of the first phalanx. Should the patient seek advice, as often happens, on account of acute inflammation of the corn over a hammer-toe, it will of course be wise to subdue this before undertaking any operation for the relief of the deformity. Let me remind you that when there are redness and oedema of the skin round an inflamed corn these symptoms and the accompanying pain depend upon inflammation and distension of the little bursa between the corn and the bone; and that speedy relief may be given by opening the bursa by passing a knife beneath the margin of the corn towards its centre and raising the thickened cuticle so that the fluid contained within the bursa may escape. A hot boric fomentation should then be applied, and when the bursitis and consequent cellulitis have completely subsided the excision of the corn, together with the head of the first phalanx, should be undertaken. Of the many cases in which I have practised this simple operation I have never seen other than a satisfactory result.

Besides these cases of hammer-toe you have recently seen under treatment a case of severe bunion, or "hallux valgus," on which it may be useful to say a few words; for this, again, is a common deformity which often gives rise to great suffering.

A woman, aged 24 years, had suffered from bunion since she was 10 years of age. The feet exhibited in a severe degree the condition characteristic of this deformity. The great toe was thrust outward so that there was a partial dislocation at the metatarso-phalangeal joint, and the head of the metatarsal bone was unduly prominent. It is interesting to notice (as I have shown in other cases) that where joint surfaces are not in contact the loss of functional activity leads to wasting of the articular cartilage. Thus it was seen, when this case came to be operated upon, that the articular cartilage over the inner third of the head of the metatarsal bone was much atrophied, and at the edge had almost disappeared. In older people there is often an irregular outgrowth of bone in this situation giving an additional prominence to its inner border. Over the prominence there was the characteristic circle of thickened and hardened skin between which and the bone there was a well developed bursa. The tendon of the extensor of the toe stood out tensely beneath the skin. This deformity is no doubt produced by wearing boots of which the inner edge slopes towards the middle line of the sole—a foolish fashion provocative of other evils besides bunion; some of the worst cases, however, occur in persons the subjects of osteo-arthritis, a disease which greatly aggravates the deformity. For such a condition as this patient exhibited the most satisfactory treatment is excision of the metatarso-phalangeal joint and of the bursa over it and the division of the tendon of the extensor of the toe. This having been done the toe was easily brought into a line with the inner border of the foot and fibrous ankylosis has taken place in that position. We took care that the patient had a pair of properly-shaped boots and in these she can walk quite comfortably. This operation seems to me to be much more likely to give satisfactory results than excision of a wedge of the metatarsal bone; in some cases, however, it is sufficient to remove the metatarsal head and to leave the base of the phalanx.

In slight and early cases division of the extensor tendon and forcible straightening of the toe may be practised, but this must be followed by the use of a digitated stocking and a wedge of felt between the first and second toes; or a boot may be worn with a separate division for the first toe. A spring splint should also be worn at night. But excepting for these slight cases the splints, springs, and other kinds of apparatus which have been invented for the treatment of bunion are worse than useless.

One other case which I will briefly allude to is that of a boy, aged 15 years, who was admitted to hospital on account of lameness due to the condition known as "hallux rigidus." The patient is employed in the post office and has much standing. There was a slight degree of flat-foot, and the right metatarso-phalangeal joint was rigid, painful, and incapable of voluntary movement. The position of the bones was not altered and there was no pain on moderate inter-articular pressure, but any attempt to walk or to bear any weight on the foot gave severe pain. I treated this boy for some time as an out-patient (as he was anxious not to give up work), supporting the arch of the foot, taking off pressure from the painful joint, &c., but with no benefit. He was therefore taken into the hospital and I excised the head of the metatarsal bone. This relieved him of pain and

enabled him to walk with comfort. I could discover no disease of the bone or articular cartilage; the only abnormality seemed to be that the joint surfaces were fixed rigidly in close contact but without any real ankylosis.

Presidential Address

ON

THE PRESENT POSITION OF PHARMACY.

*Delivered at the British Pharmaceutical Conference
on July 24th, 1900,*

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

PRESIDENT OF THE PHARMACEUTICAL SOCIETY.

LADIES AND GENTLEMEN,—At the commencement of the century chemists and druggists had just begun to separate into a distinct body from grocers and general dealers. But it was not until 1842, when they obtained a Royal charter of incorporation, that they began to assume the character of an educated body. As the semi-professional character of the business became recognised, in consequence of the examination and education that chemists were compelled to undergo, the number of young men entering it gradually increased. These were and are still drawn largely from respectable families with small incomes who, misled by the small amount of capital necessary to start a business and the reputed large profits, do not recognise that the returns are usually so small that the grocer and draper can make eight or ten times more money, even on small profits, than a chemist is able to do. Nor is it generally recognised that the business depends far more than in any other trade on the personal integrity of the proprietor and that it takes time to acquire the confidence of the public. The fact that the keen financial instincts of the Jews have never led them to embark in pharmacy might have served to indicate to the general public that the business of the chemist and druggist is not so lucrative as is generally supposed. The wills of pharmacists never present large figures and millionaires are unknown in British pharmacy. Nevertheless, the supply of dispensers of medicine has exceeded the public demand. The principle of free trade has prevented such a limitation of the number of those engaged in pharmacy as is prevalent in some other countries, with the result that, like all other trades and professions in this country, its ranks are overcrowded. