring over an account of which he knew nothing, and for which he cared less.

We lament in sackcloth the hideous waste of misdirected energy which fell to our lot, and robbed too many golden school-days of their advantage; when the cares of life are on us we begin to learn and love. We put it to the conscience of every student whether he has not groaned over his allotted task; and whether the tyro, inked up to the hair roots, has not entirely agreed with Dr. Johnson, who affirmed that no one could like the man who had taught him Latin. A brighter day was dawning over England, in whose full sunshine we are basking now. Dr. Arnold came and swept away the dreary system which he found, and filled the driest details of education with living interest. He led us into the inner life of classic personages, and told in nervous language, which has excited admiration, who were the men and women figuring in history centuries ago. Others have caught the inspiration, and have not disdained to follow his example; nor are we in the least way frightened by the sneer that such revelations of the actual are "popular," and therefore to be despised.

We hold that much more may be done with regard to the great Roman chronicler of his wars. We should like to be informed about the personal character and actions of every individual in the Gallic war, and to be introduced in familiar and unstilted narrative to their domestic circle—to learn something about their towns and rivers, what they were and what they are; something about their faith, their dress, and habits; something about the meaning of the words they spoke. Let us understand why Cæsar relates his facts as clearly as a mountain-stream, while he reports another's speech in involved sentences, and renders his own orations in ambiguous phraseology. When all is done, badly or well, we shall but have copied Arnold, and trod in the very path he once so nobly indicated. Then we shall learn history. Nor will the scholar be less instructed, who has listened to his mother repeating the old-world story by

\* "The Commentaries of Cæsar." By ANTHONY TROLLOPE. William Blackwood and Sons, Edinburgh and London. 1870.

her own fireside, or real with the same earnestness the tale of France before the birth of Christ, as he would the immortal episode where Ruth Pinch meets her lover in the Temple.

Cæsar's whole life was wonderful; there was no interval between his manhood and his youth but that of date. In one sense he was never old nor young. At seventeen he was a priest of Jupiter, and had found time to enter the married state. He set himself deliberately to attain perfection simply to acquire mastery. Diligently he practised oratory and Cicero, whose commendation was the highest praise, lauded both his writings and his speeches. The former were the type of what is called terse—mighty thoughts and long descriptions were wrapped up in the fewest possible words. His was the Liebig's extract of literature; the concentrated essence of expression: and this it is that makes his style so difficult to understand. Every noun, adjective, and verb has a distinct significance, of which Mr. Trollope gives excellent illustrations—one may serve for all. Cæsar says, describing the condition of Afranius: "Premeoantur Afraniani pabulatione, aquabantur œgre." "We are compelled to translate, "The soldiers of Afranius were much distressed in the matter of forage, and could obtain water only with great difficulty." "Pabulatio" is a longer word than *forage*, but beyond "aquabantur œgre" the force of condensation can no further go. The ending of the first book "De Bello Gallico," is too well-known to need quotation; when a battle is narrated—the town burnt and sacked, the inhabitants destroyed, the soldiers mutilated or slain, and every vestige of a once flourishing city swept into nothingness—half-a-dozen lines dismiss the trifling circumstance. Honours rained on Cæsar; his presence was synonymous with victory, men revered him as a god.

It is not for us to follow Cæsar and his fortunes through the vicissitudes of his campaigns; moreover, the opening of the Commentaries is familiar to every student desirous of passing the Preliminary Examination. Let it, however, be remembered that the conqueror is his own narrator, and we may indulge in the doubt whether he always won so utterly, and whether brave warriors so constantly came before him weeping, and sued for his clemency in such abject terms. We never felt thoroughly certain that Divitiacus—rich, learned, and the friend of Cicero—should have demeaned himself in the manner his vanquisher has portrayed. Sufficient is it for us now to single out a few episodes, having first mentioned that the reader will find two curious notices on the island at present called Great Britain, and an elaborate history of the Druids.

All the world has heard of the motto, "Veni, vidi, vici," which has formed for generations an illustration for an essay, and an appropriate text on which to preach a sermon. Here we must leave Anthony Trollope and turn to Plutarch, who gives, perhaps, the dullest sketch of facts that ever has been arranged, and yet the one on which Shakspeare founded his inspired drama. One would suppose that the words were prompted by some unparalleled event. The truth is this. Pharnaces beat Domitius in Asia; and being already master of Bithynia and Cappadocia wanted further, Armenia the less. Cæsar marched against him with three legions; fought him near Zela, drove him out of Pontus, and totally defeated his army. This victory, both to posterity and to himself, was not a thing of fame; "but when he gave Amin-tius, a friend of his at Rome, an account of this action, to express its smartness and despatch he used these three words, "I came, I saw, I conquered."

So the great English motto was somewhat accidental. *Nelson expects every man to do his duty* was the order. "Would not the word *England* sound better?" said the hero's friend. We all in our small circles occasionally say great things, but they are not followed up by deeds; and that is just the difference between the few and a crowd of other people.

Have we not all traditionally believed in the CLEMENCY OF CÆSAR? The actions of the past must be judged neither by our standard nor by our code of thought; still we cannot read without a shudder of the perpetual waste of human life—masses of soldiery or helpless inhabitants habitually, nay, frequently doomed to annihilation. Compared with these atrocities, Napoleon's expeditions, and the vile African exploits of his successor, were Christian mildness. One occurrence stands out as an abomination, and can be justified by no laws that bind the civilized or uncivilized together. The

record will be found in the seventh book "De Bello Gallico." Vercingetorix and his whole army was forced into a town called Alesia—help was expected, but it came too late; when it arrived it was ineffectual. There was food for thirty days. The miserable hours drew their slow length along in agony; famine was imminent, despair anticipated death. There were two proposals—let them eat one another, and thus for the survivors prolong a cannibal existence. From this they shrank with horror. Therefore, as a last resource in dire extremity, the besieged turned out the weak, the old, the children, and the women. Out they went, and stood between the two armies on a piece of neutral ground. They implored the clemency of Cæsar; natural feeling might have been their orator, and pleaded not in vain; helplessness might have proved a safeguard; misery so dire and so unmerited might have influenced even a heart of Roman stone. No; Cæsar waves his hand; not a sword was drawn, not a missile flung; and on that piece of soil held sacred amidst the barbarous usages of war, the weak, the old, the children and the women perished—left to die.

At this point we have a slight difference with Mr. Trollope. Cæsar, in the very peril of the battle, never forgot Rome; that was the centre of his hopes and the ultimate object of his ambition. One other Roman citizen, and but one, shared his glory, Pompey, called the great. This wonderful man, "formed in the prodigality of nature," handsome in person and winning in manner, united all the grace of a courtier to the manliness of the soldier. Legions sprang up at his command, sure of success; and when the marauding pirates swept the sea, with gorgeously decked vessels and prodigious forces, Pompey cleared the whole swarm, and gave peace, corn, and commerce to the imperial city. Two suns cannot shine in the same sky: "Aut Cæsar aut nullus" was the creed, and the last struggle for supremacy must be made at Rome. Must Cæsar, himself a Roman, plunge his country into civil war? Must citizen slay citizen? Suppose he failed, failed, *failed!* think of that. "Ye gods, whose high priest I am, but think of that!" Then he comes to the Rubicon, a poor little stream which separated the provinces of Cis-alpine Gaul from the Roman territory—it ran between Ravenna and Rimini—but he hesitates, and ponders and is irresolute, till a spirit or angel, while martial music is heard playing in the air, beckons him to cross. This is put down as fable, both the hesitation and the apparition. We object, and say there comes a time, a crisis in the career of every great man, when he does pause, and stands shuddering at the future's brink. The fool never hesitates, nor is troubled with the immensity of unknown consequence. Facts are no less true when clothed with a slight romantic dress, through which we can plainly detect exaggeration. We accept the popular story of the Rubicon; and as far as Cæsar himself was concerned, we are no more stumbled by the angel, than by the allegory of Fame when represented with a trumpet.

Mr. Trollope, however, amply redeems his character with respect to another point of accuracy; he is of opinion that Cleopatra was by no means plain, and he bases his theory on two facts—first when hot in pursuit of Pompey he comes to Alexandria, where he was detained by Etesian winds—the sad influence of these winds may be explained to some extent by the presence of the Egyptian queen. But Cæsar did one beautifully insane thing—he marched with only half a legion into Alexandria, and demanded tribute. The Alexandrians naturally rose, and Cæsar was in fearful danger; and in the midst of the consternation they burnt not only the fleet, but the Alexandrian library. But Cæsar had revelled with Cleopatra though he nearly lost the world, and we are therefore disposed to lend credence to the notion that she was a pretty woman.

The end is at hand; and we approach the last act of one of the sublimest human tragedies. This man, who might almost have been styled omnipotent, must fall. The world was his. There was no Gaul to overrun—no insolent tribe to conquer. Eternal Rome received him as her emperor. He would be king. He makes wise laws, he arranges and renders accurate chronology, but he would be king. Vain ambition, and useless—could it add an atom to his power, could he receive more honour? Intimate and bosom friends cannot brook this insatiable hungering after lordship, and they conspire.

There was nothing strange in the senate, no popular com-

motion in the city, no violent disturbance anywhere. Only his wife Calphurnia, dreamed dreams—the windows of the house flapped open over night. Next day, Cæsar goes forth to the senate house—to death—a story told in so wonderful a fashion by the master-hand, that it has enthroned and stamped the supremacy of our national dramatic literature.

Plutarch relates (translation 1699)—“But those who came prepared for the business enclosed him on every side with their naked daggers in their hands, which way soever he turned, he met with blows and saw their swords levelled at his face and eyes, and was baited on all sides, like a beast taken in a toil. For it was agreed they should each of them make a thrust at him, and flesh themselves with his blood; wherefore Brutus gave him one stab in the groin. Some say that he fought and resisted all the rest, and moved off from one place to another, calling out for help. But when he saw Brutus' sword drawn he covered his face with his robe and quietly surrendered himself, till he was pushed, either by chance or by design of the murderers, to the pedestal on which Pompey's statue stood, which by that means was much stained with his blood; so that Pompey himself may seem to have had his share in the revenge of his enemy, who fell at his feet and breathed out his soul through his multitude of wounds; for they say he received three and twenty. The assassins themselves were many of them wounded by each other, whilst they all levelled their blows at the same person.”

BRU. *But here comes Antony. Welcome, Mark Antony.*

ANT. *O mighty Cæsar! Dost thou lie so low?*

*Are all thy conquests, glories, triumphs, spoils,  
Shrunk to this little measure? Fare thee well.*

\* \* \* \* \*

*But yesterday, the word of Cæsar might*

*Have stood against the world: now lies he there,  
And none do poor to do him reverence.*

We cannot leave this subject without stating that it is impossible to understand either Cæsar's conduct or his writings, without reference to the exact date. Cæsar was the incarnation of the assertion of the supremacy of the will—by this he must be judged. Never let us forget the mystic characters B.C.—a new kingdom was about to rise, born in poverty, not in wealth; in weakness, not in power, which was to change the destinies of earth. A few years after the dagger of Brutus had done its work, it came to pass that there went out a decree from Cæsar Augustus that all the world should be taxed; and shepherds abiding in the fields listened to the new, strange anthem, “peace on earth, good-will towards men.” The reign of force was ended; that of love begun. The first Cæsar grasped dominion by sword and fire and violence; He that was about to rule in righteousness asked His designing audience, “Whose is this image and superscription? They say unto Him Cæsar's.” And He who had legions of angels at His beck, himself the King of kings and Lord of lords, said—“Render unto Cæsar the things which are Cæsar's, and unto God the things which are God's.”

We heartily thank Mr. Trollope for the manner in which he has fulfilled his task.

#### ANOTHER LIFE OF FARADAY.\*

In our last volume (p. 354) will be found a report of a lecture delivered by Dr. J. H. Gladstone on the life of Faraday. That lecture was itself an excellent abstract of the book now before us, and the book is, without doubt, a faithful and loving abstract of the life of one towards whom the highest intellects could look as to a master. Dr. Gladstone presents this biography in a pleasant manner. The book is not swollen out with journals and correspondence, but the hero is portrayed for us in his home life as well as in his public career. Readers, with a passion for the romantic or sensational literature with which we are now surrounded, will find no satisfaction; but those who can enjoy the story of a life—patient, persevering, reverent, cheerful, and all through lighted by true genius, will find such here. Faraday's life was a singularly happy one. His great ability, and the value of his discoveries

were appreciated while he lived, and having once made his way into the path towards which his fondest desires tended, he was ever after able to choose for himself his manner of life. His enthusiastic love for science, for seeking out the mysteries which lie behind the revealed forces of nature, supplied him with a source of pleasure which few can appreciate. And he was able in a marked degree to communicate his enthusiasm to others. That he possessed a singularly lovable character is evident, from the affectionate manner in which so many of the greatest scientific professors have spoken or written of him, and it is likely that his memory will for ever be cherished as one of the brightest in our scientific annals.

Dr. Gladstone ably criticises Faraday's scientific work, and the value of his discoveries, and he shows clearly enough that none but scientific men themselves can truly estimate the great benefits which his researches have conferred. His investigations were those of a philosopher, pure and simple, and in widening the field of knowledge he made room for other workers to bring practical good from his discoveries. Still his judgment was constantly sought, often by the Government and often by private individuals. A story of one of these consultations which Dr. Gladstone tells is new and particularly interesting:—

“Inventors and promoters of useful inventions frequently benefited by the advice of Faraday, or by his generous help. A remarkable instance of this was told me by Cyrus Field. Near the commencement of his great enterprise, when he wished to unite the old and the new worlds by the telegraphic cable, he sought the advice of the great electrician, and Faraday told him that he doubted the possibility of getting a message across the Atlantic. Mr. Field saw that this fatal objection must be settled at once, and begged Faraday to make the necessary experiments, offering to pay him properly for his services. The philosopher, however, declined all remuneration, but worked away at the question, and presently reported to Mr. Field:—“It can be done, but you will not get an instantaneous message.” “How long will it take?” was the next inquiry. “Oh, perhaps a second.” “Well, that's quick enough for me,” was the conclusion of the American; and the enterprise was proceeded with.”

We might quote many passages from this little book, but they would lose interest by being detached. No words can better summarize the life and work of the great chemist than those of Bence Jones' who describes them as “a lifelong, lasting strife to seek and say that which he thought was true, and to do that which he thought was kind.”

#### CONCRETE ARITHMETIC.\*

This book is one that will not unlikely find considerable favour among our modern educational reformers, whose simple claim to the title is that they continually occupy themselves in upsetting the systems of teaching which have been successful for many generations, of men, perhaps, not not so much less wise than ourselves. It is the fashion to sneer at our old grammar books, and modern instructors set to work to teach very young children the basis of language as Max Müller understands it, because the old system is such an unscientific method. This may be easily carried too far. No man is fit for a teacher unless he comprehends exactly the principles and the bases which underlie the arbitrary rules of our old school-books. But it does not necessarily follow that young children should be trained to understand the principles of either grammar or arithmetic before they are taught their methods. It is not possible, neither is it natural. In physical science, phenomena have been observed before the underlying principles have been educed, and if the natural plan is slow, it is at least the most certain to evolve an accurate idea of the particular subject of study.

In the book now lying before us, an attempt is made to present a plan of teaching arithmetic in such a manner that very young children shall understand the formulæ which they are called upon to master. The idea is plausible, and we are not inclined to assert that there is no value in the suggestions put forth. But we are quite certain that our own conception of the mental faculties of young children differs widely from that which Mr. Orme holds. We shall not misrepresent the author if we state his idea thus:—He considers that to teach a child that two and two make four, it is not sufficient to state the fact as an arbitrary dogma.

\* “Michael Faraday.” By J. H. GLADSTONE, Ph.D., F.R.S. London: Macmillan.

\* “Concrete Arithmetic: An Introduction to the Elements of the Abstract Science of Number.” For Young Children. By T. A. ORME. London: Groombridge.

He would have the pupil appreciate the truth in his own mind. So would we; but we think the most direct method of accomplishing this result is to state the dogma. The young student will discover for himself the truth represented. It is desirable that the teacher should help on that intelligence occasionally; and if this book were merely suggestions to teachers and disembarrassed from its load of examples, suited only to the intellects of very young scholars, we should commend it warmly. There is nothing particularly novel, however, in it. Any teacher worth the name would give his pupils concrete expositions of the arbitrary statements of arithmetic if he found any difficulty existing in their minds as to the comprehension of them. For example, he would take two marbles, and add two others to them, to show that the result was four. But unless he happened to be a monster of cruelty, he would never belabour a poor child's mind with a whole series of evident proofs of what he teaches in order to ensure the child's comprehension. These young pupils accept what is told them as truth. If their minds are healthy, a time will come when their logical faculties will awaken and lead them to inquire whether the statements which have been made to them are certainly true. Then will they appreciate the dogmas, which they see for themselves are founded upon sound bases, and one by one they will be established in their understandings.

Even if we cordially agreed with the system which Mr. Orme proposes, we should not in all respects admire the manner in which he has carried it out. One would hardly esteem it a part of "concrete" arithmetic to pile up explanations of factors and co-factors, multiples and products, minuends and subtrahends, not to mention units, decanits, hecto-units, and kilo-units. For all this, however, teachers will get some useful hints by reading this book. The following passage (page 77) we quote, as it explains the method on which Mr. Orme works to illustrate our decimal system of numeration:—

"When you have nine hundred and ninety-nine things on the table, arranged properly into three columns, put another thing among the units. You have now ten units; pack them up. You have now no separate units, but there are ten tens; pack them up into one parcel of a hundred. You have now no separate parcels of ten, and no separate units; but there are ten parcels of a hundred. These ten parcels must, as before, be packed up, and the one parcel of ten hundred must be placed on the left-hand side of the hundreds' column; because we have no separate symbol to represent ten objects. This new number of things is called one *thousand*, or one *kilo-unit*."

In conclusion, we would say that though Mr. Orme's book professes to teach "concrete" arithmetic, the greater part of it teaches the old abstract system of figures to all intents and purposes. What is there "concrete," for instance, in setting a child an exercise like this (page 64):—

$2 \times 7 - (3 + 4) + 3 \times 5 - 3 + 4 - (4 \times 4 + 2 \times 3 + 1)$ .

We quote this instance also for another purpose. Mr. Orme is either intentionally setting a catch for "young children," or he has not examined his proofs with sufficient care.

### HYDROPATHY.\*

THE mere mention of hydropathy at this fiercely sultry summer season has a soothing effect on the nerves. Who would not agree just now with a system which demanded first of all a visit to the famous Malvern hills, around the slopes of which cluster those sweet villas or magnificent mansions destined to accommodate the applicants for "treatment?" Who would not willingly submit himself to the prescription of the water-doctor, when that prescription consisted in packing in wet sheets, dismissal of all earthly cares, and languid repose amid the pure but perfume-laden air of the happy Worcestershire watering-place? What a luxury to feel the "withdrawing of the caloric," and afterwards the "reactionary projection of circulatory vigour," which Dr. Fernie writes about.

The professors of the water-cure have made Malvern a sort of Cave of Adullam for the medical profession. Most of them combine in an eccentric manner snatches of allopathic or homœopathic practice with their own special ideas of curing, but their prescriptions are often curiosities of medical literature. Dr. Gully, who has doubtless held the highest place

for many years among them, made martyrdom the business of his life. He has now retired, but leaves "the mantle of his special precepts" with Dr. Fernie, who writes the book now before us. Marvellous as a volume of redundant verbiage, Dr. Fernie's production is marvellous in nothing else. Like the other authors on the same subject, he manages to make a little science go a long way. With an almost grotesque parade of stilted language, he claims for hydropathy such rank as it can never attain. In extravagant and absurd language he declaims against "the so-called healing art, generally known as Allopathy." It would be hardly just to Dr. Fernie to describe him as entirely ignorant of allopathic practice, but in acquitting him of ignorance we must accuse him of a suspicion of charlatanism. His book gives a very fair description of the processes of hydropathy; but this description is embarrassed with such a quantity of mystic and exaggerated language, and is so rambling and undivided, that it is a painful task to follow it. As an adjunctive treatment, as a restorative method for those who have over-exerted themselves in the world's strife, the water-cure is worthy to hold a high position. But its rightful claims are discredited, when it is held up by over-zealous champions as the one perfect system of treatment. Sensible invalids might well hesitate to trust themselves in the hands of men who have such faith in water-cure as Dr. Fernie professes. In this respect we should have almost anticipated that his book might have a deterrent effect on some would-be patients. But the author knows his business best. Whatever his talents or his success as a hydropathic physician may be—and we know nothing of him personally—his book is not one calculated to advance hydropathy among intelligent people. It belongs to the literature of advertisements, and has no claim to rank as a contribution to true medical study.

### CHEMICAL TECHNOLOGY.

WE have to acknowledge from the publishers (Messrs. Churchill), an important work under the above title, which has just appeared. It is an English translation of Dr. Rudolf Wagner's well-known "Chemischen Technologie." Mr. Crookes, F.R.S., is the translator and English editor, and from a cursory glance, it seems quite evident that he has done his work thoroughly well. The book describes all kinds of chemical manufactures and applications, and by next month we hope to be prepared with a review of it.

### Corner for Students.

CONDUCTED BY RICHARD J. MOSS, F.C.S.

#### ANALYTICAL EXERCISE.

The substance which we offer for analysis this month is official in the British Pharmacopœia. It is to be subjected to a systematic qualitative analysis, an account of which is to be forwarded to us as usual. In addition, the official name of the substance is to be given, and special mention made of any impurities detected.

Students who wish to compete should send in their names and addresses before the 20th inst. On the 25th we shall forward samples of the mixture.

Students' papers will be received up to the 15th of the following month.

#### ANSWERS.

The mixture given for analysis in May contained copper, cadmium, aluminium, and ammonium, with the acidulous radicals of sulphuric and hydrosulphuric acids. Iron (triad), magnesium, and the hydrochloric radical were present in very small quantities.

It may be instructive to our correspondents to know that of the fifteen students, whose work we have just examined, six failed to detect ammonium, two failed to detect aluminium, and the sulphuric and hydrosulphuric radicals were respectively stated to be absent by two students, so that, with the exception of the first-mentioned substance, the constituents of the mixture were fairly detected. The substances said to be found, which were not present, are too numerous for enumeration; suffice it to say that on the average each student adds about 50 per cent. to the number of constituents. This fact speaks for itself. It shows that

\* "A Plain Guide to the Principles and Practice of the Water Cure." By W. T. FERNIE, Physician. London: Simpkin, Marshall, and Co.

sufficient care is not taken to have test tubes thoroughly clean, and that the precaution of rinsing them out with distilled water is sometimes neglected. It shows that reagents are not always added in sufficient quantity; that filtration is often hastily performed; the liquid not being warmed when desirable, as, for example, when hydrogen monosulphide, ammonium hydrate, ammonium sulphide, or ammonium carbonate are used as group re-agents. Finally, this feature of the analyses before us tends to confirm the impression that the generally received idea of chemical analysis is, that it consists of the performance of a number of tests as given in a table of analysis; a previous experimental study of the reactions upon which the separation and detection of the substances are based, being considered unnecessary—a delusion calculated to produce an utter disgust with chemical analysis when an attempt is made to turn it to practical account.

For the satisfaction of those who failed to detect ammonium, we may state that, when its presence appeared so doubtful, we proceeded to apply the usual tests. A small quantity of the powder was placed in the bottom of a small beaker, and mixed with a considerable excess of dry calcium hydrate. The mixed powder was then treated with enough water to make it into a thick paste. The result was—not that an odour of ammonia was with difficulty detected, but, that it was actually so strong as to be disagreeable. It is scarcely necessary to state, that boiling a portion of the powder with potassium hydrate was attended with similar results, though not so well marked.

Those who sought for this radical unsuccessfully should try if the method which they relied upon is reliable as they employed it. This may readily be done by experimenting on small quantities of ammoniacal salts, either free or in mixtures. It is thus that information of real analytical value may be gained.

One student made a discovery deserving of mention, as others who have not yet had a similar experience may derive some benefit from a knowledge of the inevitable fate that awaits them. He says, in alluding to what he has found: "I have found one thing to my cost—that it is no use to attempt to do practical chemistry in a hurry."

#### PRIZES.

The First Prize for the best analysis of the mixture has been awarded to

F. J. BOND, 1, Fore-street, Tiverton.

The Second Prize for the second best analysis of the same mixture has been awarded to

R. W. GRIFFITH (B.P.), 146, High-street, Southampton.

#### Marks awarded for Analyses.

	Total.
F. J. Bond (1st prize)	85
B. P. (2nd prize)	80
H. C. Corke	75
Fides	74
E. J. B.	73
G. P.	70
A. B.	67
J. J. M.	65
J. B. Hickley	60
A. N. L.	55
F. W. Fletcher	50
Quicksilver	47
Graham	40
C. H. F.	35
Platinum	30

#### TO CORRESPONDENTS.

\* \* All Communications should include the names and addresses of the writers; those which reach us after the fifteenth day of the month succeeding that in which the questions appear 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.

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

Any scientific book which is sold for about five shillings may be taken as a second prize.

F. J. Bond.—The report of your analysis is a much more scientific production than the average of the papers which we receive. With a little practice you should make a good analyst. The Manual which you mention is not analytical. For a pharmaceutical student, Attfield's Chemistry is the most suitable; but if you want a work on qualitative analysis, we recommend Galloway's Manual.

B. P.—We got a distinctly blue bead with borax in the outer flame, even when a very small portion of the powder was employed.

Fides.—You will find it a great advantage to write out your analysis in the form of a table such as that opposite page 226, of Attfield's Chemistry. The special advantages of this system are that it prevents confusion, and admits of being written at the actual time that each operation is performed, when the analyst is working at different parts of the analysis simultaneously.

E. J. B.—The metal which you mistook for tin was evidently copper. Copper sulphide is slightly soluble in ammonium sulphide (especially if yellow and hot). We cannot, however, account for your results with mercuric chloride.

G. P.—We have to congratulate you on a very decided improvement.

J. B. Hickley.—A black residue is not necessarily a charred one, and may be produced in the absence of organic matter. The reddish fumes with sulphuric acid must have been imaginary. You find two metals in the portion soluble in water, which could not exist in solution in the presence of the two acids found in the same portion. In sulphides, sulphur is the acidulous, not the basylous radical.

A. N. L.—As you employ a mixture of old and new formulae, you should introduce an occasional sentence in Anglo-Saxon, for the sake of having your English in keeping with your chemistry.

F. W. Fletcher.—The yellow deposit from the fusion in charcoal was due to calcium oxide. Before concluding that a metallic bead is not formed, it is sometimes advisable to add to the mixture a little potassium cyanide, and then to continue the fusion a few minutes longer. Potassium cyanide at a high temperature deoxidizes many metallic oxides, and also reduces some refractory sulphides.

Quicksilver.—No definite rule can be laid down for the proper grouping of the basylous and acidulous radicals when detected. A large number of circumstances must frequently be taken into consideration, and a general experience of chemical substances taken as the principal guide. We do not require you to name the salts present, when the subject is open to conjecture.

Platinum.—You do not appear to have seen the observation addressed to you in our May number. See remarks to Fides.

#### CHEMICAL SOCIETY.

Thursday, 20th June, 1872.

DR. FRANKLAND, F.R.S., President, in the Chair.  
After the usual business of the Society had been transacted, the President announced that Mr. Hyde Hills had given ten guineas to the fund for promoting original research, and promised to further increase his donation by ten guineas for each ninety subscribed for the same purpose. Mr. H. Deacon then delivered his lecture "On Deacon's method of obtaining Chlorine, as illustrating some principles of Chemical Dynamics." The process consists in passing a heated mixture of air and hydrochloric acid over sulphate of copper or over pieces of pumice, or brick saturated with the same. He finds that the action is essentially a surface in action, and that there is a certain comparatively small range of temperature between the critical limits of which the percentage of hydrochloric acid decomposed varies greatly. The velocity with which the mixed gases pass over the surface of the active material, also causes considerable variation in the comparative amount of chlorine produced.

After a vote of thanks to the lecturer, the meeting adjourned over the recess.



#### MRS. WINSLOW'S SOOTHING SYRUP.

(TO THE EDITOR OF THE "CHEMIST AND DRUGGIST.")

SIR,—An article appeared in your issue of June 15th in relation to Mrs. Winslow's Soothing Syrup, copied from the *Pacific Medical and Surgical Journal*, which is calculated to do us much injury if allowed to pass uncontradicted. Similar statements were made in California papers in 1869, and were promptly contradicted by Messrs. Curtis and Perkins of New York, who are the manufacturers of the syrup for America. We, as sole manufacturers of Mrs. Winslow's Soothing Syrup for Europe, trust you will be good enough to publish these lines in your next issue. The statements made as to the quantity of "morphia" or "laudanum," which the Soothing Syrup contained is *absolutely false*, as any analytical chemist among the thousands who read your journal can prove to his own satisfaction by simply analysing the same. Notwithstanding the many false statements which have appeared in print, you can hardly expect us to publish to the world our recipe for making the Syrup when we have spent over £200,000 in advertising the same during the last thirty years. *We know Mrs. Winslow's Soothing Syrup is a valuable medicine*, and it is sold in every part of the world where the English language is spoken; and as your journal goes to all parts of the world, we hope you will give this letter as prominent a place as you did the article referred to.

JEREMIAH CURTIS, SONS, AND CO.





*Sarum.*—You cannot do better than get Tomc's "Manual of Dental Surgery," published by Churchill, 12s. 6d.

*Unthanked* (Liverpool) writes in reference to a suggestion which has appeared in a Liverpool paper from "Pharmacist," recommending that all chemists ought to be compelled to register the sale of vermin-killers. We confess we agree with "Pharmacist," and indeed we believe that uow vermin-killers containing strychniuo are legally comprised in Part I. of the Poison Schedule of the Pharmacy Act, notwithstanding the fact that vermin-killers are specially mentioned in Part II. *Unthanked*, however, complains that at present chemists get neither pay nor thanks for their labour in registering poisons, but "are too often regarded as a bore in the bargain." This is true, but is not to the point. It is right that precautions should be enforced when deadly poisons are being sold, whether it inconvenience the chemist and his customer or not. If the former can charge for his labour so much the better, but that is quite another matter.

**NITROUS OXIDE GAS.**—*Messrs. Polts*, (Seaham) and *Clarke*, (Glasgow), are thanked for their letters, but, as will be seen, we publish this month a somewhat different version of the American poisoning case, which renders unnecessary the publication of their communications.

*Mr. Forbs*, (Bolton).—Tuson's "Veterinary Pharmacopœia," (7s. Churchill), is the most recent, and most useful book on veterinary pharmacy.

*J.W.*—Write to Mr. Burns, Southampton-row, London, W.C., who publishes or sells all the works referring to mesmerism, spiritualism, and the like.

*Messrs. Nicholson and Son*, (Brigg).—"The Year-Book of Pharmacy," published by Churchill, and the "Chemists' and Druggists' Almanac," published by ourselves, are the only works which collect the scattered fragments of pharmacy as they fly. Bentley and Redwood's new edition of "Pereira," contains also much of that kind of information.

*W.H.*—1. You cannot set off against a workman's wages the amount which you may consider fair for breakage done by him in the course of his employment. You may enter an action against him for negligence but you must prove that such negligence was culpable, and that the result did not arise from the necessary risks of his occupation. 2. Having agreed to pay by the hour, you cannot, unless the workman consent, pay him by the piece. If he refuses to work, you may summon him before the magistrates for breach of contract. 3. You are justified in discharging the workman as soon as he refuses to do the work for which you have engaged him. 4 No. 5. You cannot estop the amount from his wages. See our answer to your first question.

**SALE OF QUININE WINE.**—To the Editor of the CHEMIST AND DRUGGIST. Sir,—Through the medium of your wide-spread journal, I wish to know if I can be prohibited from selling quinine wine, if prepared according to B.P., as the supervisor called at my place the other day and asked if I had a licence, to which I replied no, as it was prepared according to the B.P., and showed him the answer in last month's journal to correspondent, that a sweets licence was not required, to which he said that would not do, and that he would bring me a paper for a quarter's licence, because I had some exposed for sale, to the end of July 6th; and that if I intended to continue selling, I must renew my licence from that date (July 6th). I replied that I would not; so shall feel greatly obliged by some definite answer from yourself or anyone else. Ought I to pay or not, or have some advice on the subject.—Yours, &c., W. W. PIERCE, 4, New-street, Mold, July 8th, 1872.

For the information of our correspondent and others, we reprint the letter which we published in November, 1867. It was as follows:—"Inland Revenue, Somerset House, 11th October, 1867. Sir,—I am directed by the Commissioners of Inland Revenue to acquaint you, in reply to your letter of the 24th ult., that you will not be required to take out a licence to enable you to sell wine of citrate of iron and quinine wine, so long as they are prepared as directed in the "Pharmacopœia," and are sold to be used as medicines.—I am, Sir, your obedient servant, ADAM YOUNG, Assistant-secretary. Mr. H. King, 1, Churton-street, Pimlico."

Our correspondent might cut this out and address the Commissioners of Inland Revenue on the subject. We shall be glad to know the result.

*Mr. McIntyre* (Twee Inmouth).—Doubtless you refer to Squire's Companion to the Pharmacopœia (Churchill, 10s. 6d.), which we will send you if you wish it. The steel hands of watches are coloured by the application of heat. Can any reader give the exact process?

*Chemicus.*—The best test for Persian Insect Powder is to note whether it kills insects. Can any reader oblige by giving any other test whereby our correspondent may know *Pyrethrum Roseum Caucasum*? We are unable to answer your second query this month. Will try to do so in our next.

*A Subscriber* (Manchester).—The following is said to be the formulæ of a popular Hair Restorer:—

Sulphur, 45 grains;  
Acetate of Lead, 20 grains;  
Glycerine, oz. ss.;  
Aqua ad, oz. x.

Mix and sell at a high price. Ordinary soap, flavoured more or less strongly with carbolic acid, will produce Dog Soap.

*Fidelio.*—GINGER BEER POWDERS.

Giuger, bruised, ½ oz.  
Creau Tartar, 4 drachms.  
Esseeue Lemons, gtt. iv.

Mix. The above for one powder, which is to be added to one gallon boiling water, in which twelve ounces of sugar has been dissolved; two ounces of yeast must be finally added, and the mixture allowed to ferment for four days, when it is fit for bottling. The packet may be made bigger by mixing also a little sugar.

*J. Kemp, Danfermline.*—The recipe for Blue-Black Writing Ink which appeared in the CHEMIST AND DRUGGIST of February, 1869, was as follows:—

Blue Aleppo Galls (free of insect perforations), 4½ oz.  
Bruised Cloves, 1 drachm.  
Cold Water, 40 oz.

Purified Sulphate of Iron, 1½ oz.

Pure Sulphuric Acid (by measure), 35 minims.

Sulphate of Indigo (in the form of a thinish paste, and which should be neutral or nearly so), ½ oz.

Place the galls, when bruised, with the cloves in a fifty-ounce bottle, pour upon them the water, and digest, shaking often, daily, for a fortnight. Then filter through paper into another fifty-ounce bottle. Get out, also, the refuse of the galls, and wring out of it the remaining liquor through a strong clean linen or cotton cloth into the filter, in order that as little as possible be lost. Next, put in the iron, dissolve completely, and filter through paper. Then the acid, and agitate briskly. Lastly the indigo, and thoroughly mix by shaking. Pass the whole through paper. Just filter out of one bottle into the other, till the operation has been completed. On a large scale, this ink may be made by percolation. The weights used are avoirdupois, and the measures used are apothecaries measures.

NOTE.—No gum or sugar is proper, and on no account must the acid be omitted. When intended for copying, 5½ ozs. galls is the quantity.

[Queries for this column must be received not later than the 10th of the month.]

## Dentistry.

### DEATH RESULTING FROM THE INHALATION OF NITROUS OXIDE GAS.

We published some particulars last month respecting a case of death at New York, in a dentist's office there, which appeared to have resulted from asphyxia, occasioned by the inhalation of nitrous oxide gas. The jury returned a verdict to that effect, and naturally the case has occasioned considerable interest and anxiety to all connected with dentistry. In the *American Journal of Dental Science* for June, we find an account of the affair written by the dentist himself (Dr. Newbrough), which we abstract:—

"Mrs. O'Shaughnessy, he says, came to his office on the 20th March, 1872, accompanied by a friend, Mrs. Bigley, to have seven or eight loose front teeth extracted.

"Advised the patient that the extraction in her case would be so easy she need not take gas. She replied, 'It will kill me to have them out without gas. I never could stand it.' I procured a six gallon bag of gas for her and induced her to take the mouth-piece and try it. When she felt the gas coming, she snatched the bag away, and said she would have her teeth out without gas. For three or four minutes we discussed the matter, and I offered to extract her teeth without gas, but at a sight of the forceps she refused again. Then said she would try the gas once more. It was turned on as before, and she got one imperfect breath—as she called it—of gas, and snatched it away again. In the mean time much of the gas had escaped from the bag. After about eight minutes more, during which Mrs. Bigley, the patient, and myself conversed about the different friends who had taken gas successfully, I then procured a fresh bagful of gas, and again offered it to her. On this occasion she took two inhalations, and again snatched the bag away, saying, 'That stuff won't have any effect on me. Take it away, I'm afraid it will kill me.' She then wiped her mouth with her handkerchief, being entirely wide-awake, and braced herself to have them out without gas, and I extracted them. Immediately thereafter she fainted, her head dropping over sideways. I raised her up and tried to have her spit out the

blood, but she had lost all power. To the jury: I at once ordered the lowering of the temperature of the room to sixty degrees; complexion healthy, but becoming rapidly livid, and finally purple. Kept her upright, so as to determine the blood downward. Respiration about fifteen a minute. Sent for Dr. Otis, physician, who arrived in ten minutes after she fainted. Respiration fell rapidly; death ensued in two or three minutes after the physician's arrival. Applied the galvanic battery to the palms of her hands within one minute after she first fainted; produced no effect; assisted her respiration by raising and lowering her chest. Failed from the very first to induce any muscular contraction; she was entirely relaxed all the time. After death, she became instantly blanched in the face.

"My nitrous oxide is made from Powers and Weightman's nitrate of ammonia. I am capable of analysing these chemicals. Nitrous oxide is not a local irritant. Asphyxia can not be produced by nitrous oxide gas suddenly applied. It is an antidote for asphyxia from chloroform. My apparatus is so gauged that the gas is made at a temperature not exceeding 440°."

This was the substance of Dr. Newbrough's evidence at the trial, which was corroborated, he says, by the friend, Mrs. Bigley, and to some extent supported as to its medical aspect by some of the medical witnesses. The conclusion arrived at by the jury, however, seems to have been considerably induced by the evidence of Dr. Endermann, who had been instructed by the coroner to examine Dr. Newbrough's apparatus. This witness testified that "in the preparation of the gas, several wash-bottles should be used for its purification; but one bottle was used by Newbrough, and the water that was in it was raised by the process of manufacture to a boiling heat, and containing no atmospheric air, was, therefore, useless as an absorbent for the removal of impurities; the apparatus was unfitted for the preparation of pure gas; after the death of Mrs. O'Shaughnessy, Dr. Newbrough allowed all the gas in the reservoir to escape, and refilled it with some freshly made, so that witness had not an opportunity to test the quality of the former. It is just as easy to prepare chemically pure gas as impure gas; even though Mrs. O'Shaughnessy had spoken during the administration of the gas, if the mouth-piece was not entirely withdrawn, she would continue to inhale it, and in this way be placed under its influence. The nitrate of ammonia was not entirely pure, but was as good as is generally found; the apparatus is capable of making pure gas, provided the gas is not administered within three hours after made; Newbrough informed him that the gas administered to deceased was made two days previous; did not examine the gas which she had inhaled, as the gasometer was empty, but the gas witness made with the apparatus was pure; the bag used by Mr. Newbrough holds about four gallons, with a mouth-piece which the patient puts in the mouth and inhales directly out of the bag, causing the carbonic acid of exhalation to enter the bag; thought that all the mouth-pieces ought to have a safety-valve; thought that deceased inhaled the nitrous oxide gas partly; had some experience of the physical effect of nitrous oxide gas; the face becomes gradually livid, which increases until the patient is under the influence of the gas about fifty seconds after first inhaling it; pupils dilated; if the pulse is weak at first, it generally becomes more rapid and hard, and when the laryngeal stertor begins, the gas is usually removed; the patient comes out from the influence of the gas so as to be conscious in about two or three minutes, but the dizziness continues from about five to ten minutes; the only experience the witness has had of the bad effect of inhaling the gas was the case of a young man who was his assistant, and who took the gas to have a tooth extracted; the next day he did not feel well about the lungs; about a week after, constantly feeling worse, he consulted a physician, who told him his lungs were congested; three months after, he died from consumption; and the gas has different effects on different individuals, in some producing depressing effects; he thought the apparatus and material examined by him were capable of producing gas sufficiently pure, providing it is used in three hours after being made.

Dr. Newbrough declares in reference to this evidence that the jury were misled by Endermann's evidence. He says:—

"By the old process the gas is passed through three or four bottles of water, of one gallon each, and in at the top of

the reservoir of water. By my process it passes only through one gallon wash-bottle, but it is finely divided in the strainer and washed in a tank of one hundred and twenty gallons. The lamp is also regulated to produce the correct amount of heat. Endermann never examined my apparatus. He merely went into the laboratory, looked at the gasometer a moment and then walked out, asking for a little of the water in the wash-bottle. When we returned into my office, I suggested he had better go back in my laboratory and examine the whole apparatus, and he said, 'Oh! no; dat make no difference. We make dat all right.' I then gave him some nitrate of ammonia, as he said to analyse the gas; but because the gas had just been made he deferred it till next morning. The third time he came, I asked him for the analysis of the nitrate of ammonia. It was Powers and Weightman's make. He said, 'Oh! dat's all right!' I procured some gas in a bag for him to analyze, but he did nothing of the sort; he merely put a piece of paper, moistened with some solution, into the mouth-piece, and turned the gas on it for a little while. Said I, 'Do you call that the way to analyze gas? I do it in an entirely different way.' He replied, 'Oh! dat's all right! Dat gas is pure enough.' And he and his friend departed. In his testimony he said he made gas with my apparatus. That is false. He made no attempt whatever to do so. He also testified that after the death of Mrs. O'Shaughnessy, I let the gas all escape, so he could not test it. That is also a downright falsehood. That lot of gas was not let off at all, but used up in the regular way during the next day. Dr. Colton called the morning after the accident to take of the same gas, and did so. He pronounced it excellent. The other part of the testimony of Endermann, about his friend dying from the effects of nitrous oxide gas, is most probably on a par with his statement of my gas apparatus."

These assertions are supported by certain statements, by assistants and others, which Dr. Newbrough published. It may be that this is a case in which the *post hoc propter hoc* argument should not be too readily assumed.

#### MIDLAND COUNTIES CHEMISTS' ASSOCIATION.

ANNUAL REPORT, MAY 31st, 1872.

THE Council of this Association is gratified in being able to issue a report this year of much encouragement.

In their circular of July 10th, 1871, an endeavour to awaken a fresh interest in the objects of the Association was announced, to which a response of a most hopeful kind was made. The number of members, which a year ago was 102, is now (members and associates) 188, a large proportion of whom have been actively interested in the proceedings of the Association. The rooms in the Quadrant Chambers have been made good use of, the records showing that about 1,600 visits have been made to the reading-room, exclusive of a large number of visitors who have omitted entering their names in the visitors' book. Of these the associates (principally those who are engaged as assistants in business) form by far the larger part. It is this large and important class of chemists who must ultimately be the real gainers by the objects of the Association.

The first meeting of the associates took place in October, at the invitation of the president, who supplied coffee and refreshments. The meeting was crowded, and it was certainly the largest assemblage of assistants ever held in Birmingham. Its principal object was to consider an educational scheme for the winter months. The scheme as proposed was adopted, and the names of about forty students were given in on the spot, who were desirous of attending classes and lectures. The attendance at the classes did not ultimately keep up to the original number at the commencement of the session, reasons being found in the facts that some of the students left their situations, and removed to a distance, and others having during the session passed through their troubles at Bloomsbury-square, felt the immediate pressure of the need of study removed. The lectures and classes were held in connection with the Birmingham and Midland Institute, whose educational facilities are likely to prove of great advantage to the Association. To those students who joined the lectures in chemistry, the Professor of Chemistry, Mr. J. C. Woodward,

gave special occasional lectures in the Pharmacopœia. The attendance at lectures on botany has been limited to ten persons. The Latin classes have assisted many to pass the Preliminary Examination.

During the year four evening meetings have been held, which have been well attended.

At these meetings papers have been read as follows:—"The Examinations of the Pharmaceutical Society," by William Southall; "Volumetric Analysis," by Henry W. Jones; "The Study of Botany," by J. B. Williams; and "Disinfectants," by Wentworth L. Scott, F.C.S.

Amongst the other incidents of the past year may be noted a petition to Parliament, in June, praying for the suspension of any further legislative interference in the keeping and sale of poisons by chemists. It will be remembered that the Bill then before Parliament was afterwards withdrawn, and has not since been introduced.

In the same month a grant of £10 was received from the Council of the Pharmaceutical Society, for the purchase of additional books for the library. The secretaries were instructed at the same time to make application to the Free Libraries Committee of the Borough of Birmingham, for a restoration of the books committed to it in 1863, by the Birmingham Pharmaceutical Association, then expiring. This application was refused. In connection with the library, the Council records its grateful thanks for many valuable presents thereto, amongst the rest, for some excellent pictures from Mr. Thomas Hyde Hills, for a clock from Mr. Edward Snape, and for a cabinet of *Materia Medica* specimens from Messrs. Evans, Sons, and Co.

The early closing of chemists' shops has obtained considerable attention, and an endeavour made during the year to secure a uniform hour for closing throughout the town of Birmingham was not successful. The need of different districts of the town vary so considerably that it has appeared hopeless to expect all should combine in the observance of the same hour, but an agreed time, to suit the convenience of different districts, has met with some success. This subject is likely to obtain further attention.

The "Price Book" of the Association has had a continued demand, the sale during the year being 149 copies, exclusive of copies supplied to members of the Association gratis. The Council cannot too earnestly commend to chemists the desirability, as far as practicable, of observing uniformity in the price of drugs, and particularly of medicines dispensed from prescriptions, and also of marking with the private mark of the Association all prescriptions when first compounded, that the first compounder of a prescription should invariably mark on it the price he has charged, with the private mark of the Association.

On January 12th, 1872, a meeting of members of the trade was held in the rooms to discuss the proposals made in this district by the Metropolitan Co-operative Association for the supply of drugs by chemists to its members. An unanimous feeling of opposition to this proposal was exhibited, and the signatures of a large number of chemists obtained, pledged to decline it. It was afterwards found that only one or two chemists in Birmingham remained under any engagement to the Co-operative Association, and its schemes, as far as chemists are concerned, practically fell through.

The Council of this Association has also had the important subject of provincial pharmaceutical education under its consideration, believing that great centres like Birmingham, have not yet obtained their due share of aid from the Central Council in London. A recent minute of the London Council, and an important movement of opinion amongst chemists throughout the country, give the hope that this subject will, ere long, receive the attention it demands.

The Council has sought to obtain for the great Midland District, of which Birmingham is the centre, a representative at the Council Board in London; but unfortunately without success. It was hoped that the just claims of this district to a representative, and the personal character of Mr. John Churchill, would have secured his election. The Council suggest that it may be necessary to reform the present method of election, by which the representation of the chemists of the country is so unequally divided.

Amongst the records of the year must not be omitted that of the *soirée*, which was given by the President on February 6, 1872. Such a gathering of gentlemen and

ladies interested in pharmacy had certainly never met in Birmingham before. It was attended by 240 persons. A great variety of scientific experiments and objects of interest were shown. Music was provided. The refreshment room was duly honoured with guests; and at half-past ten, the floor being cleared, dancing commenced, and was continued till a late hour, every person present agreeing that the evening had been most successful and enjoyable, and that it must be made an annual affair.

The financial statement for the year is appended to this report, and shows a satisfactory balance in hand. This result, however, would not have been obtained without liberal donations, which it cannot be expected should be continued, and the Council concludo to ask the annual meeting to sanction a slightly increased annual subscription, to meet the growing needs of the Association. As it is also not thought desirable that the cost of the winter *soirée* should in future devolve on the president, the subscription proposed is as follows:—for members, 7s. 6d. (or to admit to *soirée*, 10s.); for associates, 3s. 6d. (or to admit to *soirée*, 5s.) each.

In looking forward to the future of this Association, the Council is full of hope that the progress which has marked the past will continue, and that it will prove of real benefit to its members and others.

Much yet remains to be done in the qualification of some of its members, as members of the Pharmaceutical Society, and the Council invite chemists, who have not yet done so, to qualify themselves.

The fee is a moderate one, and though the immediate results to the individual may not be perceptible, yet their general position in the advancement of pharmacy will have been thereby strengthened, and the coming generation will benefit by the advance (though it be small), which they have themselves made.

It is believed that there is yet a considerable number of persons in the Midland District who vend poisons, who are not on the Register of chemists and druggists. The Council wish to assist any legitimate chemists whose names may have been inadvertently omitted from the register, to obtain registration; but, at the same time, to protect the trade, by aiding in the prosecution of any others, who are neither entitled by the authorisation of law, nor by their calling in business, to vend poisons; and they invite information of all such cases wherever they may be found in the Midland Counties.

Donations of books for the library are earnestly desired.

The attention of members and associates and their friends is again drawn to the conveniences which the rooms of the Association provide.

As a place of resort for trade meetings, the deposit of letters and parcels, letter writing for travellers, price lists, etc.; and as a house of call they are capable of much greater use, besides affording opportunities for study to young men. The woman in attendance is prepared to receive miscellaneous work from chemists, such as pill-making, powder folding, senna picking, and the thousand and one odd jobs of the shop, which she can perform at her place in the rooms, at a reasonable tariff of her own.

STATEMENT OF ACCOUNTS, From May, 1871, to May, 1872.

DR.	Cr.
Balance in hand .. .. .	£ 19 15 2
Subscriptions from Members and Associates	42 15 0
Sale of Price Books .. .. .	7 9 5
Donations .. .. .	22 18 6
Sale of <i>Soirée</i> Tickets .. .. .	0 12 6
	£93 10 7
By Furnishing .. .. .	£ 17 14 9
" Books and Periodicals	18 18 10
" Printing and Stationery .. .. .	17 16 3
" Advertising .. .. .	1 8 1
" Postage .. .. .	2 18 10 1/2
" Rent of Rooms .. .. .	15 0 0
" Taxes .. .. .	3 3 9
" Coal and Gas .. .. .	1 10 2
" Attendance .. .. .	1 4 6
" Sundries .. .. .	2 8 1
" Balance with Treasurer .. .. .	10 13 2
" Balance with Hon. Sec. .. .. .	0 14 1 1/2
	£93 10 7

May 20th, 1872, Examined and found correct,  
 Wm. J. ATKINS, } Auditors.  
 ALFRED SOUTHALL, }

The third annual meeting of the Midland Counties Chemists' Association was held in their rooms, 24, Quadrant

Chambers, New-street, Birmingham, on Friday evening, May 31st., 1872, at eight o'clock. Mr. Dymond, President, in the chair. The attendance of members was good.

The minutes of previous meetings having been read and confirmed, the report read by Mr. Lucas, Hon. Sec., the adoption of the same was moved by Mr. Churchill, and seconded by Mr. Brassington. The re-election of the President, Mr. G. Dymond, was moved by Mr. Arblaster, seconded by Mr. Churchill.

The re-election of the Treasurer, Mr. E. Snape, was moved by Mr. Churchill, seconded by Mr. Grieves.

The election of Messrs. W. R. Jones and F. G. Homer as Hon. Secretaries was moved by Mr. Brassington, seconded by Mr. Churchill, jun.

The election of Messrs. A. Southall and W. J. Atkins as Auditors was moved by Mr Dymond, seconded by Mr. J. B. Williams.

The election of the following gentlemen to form the committee for the ensuing year was moved by Mr. Dymond, seconded by Mr. Whittles, viz.:-

Messrs. J. Churchill, H. Whittles, S. H. Morris, C. F. Palmer, J. Barclay, S. Dewson, G. Owen, J. Lucas, W. Price, T. W. Holdsworth, Frobisher, Brassington, W. Mason, A. S. Grieves, H. Howes, and C. J. Arblaster.

The vote of thanks to retiring officers was moved by Mr. Brassington, seconded by Mr. Churchill. All resolutions carried unanimously.



**A** MAN named John Jones committed suicide at Stockport June 30, by taking a packet of "Jones's vermin-killer," manufactured by himself.

The death is announced of Mr. Pullin, who for many years carried on the business of a chemist and druggist, in Gold-street, Northampton. Mr. Savory (formerly of St. Albans) succeeds to the business.

At the Nottingham Borough Police-court, on the 24th ult., a young man named Ellis Bailey, an assistant to Mr. Burnie, surgeon, Mansfield-road, was sent to prison for three months in default of paying a fine of £10 for indecently assaulting Jane Upton, servant to Miss Peat. Prisoner is the son of the senior surgeon to the Great Yarmouth Dispensary.

**DEATHS FROM POISON AT MIDDLESBRO'.**—An inquest was held at North Ormesby, Middlesbro', on the bodies of Joseph Hirst and George Kirby, who had died on the 19th and 20th June respectively, after being employed to discharge a cargo of nitre cake from a vessel called the *Richard and Sarah*, lying in Middlesbro' dock. The cargo of the vessel was shipped in Victoria Docks, London, by Messrs. James Gibbs and Co., and consisted of 86 tons of nitre cake, for Messrs. Jones and Co.'s chemical works, near Middlesbro', being intended for use in the manufacture of sulphuric acid. During the loading of the cargo at London, and on the voyage to Middlesbro', the crew of the vessel were sick, and suffered from shortness of breath, not being able to remain in the hold more than two minutes at a time. Having arrived at Middlesbro', they began unloading on the 18th June, most of the men, including the deceased, being unwell. Forty-three tons of the cargo were got out by noon on the 19th, after which the work was discontinued. Hirst died on the 19th, and Kirby on the 20th June. Mr. William Jones, one of the firm, stated that he never knew any ill effects from these cargoes before. Mr. A. R. Hudson, analytical chemist, said he had analysed the cargo. He found the nitre cake consisted of nitrate of soda, free sulphuric acid, and bi-sulphate of iron. The nitrate of soda and bi-sulphate of iron ought not to have been present. They would evolve nitrous acid gas, and the heat of the sun would increase its intensity and produce the sickness which had been described. The jury returned a verdict that the men died from inhaling poisonous gases, arising from a cargo of nitre cake, which they were discharging; an opinion was added that the nitre cake was imperfectly made, but that the effect was not of such a nature as to justify a verdict of manslaughter.

**FATAL CASE OF ACCIDENTAL POISONING.**—An old man named King, the landlord of the Queen's Hotel, Keppel-street, Chelsea, has been poisoned through the carelessness of his son. Mr. King, who had been taking medicine, went out for a drive, and during his absence his son sent the waiter to a neighbouring chemist's for some oxalic acid with which to clean the metal counter. He gave the waiter one of his father's empty medicine bottles, and afterwards placed the bottle with the poison in it on a shelf in the bar. When the father returned from his drive, he took up the bottle, swallowed some of the poison, and fell down dead in the bar.

An inquest was held at Lorton, near Gosport, on the body of Mr. Frederick Stockman, chemist, who poisoned himself with prussic acid. A verdict of "Temporary insanity" was returned.

## GAZETTE.

### BANKRUPTS.

HIRSCHBERG, JOHN ROBERT, 41, Seething-lane, oil and seed merchant.  
WALL, JOHN THOMAS, 1, Pitville-street, Cheltenham, chemist and druggist

### PARTNERSHIPS DISSOLVED.

FRYER and HALLETT, 52, Redcliff-hill, Bristol, surgeons.  
KIRBY and HALL, Halifax and Leeds, surgeons  
MILES and WELLS, Gillingham, Dorset, surgeons.  
MYATT and WARREN, Longton, Stafford, aerated water manufacturers.  
NEAL and GARNER, 85, Newhall-street, Birmingham, surgeons.  
SIMONS and RUMSEY, Bristol, wholesale druggists.  
WALSH, W. and E., Oxford, chemists.  
WATERWORTH, ALFRED, and Co., 19, Friargate, Preston, chemists and druggists.

### ARRANGEMENTS OR COMPOSITIONS

BARR, JOSEPH HENRY, 28, Ardwick-green, Manchester, surgeon.  
BENNETT, WILLIAM (trading as W. A. B. Thompson), Hanley, medical botanist.  
DYKES, WILLIAM ASTLEY SHERRATT, Kerton, surgeon and apothecary.  
FYRRAR, WILLIAM, We-t Hartlepool, chemist and druggist.  
GREEN, FREDERICK (trading as F. Green and Co.), Weaman-street, Birmingham, wholesale druggist.  
JONES, WILLIAM EDWARD, 111, Dock-street, Newport, Monmouth, dentist.  
LOBB, HARRY WM., Field House, Harrow, and 31, Sackville-street, Piccadilly, surgeon, manufacturer of galvanic generators, and dealer in electrical apparatus.  
LOWE, WILLIAM (trading as William Lowe and Co.), Hull, seed crusher.  
STOCKMAN, FREDERICK, Forton-road, Gosport, chemist and druggist.  
SHARPE, EDWIN, West-street, Sheffield, chemist.

## Trade Memoranda.

MESSRS. EVANS, LESCHER, AND EVANS, announce that they have taken into partnership Mr. E. Alfred Webb, grandson of the late senior partner, Mr. John Evans.

**DIGESTIBLE COD-LIVER OIL.**—Mr. Fox, of Manchester, the introducer of "Palatable Cod-liver" and "Castor Oils" has, we understand, registered a new title, "Digestible Cod-liver Oil," especially for hospital use. The oil is exactly the same as that sold as "Palatable Cod-liver Oil," the only difference being in the absence of the expensive syrups, which enables the proprietor to sell the pure oil at a very cheap rate to large consumers.

We are requested to mention that Shaw's Sanitary Sachets are henceforth to be entitled Shaw's *Royal* Sanitary Sachets, the name of which is registered as a trade-mark. We have previously noticed these articles favourably.

Messrs. R. H. Millard and Sons, of Barbican, London send us a sample of their new Cherry Tooth Paste, a useful and saleable dentifrice.

Messrs. E. Berdoe and Co., of Hackney-road, submit to us samples of their French Essences, which they have long advertised to the trade through our pages. We are bound to say that the essences are of high quality, and appear, too, very cheap.

The Guardians of the Walsall Union have accepted the tender of Mr. Holson for trusses, double at 3s. each; single 2s. each.

**RE GEORGE JOHNSON, CHEMIST, ASTON-ROAD, BIRMINGHAM.**—A meeting of creditors in this matter was held on the 1st inst. Mr. Thomas Harding, Bristol, chairman; Mr. W. H. Griffin represented the debtor; liabilities £1,662 3s. 7d.; assets, which consisted of plant, fixtures, and book debts, £1,378 2s. An offer of a composition on behalf of debtor of 7s. 6d. in the pound was made, but after some discussion refused. It was ultimately decided that the estate should be liquidated by arrangement. Mr. J. H. Smith, of Bristol, was appointed trustee, and Mr. Harding, Bristol; Mr. Webb, Aston; Mr. Barclay, of the firm of Southall, Son, and Dymond, druggists, Birmingham, appointed a committee of inspection. The following are the principal creditors:—Messrs. Southall, Son, and Dymond, Birmingham, £38; Messrs. Crane and Co., Liverpool, £14 13s. 8d.; Emanuel, Birmingham, £102 8s. 3d.; Gittings, Aston, £23 5s.; Butcher, Aston, £14; Colthurst and Harding, Bristol, £197; Clarke and Co., St. Mary Axe, £83 13s. 6d.; George Oram, Birmingham, £53 8s. 6d.; Wilkins, Handsworth, £33; Bennet, Birmingham, £4; Butler and Co., Bristol, £19; Bryant, Rood-lane, £73; J. W. Davis and Sons, Hull, £19 7s. 1d.; Fleming and Co., Leith, £12 9s. 3d.; Grace and Co., Cornhill, £34 17s. 10d.; Hamilton and Co., Hull, £50 16s. 9d.; Hurst and Cooke, Hull, £25 15s. 8d.; Houlgrave and Co., Liverpool, £34 3s. 8d.; Masefield, Aston, £14 19s. 11d.; Nottingham Joint Stock Bank, £36 8s. 3d.; Noakes, Bermondsey, £14 4s. 3d.; Read and Jackson, Bristol, £17 9s. 9d.; F. Read, Aston-road, Birmingham, £4; Sissons Brothers and Co., Hull; £61 3s.; Siddons, West Bromwich, £39; Taylor, Liverpool, £25; Wyley and Co., Coventry, £53 18s.; Webb and Beardmore, Aston, £65 17s. 2d.; Williamson and Sons, Iron Varnish Works, Lancaster, £54.

**FREDERICK GREEN, WHOLESALE DRUGGIST, BIRMINGHAM.**—A meeting of creditors of this debtor, trading under the style of Frederick Green and Co., of Weaman-street, Birmingham, was held on the 5th inst. The liabilities amounted to £3,791 17s. 4d., and the assets to £2,696 2s. 10d. No offer being made to the creditors, after some discussion it was resolved that the estate should be liquidated by arrangement, and that Mr. Lomas Harrison be appointed trustee. Mr. David Davidson, Birmingham; Mr. Richard Tomlinson, Stratford, near Manchester; and Mr. Alfred Bird, chemist, Birmingham, a committee of inspection. The following are the principal creditors:—Norman and Pigott, Liverpool, £41; Oakey and Sons, Blackfriars-road, London, £21; George Oram, Birmingham, £94; Pegg, Harper and Co., Derby, £14; Panier, Woodward, and Co., Bristol, £35; Patteson, Birmingham, £70; Richardson and Sons, Smethwick, £11; Rawson, Hull, £315 7s. 3d.; Smith and Gregory, Bristol, £16; Spratt's Patent Biscuit Company, London, £82 13s. 3d.; Smith, Birmingham, £280; Messrs. Archer, Liverpool, £42 17s. 6d.; Mr. Aston, Birmingham, £40; Bancroft and Co., Liverpool, £80 16s. 7d.; Berger and Co., Bromley, £12 6s.; Barry and Co., Finsbury £11 19s. 6d.; Alfred Bird, Birmingham, £18 3s. 9d.; Bassett and Co., Sheffield, £60 10s.; T. Boston, Birmingham, £12; Birmingham Gas Company, £20; Barron, Harvey, and Co., London, £67; Birmingham and Midland Bank, £160 14s.; Crane and Co., Liverpool, £135 14s. 4d.; Clarke and Co., St. Mary-Axe, £53 19s.; Dixon, Hull, 33l 10s.; Dunn and Co., Finsbury, 24l 2s 10d.; Ellam, Jones, and Co., Derby, 23l; Evan, Sons, and Co., Liverpool, 13l; Fry, Sons, and Co., Bristol, 13l; Foster Brothers, Gloucester, 194l; Proprietors of *The Field*, £35; Gilliatt, Carrick, and Co., London, 70l; Gill and Tucker, Sandiacre, 12l; Gateley, Birmingham, 131l; Harrison, Acock's Green, 400l; Hargreaves Brothers, Hull, 31l; Hamilton, Hull, 25l; Hart and Sons, London, 27l; Hudson, West Bromwich, 12l; Holdsworth, Birmingham, 48l; Jones and Co., Liverpool, 68l; Kettlewell, W., and Co., London, 91l; Lister and Biggs, London, 17l; Macnair, Manchester, 16l; Mander, Weaver, and Co., Wolverhampton, 64l; Moore and Prior, London, 17l; Mellor and Sons, Liverpool, 10l; Mitchell, Birmingham, £100; Silverlock, London, £4; Squire and Co., London, £13; Twigg, Manchester, £26; Tidman and Son, £11 17s. 1d.; Williams and Co., £15; Wright, Crossley and Co., Liverpool, £16; Westwick, Palmer and Co., London, £104 9s. 10d.; Waitt and James, Bristol, £35; Walker and Co., Manchester, £114; Young's Paraffine Oil Company, £159; Maw, Son and Thompson, London, £6.

## THE NEW AMERICAN TARIFF AND TAX BILL.

**T**HIS new Act lies before us, and we select from it every paragraph which is likely to concern any of our readers:—

An Act to reduce duties on imports and to reduce internal taxes, and for other purposes.

*As it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That on and after the 1st day of August, 1872, in lieu of the duties heretofore imposed by law on the articles hereinafter enumerated or provided for, imported from foreign countries, there shall be levied, collected, and paid the following duties and rates of duty, that is to say:

On house or cabinet furniture, in pieces or rough, and not finished, thirty per centum *ad valorem*; on cabinet wares and house furniture, finished, thirty-five per centum *ad valorem*.

On casks and barrels, empty, and packing boxes of wood, not otherwise provided for, thirty per centum *ad valorem*.

On garden seeds, and all other seeds for agricultural and horticultural purposes, not otherwise provided for, twenty per centum *ad valorem*.

On ginger, ground, three cents per pound; on ginger, preserved, or pickled, thirty-five per centum *ad valorem*; on ginger, essence of, thirty-five per centum *ad valorem*.

On chocolate five cents per pound, and on cocoa, prepared or manufactured, two cents per pound.

Ninety per centum of present rates of duty imposed by law upon the following articles:—All manufactures of india rubber, gutta percha, or straw, and oil cloths of all descriptions; glass and glassware, and unwrought pipeclay, fine clay, kaolin and fuller's earth; leather not otherwise herein provided for, and all manufactures of skins, bone, ivory, horn and leather, except gloves and mittens, and of which either of said articles is the component part of chief value, liquorice paste and liquorice juice.

On emery ore, 6 dols. a ton, and on emery grains two cents a pound; on corks and cork bark, manufactured, thirty per centum *ad valorem*; on acids, viz., acetic, acetous, pyroligneous, of specific gravity of one and forty-seven thousandths or less, five cents per pound; acetic, acetous and pyroligneous, of specific gravity over one and forty-seven thousandths, thirty cents per pound; carbonic liquid, ten per centum *ad valorem*; gallic, 1 dol. per pound; sulphuric, fuming (Nordhausen), one cent per pound; tannic, 1 dol. per pound; tartaric, fifteen cents per pound; on acetates of ammonia, twenty-five cents per pound; baryta, twenty-five cents per pound; copper, ten cents per pound; iron, twenty-five cents per pound; lead, brown, five cents per pound; white, ten cents per pound; potassa, twenty-five cents per pound; soda, twenty-five cents per pound; strontia, twenty-five cents per pound; zinc, twenty-five cents per pound; blue vitriol, four cents per pound.

On camphor, refined, five cents per pound; on sulphate of quinine, twenty per centum *ad valorem*; on chlorate of potash, three cents per pound; on Rochelle salts, five cents per pound; on sal soda ash, one-fourth of one cent per pound; on santonine, 3 dols. per pound; on strychnia, one dollar per ounce; on bay rum or bay water, whether distilled or compounded, one dollar per gallon for first proof, and in proportion for any greater strength than first proof; on rum essence, or oil, and bay rum essence or oil, fifty cents per ounce.

On mustard, ground, in bulk, ten cents per pound; when enclosed in glass or tin, fourteen cents per pound.

On saltpetre, crude, one cent per pound, refined and partially refined, two cents per pound.

The articles enumerated below shall be exempt from duty, that is to say:—

Acid, boracic, and sulphuric, agate manufactured; almond shells; aluminum, or aluminum; amber beads and amber gum.

American manufactures, the following, to wit, casks, barrels, or earboys, and other vessels, and grain bags, the manufacture of the United States, if exported, containing American produce, and declaration be made of intent to return the same empty, under such regulation as shall be prescribed by the Secretary of the Treasury:—Angelica root; annatto, roneou, rocou, or orleans, and all extracts of; annatto seed; antimony ore, and crude sulphuret of aqua-

fortis; argal dust; arseniate of aniline; balm of Gilead; balsams, viz., copavia, fir or Canada, Peruvian and tolu; borax, crude; borate of lime; Brazil paste; Burgundy pitch; camphor, crude; chamomile flowers; charcoal; China root; cinchona root; chloride of lime; cocoa, cocoa, crude, and butter, fibre, leaves and shells of; colcothar, dry or oxide of iron; coltsfoot (crude drug); contrayerva root; cowage down; cow or kine pox, or vaccine virus; cubebs; curry and curry powders; cyanite or kyanite; dried and prepared flowers; elecampane root; ergot; farina; flowers, leaves, plants, roots, barks, and seeds, for medical purposes, in a crude state, not otherwise provided for; fruits, plants, tropical and semi-tropical, for the purpose of propagation or cultivation; galanga, or galangal; garancine; gentian root; ginger root; ginseng root; hellebore root; Indian hemp (crude drug); iridium; isinglass, or fish glue; maccaroni and vermicelli; madder and munjet, ground or prepared, and all extracts of; magnets; manganese, oxide and ore of; marrow, crude; marsh-mallows; matico leaf; meerscham, crude or raw; mica and mica waste; mineral waters, all, not artificial; moss, sea weed, and all other vegetable substances used for beds and mattresses; murexide (a dye); musk, crude; mustard seed, brown and white; nuts, cocoa and Brazil, or cream; nux vomica; oil, essential, fixed or expressed, viz., almonds, amber, crude and rectified; ambergris; anise, or aniseed; anthon, or rosemary; bergamot, cajeput, caraway, cassia, cedrat, chamomile, cinnamon; citronella, or lemon grass; civet, fennel, jasmine, or jessamine, juglandium, juniper, lavender, mace, ottar of roses, poppy, sesame, or sesamumseed, or bene; thyme, red, or origanum; thyme, white; valerian; oil cake; olives, green or prepared; orange buds and flowers; orpiment; osmium; oxidizing paste; palladium metal; pellitory root; persis, or extract of archil and cudbear; Peruvian bark; phanglein; plumbago; polyodium; pulu; quickgrass root; rennets, raw or prepared; root floor; saffron and safflower, and extract of; saffron cake; sago, crude; sago and sago-flower; Saint John's beans; salacine; salep, or saloup; sassafras, bark and root; sauerkraut; sausage skins; seeds, namely, anise, anise star; canary, chia, sesham, sugar-cane, and seeds of forest trees; soap stocks; stavesacre, crude; storax, or styrax; strontia, oxide of or protoxide of strontium; succinic acid; sugar of milk; tale; tamarinds; teeth, unmanufactured; terra-alba, aluminous; tonquin, tonqua, or tonka beans; Tripoli; uranium, oxide of; vanilla beans or vanilla plants; Venice turpentine.

That for all purposes the standard for vinegar shall be taken to be that strength which requires thirty-five grains of bicarbonate of potash to neutralize one ounce troy of vinegar, and all import duties that now are, or may hereafter be imposed by law on vinegar imported from foreign countries shall be collected according to said standard.

## Exchange Column.

REVISED TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the publisher of the CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to "The Publisher of the CHEMIST AND DRUGGIST, Colonial Buildings, Cannon-street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

### WANTED.

- "British Homœopathic Pharmacopœia." 39/505.  
 A good practical work on Mechanical Dentistry. State price to G. Sant, Atherstone.  
 Four Window Carboys, holding four or six gallons each. State lowest price. 21/505.  
 "Pharmaceutical Journal" from July 1, 1870, to end of December, 1871. H. Oldfield, Hyde.  
 Good Mahogany Counter Desk, back to front 21 inches, with glass case, 29. Etiles, Brighton.  
 Gray's "Supplement," by Redwood. State edition and price. Chemist, 15, Market-place, Bolton.

Squire's "Companion to the British Pharmacopœia." Latest edition. State price. Medicus, 10, Willow-walk, Bermondsey, London.

"British Pharmacopœia;" Royle's "Materia Medica;" Bentley's "Botany." Latest editions. State price required. Also Evans, Lescher & Co.'s large collection of "Materia Medica." 20/505.

"Pharmaceutical Journals" for August, 1859; June, 1861; February, April, May, and June, 1865. Five months' "Weekly Journals," from February 11th to July, 1871, exchanged for above, or sold for cash. E. B., 5, Fore-street, Taunton.

### DISPOSAL.

Swimming Belt (Mather's). New, 4s. 6d.; cost 6s. 6d. 29/505.

Soda-Water Machine, Hayward Tyler's No. 5. Nearly new. Offers wanted. 34/505.

A four guinea set of Dickens's Works (quite new). No reasonable offer refused. 38/505.

Erichsen's "Surgery." In first-class condition. 1853 edition. Cost 25s. Price 8s. 20/503.

A Berri's £3 3s. Printing Machine, nearly new. Price £2 2s. Address, M, 15, Market-place, Salisbury.

A quantity of Tincture of Cantharides, warranted B.P. Offers wanted. Samuel Cookson, Salford.

A Three-horse Patent Hot-air Engine, by Edwards and Co. Cost £104 three years ago. Price £50. 4/508

Bentley's "Botany," nearly new, 8s. 6d. Cassell's "Latin and English Dictionary," new, 6s. Homo, Alresford, Hants.

Five Hundred dozen (or less) Indian Vegetable Flesh Rubbers, at 2/6 per dozen. Apply to G. Downan, Chemist, Southampton.

One hundred gallons splendid Sauce, in four casks, 2/6 per gallon; casks 3/ each. Recipe to make it, 21/. Thomas, Chemist, Bath.

Pooley and Sons Patent Counter Scales to weigh up to 8lbs., mahogany top. Offers requested. Robinson, Canning-street, Liverpool.

Quantity Otto of Roses. One oz. 16s., 3 oz. 15s.; sample drachm 2s. 2d. free, equal to any at 22s. or 24s. John, 108, Long Acre, London.

A lot of Shop Bottles, Jars, Drawers, etc., etc., for sale cheap, or would take saleable patents in part exchange. W. White, Litcham, Norfolk.

One dozen Curley's 5s. Comalines, clean, 33s. One dozen Belloc's Charcoal, 16s. Half-dozen Joyce's Salmarine for 5s. Carriage paid to London. Clifton, Ipswich.

Three Nests of Drawers, Mahogany Fronts (lockers underneath); Wall and Counter Glass Cases; Counters, Shelves, &c. Address, T. B. Allkins, Tamworth.

Binoocular Microscope, first-class, with Polariscope, quite new, in handsome polished mahogany cabinet, only £10 10s. Apply, B., 151, Hoxton-street, London.

Six Syrup Ice Cream Soda Apparatus Cylinders, No. 4 Barnett's Soda Water Machine, Bottling Machine, Bottles, &c. Cost nearly £140, £105 cash taken. 53/505.

A Bargain. Over 50 Stopped Bottles, labelled, containing Chemicals. Wollf's Bottles, and other articles offered for £3. Enclose postage for list. Caunt Buckley, Mold.

A great variety of useful and saleable Stock, including Patents, Sundries, Drugs, &c., all first-class quality. Write for List. Mr. Harper, 15, Lorne Street, Moss Side, Manchester.

For £5, a complete set of Photographic Instruments, with Chemicals; Camera alone cost £20. For full particulars apply by letter to V., Mr. Pike's, Chemist, High-street, Amersham.

Large Iron Mortar and Pestle, weighing 1½ cwt., price 10s. One dozen Single Trusses on Salmon & Ody's principle; offers wanted. Four lbs. Quill Cassia, 3s. S. Bramley, Cleckheaton.

Dental Forceps. A beautiful set of fourteen, by Ash, with improved key; also one dozen Ivory Handled Stoppers and Scalers, all the best make, quite new, only £4, cost £8. Apply, 151, Hoxton-street, N.

Pulvermacher's Chains—nine 10s. 6d. and six 5s. Whole for 40s. Moats' 1s. 1½d. Pills, 4s. per dozen. Harle's 2s. 9d. Sea-sickness, Powders, 6s. per dozen. Cash or exchange. Carr, Chemist, Dumbarton.

Three dozen French Floating Night Lights; 12 ozs. Camphor Lozenges; 12 ozs. Magnesia Lozenges; 1 lb. Pulv. Zingib Barb.; 1 lb. Alum Ust; 2 lbs. Shellac, Orange. C. J. Kirkman, Globe Crescent, Stratford, London, E.

Handsome Mahogany Case of Homœopathic Medicines, with bent glass front, raised edges, drawers behind, and falling flap. 16 × 11 × 13 inches. Complete and quite new. Wholesale price, £6 10s, to be sold for £5. 45/505.

Fownes's "Chemistry," 9th edition, 6s. 6d. Thompson's "Materia Medica," 5s. Mackenzie's "1000 Experiments in Chemistry," 2s. 6d., all in capital condition. E. Jones, 33, Herbert-street, NewNorth-road, London, N.

On Sale for £4 10s., or exchanged for anything useful, a Photographic Bellows-bodied enlarging Camera, adapted for Plates for 5 × 4 to 15 × 12 complete, with a capital Lens; for Plates to 15 × 12. A., 50, Coupland-street, Manchester.

Five 3-gallon Show Carboys, Pear Shape, cut stoppers, two slightly damaged in lip. 30s. cash; Pill Machine, new, for 24 pills. 15s. cash; 20,000 Fly Papers, 7s. 6d. per 1,000, cash or barter. John T. Clarke, Mount Pleasant Square, Salford, Manchester.

A Bargain.—Chemist's Modern Fittings complete in Mahogany, made by a London Firm, and have only been a few years in use. For further particulars, apply to "Aliquis," care of Messrs. Southall, Son, and Dymond, Birmingham.

Owen's "Compendium;" Receipts and Processes of Pharmacy, Chemistrv, Confectionery, Perfumery, Cosmetics, Homœopathy, Essences, Wines, latest Discoveries and Improvements. New impression. 13 stamps. Invaluable. Owen, Chemist, Stratford.

A set of 11 wheel Forceps in Mahogany case; 2 keys with spring catches, &c.; 2 Leather cases fitted with 6 Scaling and Filling Instruments:—Morocco Pouch to hold 11 forceps—all equal to new. Price £3 15s. Mr. Jewitt, 180, Bury New-road, Manchester.

Erasmus Wilson's "Healthy Skin," 3s. Downing's "Deafness," 1s. 3d. Smith's "Philosophy of Health," 3s. 9d., two vols. Liebig's "Chemical Letters," 2s. Dawson's "Spermatorrhœa," 3s. Cooper on Sight, 2s. 9d. The lot, 14s. 6d. J. R., 55, Bold-street, Liverpool.

One 80-gallon Galvanised Iron Circular Cistern and Brass Tap. Cost 31s. Price 21s. One 80-gallon Galvanised Iron Circular Cistern. No Tap. Cost 29s. Price 20s. One 50-gallon Galvanised Iron Circular Cistern and Brass Tap. Cost 22s. Price 15s. All good as new. C. Crook, Mirfield, Yorkshire.

One gross Gillard's Condiment, 50s. Three 4s. 6d. and one 11s. Rooke's Elixir, 16s. Two 2s. 9d. Welch's Pills, 4s. 3 oz. Salicine, 4s. One 2s. 9d. Blair's Pills, 2s. Three 1s. 1½d. Anderson Scott's Pills, 2s. Two 1s. 9d. Dalby's Carminative, 2s. 6d. Three 1s. 1½d. Procter's Pills, 2s. Two ditto Ointment, 1s. 6d. 15/505.

Paris's "Pharmacologia," 5s. Ferguson's "Practical Surgery" (Plates), 6s. Erasmus Wilson's "Anatomists' Vade Mecum" (Plates), 6s. Bell on the "Arteries" (Plates), 2s. 6d. 36 vols. Braithwaite's "Retrospect of Medicine." £1 5s. All in good condition. Mr. Harper, 15, Lorne-street, Moss Side, Manchester.

Galloway's "Qualitative Analysis," fourth edition, 5s. 6d. Ferguson's "Electricity," 1866, 3s. 365 Extracts from Modern Literature, 1870, 5s. 6d. Wittstein's "Practical Chemistry," second edition, 4s. Pereira's "Selecta Prescriptis;" fourteenth edition, 3s. 6d. Griffin's "Chemical Recreations," tenth edition, 8s. Sent free to Barclay's, for enclosure. E., 5, Fore-street, Taunton.

A one-gallon Tincture Press. Large Marble Mortar. About 1 cwt. dark Gum Myrrh, 56s. cwt. Five Winchester quarts sulphurous acid, 2s. per lb. A Pill Machine. A Gas Stove. Several composition mortars and pestles, from No. 3 to 9. A lot of Gold-labelled Bottles. 12 yards Emp. Roborans on Calico (quite new). 4 lbs. Pulv. Jalapæ, 2s. 6d. lb. Open to offers for cash or exchange. Higgins, 159, Goldsmith's-row, Hackney-road, London, N.E.

A Fletcher's Hot-blast Blow-pipe, nearly new, cost 14s. 6d., cash 9s. Richardson's "Mechanical Dentistry," equal to new, price 12s. Graham & Wood's Patent Articulator, 7s. 6d., or exchanged. 32/505.

Two Specie Jars, cost £9 10/; Marbled Earthenware Filter; Half-gallon Displacement Apparatus; and twenty-one Black Gallon Store Bottles—offers wanted. Retort Stand, 4/; Set of Troy Weights, turned brass, 3/; Water Bath and Still combined, 3/; Polished Show Steps, 10/; Six Polished Show Vases, 6/; Aquarium, 10 in. diameter, 5/; Twenty-one Labelled Store Boxes, 15/; One dozen best Flat Feeding Bottles, 3/6. Thomas, Chemist, Bath. Enclose stamp for reply.

Eleven 6d. Dowman's Butter Powder, 2s. 9d. Six 2s. 9d. Pain Killer, 10s. Five Stedman-Phillips' Tonic Drops, (1s. 1½d.) 3s. Six (1s. 1½d.) Dawson's Cough Lozenges, 4s. One gross 1d. Sauce, 8s. Three doz. 6d. Sauce and Box, 11s. Six 1s. Nelson's Gelatine, 3s. One 9s. De Jongh's Oil, 5s. Two 4s. 9d. ditto, 5s. 6d. Three 1s. Hard's Food, 1s. 6d. Four Du Barry's ditto, 2s. 6d. Three doz. 6d. Mushroom Ketchup and Box, 11s. Sixty Honeycomb (and a few Turkey) Sponges, 10s., free from sand. Three doz. various Smelling Bottles, cost from 3s. to 9s. per doz., the lot for 10s. Thomas, Chemist, Bath. Stamp for reply.

Recipes of widely-known proprietary articles. 46/505.

Dog Medicines. A valuable recipe for Distemper; also for Alterative and Condition Powder. 5/ each, or both for 7/6. E. Rignol, 20, Northgate, Hartlepool.

A New and Antiseptic Treatment of Gonorrhœa and Gleet. Will ensure rapid, successful, and permanent cures in the most obstinate cases. Prescriptions, with full instructions, free for forty-nine stamps. M.R.C.S., Mr. Barry, Conduit-street, Leicester.

A Formula for preparing Chlorodyne equal to Collis Browne's, and no perceptible difference either in taste, appearance, or effect; cost of preparing less than 4s. per lb. Copies 5s. each, or the article supplied at 5s. per lb. Halford, Chemist, 301, New John-street West, Birmingham.

For 31 stamps will be sent an Original and Infallible Prescription, together with full Instructions for curing Spermatorrhœa. Every case treated has recovered quickly. The remedies are uncommon, and different from the usual medicines employed in these cases. M.R.C.S., Mr. Barry, Conduit-street, Leicester.



THE strike mania, which has lately been so prevalent, extended some few days since to the dock employés, but was alleviated by timely concessions on the part of the companies. Had these not been made, there can be little doubt that the men would have turned out *en masse*, and the unloading of the fleet of vessels freighted with the produce of the world would have been brought to a complete standstill. Indirectly the disturbance thence arising would have been severely felt in the drug market, and the avoidal of the interruption to business is therefore matter of congratulation. Good supplies of the chief staples have been submitted to auction throughout the month, and the demand has been of a sufficiently active character to induce good and steady business.

**BARKS.**—Cinchonas maintain their value. Yellow and Crown have been in fair supply, but Red continues somewhat scarce. During the month 726 serons of Yellow, 220 packages Crown, and 40 cases Red, have passed the hammer, the former nearly all selling at 4s. 4d. to 4s. 7d. for superior quill, 3s. 10d. to 4s. 2d. for good to fine; and 3s. to 3s. 7d. middling. 28 cases of Red out of the 40 fetched 4s. 7d., being full value. Cascarilla has been well looked after, and 140 packages sold, on the 4th inst., at 30s. 6d. to 32s. Cinnamon rather dearer, and a keen demand reported from Ceylon, with rising tendency. Stock here, on the 1st, 5,822 packages, against 7,241 last year, and afloat 434 bales, against 2,036 bales.

**CAMPHOR.**—Since we last reported, the *Meteor* and *Priam* have arrived with about 2,450 packages. The great bulk was sold afloat at full prices, but business with this exception has been of a rather inactive character, and the price has receded to 80s., at which figure parcels are offering, both on the spot and afloat. At last moment we hear that 50 cases have been sold at 78s. to 79s. Refiners have lowered their quotations 1d. per lb. Cardamoms continue to arrive, and are lower. A brisk speculative movement was apparent at auction on the 4th inst., and one well-known operator evinced a desire to take the whole supply of Alcopy on offer. Of 206 cases about 110 went in this direction at 5s. 7d. to 5s. 11d., the speculation being stopped by withdrawal at reserved price. The supply of Malabar was small, only 27 cases offering, of which 13 sold at about previous rates.

**ESSENTIAL OILS.**—Aniseed.—Prices have declined, and present position is very dull. This is accounted for by the large stock, which is greatly in excess of last year's, and the fact of speculators having continued to press supplies on the market. In Cassia there is more doing, and we hear of 150 cases being sold at 6s. Citronelle and much in the same position, but Lemongrass is firmer, and is now held at 6d. At auction, on the 4th inst., 500 lbs. English drawn Clove was submitted, and taken in at 4s. 6d.

**GUMS.**—Assafœtida is lower, and 115 cases of recent import sold at 75s. to 102s. 6d.—one lot 67s. 6d. Benjamin, a parcel of fine Siam, of good bold almondy appearance, provoked animated competition at sales, 5 cases out of 10 offered selling at £25 5s. to £26 15s. Gamboge has been rather neglected, and is lower, but Ammoniacum is in better demand, with improved prices. Shellac for some little time has been declining in price weekly, and now offers at a low figure. Olibanum meets a fair inquiry.

**ALOES.**—Cape are again lower, and are coming forward in such supplies as must further depress prices. Attention has been drawn to the soft condition of what limited parcels of East Indian have been reaching the market lately. For some time past such kinds have experienced considerable attention, and the demand being in excess of supply, prices have correspondingly hardened. Exporters in Socotra and the adjacent parts have probably been anxious to realise on the commodity whilst remunerative rates still obtain, and, in consequence, have sent forward the juice before sufficiently dry. This neglect in preparation must recoil upon exporters, as the drug is much depreciated in value thereby, and commands only modified rates. At sales last week, 141 boxes of softish East Indian were withdrawn, the auctioneer remarking that the room was not ripe for them. This elicited a peculiarly happy and pertinent rejoinder from some one that, on the contrary, the aloes were not ripe for the room.

**OPUM** has established an advance, and fine picked is now worth 22s., and druggists' scale 20s. This rise is the natural sequence of more decided information as to the failure of the Turkey crop. Vague rumours have been current for months past as to the amount of real damage done; and whilst advising our readers, as in duty bound, of such reports, we have always enforced the necessity of discrimination in their acceptance. In April last, a telegram was despatched from Smyrna to New York, stating that "the whole fall planting had been destroyed," and we recall the circumstance which was commented upon at the time, as an instance of the unscrupulous wire-pulling which is from time to time made to influence the position of the drug. Advices from the seat of production are just to hand, which we believe to be conscientiously based upon fact, and which bear out our previous impressions as to the real state of affairs. It is computed that the out-turn of the present season will not exceed 4,000 baskets; and that the total supplies of Opium during the next twelve months, and including all remaining stocks in Europe and America will not be much in excess of 6,000 baskets and cases. This is about two-thirds the quantity available same time last year, but the crop then was recognised as an especially good one, and in point of fact, the most productive since that of 1865. Although the partial failure of the crop is now a matter beyond dispute, there does not seem cause to apprehend any immediate effect on prices, as the supplies of new crop which will be falling in for some time at Smyrna will tend to keep the value down there.

Musk has been in continued demand, and full prices have ruled. Of 107 caddies Tonquin all sold on the 21st, and 48 packages of 56 last week, rather bally to good fair shaped

pod at 35s. 6d. to 39s. 6d. Present prices for pod 41s. to 47s. 6d., and for grain, 56s. to 60s. Senia.—Very low descriptions of Tinnivelly have been lately offering, and some false packed stuff sold on the 20th at the ridiculous price of 4d. per lb. Fine qualities would fetch full prices. Cantharides are appreciably lower. Guinea Grains kept up, but Cocculus Indicus has been quiet, and reduced prices have been accepted, 680 pockets selling at 14s. to 15s. 6d. The imports of this article last year were only 165 bags, against 1,967 in 1872.

**DRY-SALTERIES.**—Cochineal: The fortnightly sales on the 11th inst. went off flatly, and although easier rates were accepted, only a limited demand prevailed, and the proportion sold was small—viz., 373 bags. The bulk consisted of black Teneriffe, which sold slowly, at a decline of 4d. to 1d. per lb., silver being occasionally lower. **SAFFLOWER.**—The demand continues inactive, and from Calcutta the news is that the consumption is being seriously affected, and especially in the Continental markets, by the new aniline dye. **TURMERIC.**—Considerable sales have been made; the new crop, which is not reported favourably of, is not yet launched on the market.

**SPICES.**—Cloves, Zanzibar: The excitement so apparent last month has somewhat abated. The highest point reached has been 7½d. A parcel of indirect import, consisting of 617 bales, was bought in, with the exception of 100 bags, which sold at 6½d to 6¾d. Stock with dock companies on May 31st, 8,875 packages. **GINGER.**—The large supply of 66 casks 907 barrels Jamaica, for the most part new crop, was offered on the 1st of the month, and nearly the whole went off. Supplies have come to hand much earlier than usual this year, and with large stock prices are somewhat lower. Cochin has been selling at rather easier rates. **NUTMEGS AND MACE.**—The demand has brightened considerably, and prices have appreciably advanced. **PEPPER.**—A good demand prevails for White, and business of an active character has been done at advanced rates. Pod: 67 bales Zanzibar, of 1865 import, have been taken at a considerable advance, the first lot 56s., the remainder 60s.

**CHEMICALS.**—The inquiry throughout the month has been of a fairly animated character. The demand for home trade has been quite up to the average, and export requirements have, if anything, improved. Shipments of alkali to the United States of late have been heavy, notwithstanding the precarious relations subsisting until recently between the two countries. Exports to the States for the month of May show an increase in quantity of 2,663 tons, and in value of £52,306 on the corresponding period of last year—quill to 34 per cent in quantity and 75 per cent in value.

**MERCURIALS** have all advanced about 4d. per lb. consequent upon the great advance in the price of Quicksilver, which is now quoted at £13 per bottle. We indicated the future position of this article but recently, and can only hope that our friends followed up the advice then tendered to lay in adequate supplies of its preparations. Morphia is enhanced in value, as might have been expected from the upward movement in Opium. Bleaching Powder is easier, and may now be bought for 13s. Holders are firm at this figure, however, and do not seem inclined to give way further. Sulphate of Ammonia now offers more inducement to buyers, and the same may be said of Alum, although the reduction in the price of the latter is but trifling. Refined Borax is now quoted at 97s. 6d., and both Sulphate of Copper and Bicarbonate of Soda have advanced. Iodine slightly easier, and Iodide of Potassium now to be bought at 33s. 6d. Quinine is slightly easier, and we hear of two cases Pelletier's selling at 7s. 2d. to 7s. 3d. per oz.

**OILS.**—Crude Sperm, which was quoted at £93 in the latter end of June, has receded considerably, and £86 to £87 is now about the value. Stocks of Seal have not yet been replenished, and quotations are nominal, and the same applies to Whale. Fine Ceylon Coconut has gone off briskly; and at auction on the 5th good supplies of Cochin were disposed of. The value rules at £33 to £38 1s. for Cochin, and £34 10s. Ceylon.

Olive shows but little improvement, and is quoted at £47 for Gallipoli, down to £43 10s. Mogador. Turpentine has been receding throughout the month, and is now obtainable at 34s. for American spirits, at which figure some business has been done. Stock on the 30th June was 5,345 barrels American and 64 tons French, against 130 barrels American and 160 tons French same time last year. Deliveries last month—1,090 barrels American, and 293 tons French.



# Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mining-lane for articles sold in bulk. Our Retail Subscribers will 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.

	1872.		1871.	
	s. d.	s. d.	s. d.	s. d.
<b>ACIDS—</b>				
Acetic .....	per lb.	0 4 1/2 to 0 0	0 4 to 0 0	
Citric .....	per lb.	3 9 .. 0 0	2 10 1/2 .. 2 10 3/4	
Hydrochlor. ....	per cwt	4 0 .. 7 0	4 0 .. 7 0	
Nitric .....	per lb.	0 5 .. 0 5 1/2	0 5 .. 0 5 1/2	
Oxalic .....	per lb.	1 1 .. 0 0	0 10 .. 0 0	
Sulphuric .....	per lb.	0 0 3/4 .. 0 1	0 0 3/4 .. 0 1	
Tartaric crystal ..	per lb.	1 0 3/4 .. 1 7	1 3 1/4 .. 0 0	
powdered .....	per lb.	1 7 .. 0 0	1 3 1/4 .. 0 0	
<b>ANTIMONY ore—</b>				
crude .....	per ton	270 0 .. 290 0	240 0 .. 260 0	
regulus .....	per cwt	40 0 .. 0 0	36 0 .. 38 0	
star .....	per cwt	72 0 .. 75 0	48 0 .. 49 0	
<b>ARSENIC, lump—</b>				
powder .....	per cwt	18 6 .. 0 0	15 6 .. 16 0	
star .....	per cwt	7 9 .. 0 0	6 9 .. 7 3	
<b>BRIMSTONE, rough—</b>				
roll .....	per ton	140 0 .. 145 0	160 0 .. 0 0	
flour .....	per cwt	10 0 .. 0 0	10 0 .. 10 3	
iodine .....	per oz.	11 6 .. 2 1	1 3 .. 1 4	
<b>IVORY BLACK, dry—</b>				
per cwt .....	per cwt	8 6 .. 0 0	0 0 .. 0 0	
<b>MAGNESIA, calcined—</b>				
per lb. ....	per lb.	1 2 .. 1 3	1 2 .. 0 0	
<b>MERCURY—</b>				
per bottle .....	per bottle	260 0 .. 0 0	190 0 .. 0 0	
<b>MINIUM, red—</b>				
per cwt .....	per cwt	21 3 .. 21 6	20 6 .. 21 0	
orange .....	per cwt	31 6 .. 32 0	31 6 .. 32 0	
<b>PRECIPITATE, red—</b>				
per lb. ....	per lb.	3 11 .. 0 0	3 2 .. 0 0	
white .....	per lb.	3 10 .. 0 0	3 1 .. 0 0	
<b>PRUSSIAN BLUE—</b>				
per cwt .....	per cwt	0 0 .. 0 0	0 0 .. 0 0	
<b>SALTS—</b>				
Alum .....	per ton	155 0 .. 160 0	135 0 .. 140 0	
powder .....	per ton	175 0 .. 180 0	145 0 .. 150 0	
<b>Ammonia:</b>				
Carbonate .....	per lb.	0 7 .. 0 7 1/2	0 6 1/2 .. 0 6 3/4	
Hydrochlorate, crude,	per ton	64 0 .. 0 0	460 0 .. 560 0	
white .....	per ton	64 0 .. 0 0	460 0 .. 560 0	
<i>British (see Sal Ammoniac)</i>				
Sulphate .....	per ton	390 0 .. 415 0	390 0 .. 400 0	
Argol, Cape .....	per cwt	65 0 .. 90 0	45 0 .. 79 0	
France .....	per cwt	0 0 .. 0 0	0 0 .. 0 0	
Operto, red .....	per cwt	24 0 .. 27 0	22 0 .. 24 0	
Sicily .....	per cwt	60 0 .. 0 0	0 0 .. 0 0	
Naples, white .....	per cwt	60 0 .. 0 0	0 0 .. 0 0	
Florence, white .....	per cwt	0 0 .. 0 0	0 0 .. 0 0	
red .....	per cwt	0 0 .. 0 0	0 0 .. 0 0	
<b>Ashes (see Potash and Soda)</b>				
Bleaching powd. . .	per cwt.	13 0 .. 13 6	13 6 .. 14 0	
Borax, crude .....	per cwt.	60 0 .. 75 0	45 0 .. 60 0	
(Tincal) .....	per cwt.	47 9 .. 65 0	45 0 .. 60 0	
British refud. ....	per cwt.	97 6 .. 0 0	75 0 .. 80 0	
Calomel .....	per lb.	3 8 .. 0 0	3 0 .. 0 0	
<b>Copper:</b>				
Sulphate .....	per cwt.	35 0 .. 0 0	23 6 .. 25 0	
Copperas, green . .	per ton	60 0 .. 62 6	50 0 .. 60 0	
Corrosive Sublimate .	per lb.	3 0 .. 0 0	2 4 .. 0 0	
Cr. Tartar, French, p.	cwt.	105 0 .. 107 6	92 6 .. 95 0	
Venetian grey .....	per cwt.	110 0 .. 0 0	95 0 .. 0 0	
brown .....	per cwt.	0 0 .. 0 0	75 0 .. 85 0	
Epsom Salts .....	per cwt.	5 9 .. 6 3	6 0 .. 7 0	
Glauber Salts .....	per cwt.	4 6 .. 6 0	4 6 .. 6 0	
<b>Lime:</b>				
Acetate, white, per cwt.	per cwt.	14 0 .. 22 6	12 6 .. 23 0	
Magnesia : Carbonate ,	per cwt.	42 6 .. 45 0	42 6 .. 0 0	
<b>Potash:</b>				
Bichromate .....	per lb.	0 8 .. 0 0	0 9 .. 0 0	
<b>Carbonate:</b>				
Potashes, Canada, 1st	sort .....	per cwt.	41 0 .. 0 0	33 0 .. 33 3
Pearlshashes, Canada, 1st	sort .....	per cwt.	59 0 .. 0 0	44 0 .. 0 0
Chlorate .....	per lb.	1 5 1/2 .. 0 0	1 6 .. 0 0	
Prussiate .....	per lb.	1 5 1/2 .. 1 6	1 5 .. 1 6	
red .....	per lb.	3 1 .. 0 0	2 2 1/2 .. 2 5	
<b>Tartrate (see Argol and Cream of Tartar)</b>				
<b>Potassium:</b>				
Chloride .....	per cwt.	9 9 .. 10 0	11 0 .. 12 0	
Iodide .....	per lb.	33 6 .. 0 0	8 0 .. 10 0	
<b>Quinine:</b>				
Sulphate, British, in	bottles .....	per oz.	7 9 .. 0 0	7 2 .. 0 0
Sulphate, French .....	per oz.	7 6 .. 0 0	6 10 .. 0 0	
Sal Acetos .....	per lb.	1 4 1/2 .. 0 0	1 0 .. 0 0	
Sal Ammoniac, Brit. cwt.	per cwt.	48 0 .. 49 0	41 0 .. 42 0	
<b>Saltpetre:</b>				
Bengal, 6 per cent or	under .....	per cent.	28 9 .. 29 9	27 3 .. 28 6
Bengal, over per cent.	per cwt.	per cwt.	27 6 .. 28 6	26 0 .. 27 0
Madras .....	per cwt.	0 0 .. 0 0	0 0 .. 0 0	
Bomb. & Kurracheep. ct.	per cwt.	0 0 .. 0 0	0 0 .. 0 0	
European .....	per cwt.	0 0 .. 0 0	0 0 .. 0 0	
British, refined .....	per cwt.	32 6 .. 33 6	30 6 .. 31 6	
Soda : Bicarbonate, p. cwt.	per cwt.	17 6 .. 0 0	12 0 .. 12 6	
<b>Carbonate:</b>				
Soda Ash .....	per deg.	0 2 1/4 .. 0 0	0 2 1/2 .. 0 2 1/2	
Soda Crystals per ton	per ton	137 6 .. 140 0	102 6 .. 0 0	
Hyposulphite .....	per cwt	16 0 .. 17 6	16 0 .. 0 0	

	1872.		1871.	
	s. d.	s. d.	s. d.	s. d.
<b>Soda :</b>				
Nitrate .....	per cwt.	15 6 to 16 0	15 6 to 15 9	
SUGAR OF LEAD, White, cwt.	per cwt.	45 0 .. 0 0	39 0 to 40 0	
Brown .....	per cwt.	31 0 .. 0 0	26 0 .. 28 0	
<b>SULPHUR (see Brimstone)</b>				
VERDIGRIS .....	per b.	1 1 .. 1 3	1 0 .. 1 2	
VERMILION, English .....	per lb.	3 10 .. 0 0	3 4 .. 0 0	
China .....	per lb.	4 3 .. 4 4	3 4 .. 0 0	

## DRUGS.

ALOE, Hepatic .....	per cwt.	100 0 .. 240 0	70 0 .. 220 0	
Socotrine .....	per cwt.	160 0 .. 460 0	120 0 .. 280 0	
Cape, good .....	per cwt.	25 0 .. 27 0	23 0 .. 28 6	
Inferior .....	per cwt.	20 0 .. 24 0	19 0 .. 25 0	
Barbadoes .....	per cwt.	75 0 .. 200 0	70 0 .. 210 0	
AMBERGRIS, grey .....	oz.	24 0 .. 29 0	25 0 .. 30 0	
<b>BALSAM—</b>				
Canada .....	per lb.	1 6 .. 0 0	0 10 .. 0 11	
Capivi .....	per lb.	2 3 .. 0 0	1 9 .. 1 11	
Peru .....	per lb.	9 6 .. 9 6	9 6 .. 0 0	
Tolu .....	per lb.	1 9 .. 1 11	1 10 .. 0 0	
<b>BARKS—</b>				
Canella alba .....	per cwt.	15 0 .. 25 0	15 0 .. 25 0	
Cascarilla .....	per cwt.	22 0 .. 37 0	20 0 .. 37 0	
Peru, crown & grey per lb.	per lb.	1 6 .. 3 1	0 10 .. 2 5	
Calisaya, flat .....	per lb.	3 2 .. 3 4	3 2 .. 3 5	
quill .....	per lb.	3 2 .. 3 4	3 2 .. 3 5	
Carthage .....	per lb.	0 10 .. 2 0	0 10 .. 1 10	
Pitayo .....	per lb.	9 9 .. 1 10	0 10 .. 1 6	
Red .....	per lb.	1 10 .. 6 0	2 0 .. 7 0	
Bucha Leaves .....	per lb.	0 2 1/2 .. 1 1	0 5 .. 0 10	
<b>CAMPHOR, China—</b>				
per cwt. ....	per cwt.	80 0 .. 0 0	70 0 .. 72 6	
Japan .....	per cwt.	81 0 .. 9 0	80 0 .. 0 0	
Resin Eng. per lb. ....	per lb.	1 2 1/2 .. 1 4	1 2 1/2 .. 0 0	
<b>CANTHARIDES .....</b>				
per cwt. ....	per cwt.	5 1 .. 0 0	4 8 .. 4 10	
<b>CHAMOMILE FLOWERS p. cwt.</b>				
per cwt. ....	per cwt.	45 0 .. 70 0	40 0 .. 62 6	
<b>CASTOREUM .....</b>				
per lb. ....	per lb.	3 0 .. 30 0	3 0 .. 30 0	
<b>DRAGON'S BLOOD, Ip. p. cwt.</b>				
per cwt. ....	per cwt.	110 0 .. 220 0	100 0 .. 210 0	
<b>FRUITS AND SEEDS (see also Seeds and Spices)</b>				
Anise, China Star pr cwt.	per cwt.	120 0 .. 0 0	115 0 .. 0 0	
German, &c. ....	per cwt.	35 0 .. 40 0	44 0 .. 50 0	
Beans, Tonquin .....	per lb.	1 0 .. 1 8	0 9 .. 1 6	
Cardamoms, Malabar	per lb.	6 6 .. 7 3	7 0 .. 8 0	
good .....	per lb.	5 0 .. 6 3	5 0 .. 6 6	
inferior .....	per lb.	2 6 .. 6 0	3 6 .. 7 0	
Ceylon .....	per lb.	4 2 .. 4 3	2 8 .. 3 1	
Cassia Fistula .....	per cwt.	12 0 .. 30 0	12 0 .. 30 0	
Castor Seeds .....	per cwt.	10 0 .. 12 0	10 0 .. 12 0	
Cocculus Indicus .....	per cwt.	14 0 .. 15 6	19 0 .. 20 0	
Colocynth, apple .....	per lb.	0 3 .. 0 6	0 3 .. 0 6	
Croton Seeds .....	per cwt.	55 0 .. 59 0	70 0 .. 75 0	
Cubebes .....	per cwt.	25 0 .. 28 0	25 0 .. 29 0	
Cumin .....	per cwt.	35 0 .. 40 0	30 0 .. 35 0	
Dividivi .....	per cwt.	14 0 .. 15 6	12 0 .. 14 6	
Fenugreek .....	per cwt.	12 0 .. 22 0	17 0 .. 25 0	
Guinea Grains .....	per cwt.	50 0 .. 51 0	23 0 .. 24 0	
Juniper Berries .....	per cwt.	11 6 .. 12 0	15 0 .. 15 6	
Myrobalsans .....	per cwt.	12 6 .. 17 0	10 6 .. 16 0	
Nux Vomica .....	per cwt.	12 0 .. 16 0	11 0 .. 16 0	
Tamarinds, East India ..	per cwt.	2 0 .. 14 0	2 0 .. 12 0	
West India, new .....	per cwt.	25 6 .. 30 0	10 0 .. 27 6	
Vanilla, large .....	per lb.	45 0 .. 55 0	27 0 .. 37 6	
inferior .....	per lb.	27 0 .. 43 0	10 0 .. 25 0	
Wormseed .....	per cwt.	0 0 .. 0 0	0 0 .. 0 0	
<b>GINSENG, Preserved, in bond</b>				
(duty 1d. per lb.) per lb.	per lb.	0 6 1/2 .. 0 10 1/2	0 6 .. 0 10	
<b>GUMS (see separate list)</b>				
<b>HONEY, Chili .....</b>				
per cwt. ....	per cwt.	38 0 .. 50 0	40 0 .. 60 0	
Cuba .....	per cwt.	35 0 .. 50 0	27 0 .. 42 0	
Jamaica .....	per cwt.	30 0 .. 50 0	36 0 .. 53 0	
<b>IFECAUHANHA .....</b>				
per lb. ....	per lb.	5 3 .. 5 4	6 0 .. 0 0	
<b>ISINGLASS, Brazil .....</b>				
per lb. ....	per lb.	2 8 .. 4 4	2 4 .. 4 2	
Tongue sort .....	per lb.	3 3 .. 5 2	3 2 .. 4 7	
East India .....	per lb.	1 0 .. 4 3	1 4 .. 4 0	
West India .....	per lb.	3 11 .. 4 3	3 9 .. 4 0	
Russ. long staple .....	per lb.	8 0 .. 11 6	5 6 .. 8 0	
leaf .....	per lb.	3 6 .. 7 6	3 0 .. 5 6	
Simovia .....	per lb.	2 0 .. 3 6	2 0 .. 3 6	
JALAP, good .....	per lb.	1 6 .. 2 8	1 9 .. 3 2	
infer. & stems .....	per lb.	0 6 .. 1 5	0 6 .. 1 7	
LEMON JUICE .....	per degree	0 1 .. 0 1 1/2	0 1 .. 0 1 1/2	
LIQUORICE, Spanish per cwt.	per cwt.	35 0 .. 37 0	25 0 .. 37 0	
Italian .....	per cwt.	40 0 .. 60 0	40 0 .. 60 0	
MANNA, flaky .....	per lb.	3 3 .. 3 6	3 6 .. 4 0	
small .....	per lb.	1 10 .. 2 0	2 0 .. 2 2	
MUSK .....	per oz.	20 0 .. 40 0	21 0 .. 36 0	
<b>OILS (see also separate List)</b>				
Almond, expressed per lb.	per lb.	1 1 .. 0 0	1 2 .. 0 0	
Castor, 1st pale .....	per lb.	0 5 1/2 .. 0 0	0 5 .. 0 5 1/2	
second .....	per lb.	0 5 .. 0 5 1/2	0 4 1/2 .. 0 0	
infer. & dark .....	per lb.	0 4 1/2 .. 0 5	0 4 1/2 .. 0 4 1/2	
Bombay (in casks) .....	per cwt.	0 4 1/2 .. 0 4 1/2	0 0 .. 0 0	
Cod Liver .....	per gall.	4 6 .. 5 0	5 0 .. 6 0	
Croton .....	per oz.	0 3 .. 0 4	0 3 1/2 .. 0 4 1/2	
<b>Essential Oils:</b>				
Almond .....	per lb.	35 0 .. 0 0	42 0 .. 0 0	
Anise-seed .....	per lb.	10 0 .. 10 6	8 9 .. 0 0	
Bay .....	per cwt.	65 0 .. 70 0	65 0 .. 70 0	
Bergamot .....	per lb.	8 0 .. 15 0	8 0 .. 15 0	
Cajeput, (in bond) per oz.	per oz.	0 1 1/2 .. 0 3	0 2 .. 0 3	
Caraway .....	per lb.	5 6 .. 6 3	5 6 .. 6 3	
Cassia .....	per lb.	6 0 .. 0 0	4 0 .. 4 6	
Cinnamon .....	per oz.	1 0 .. 5 6	1 0 .. 3 3	
Cinnamon-leaf .....	per lb.	0 2 .. 0 5	0 2 .. 0 6	

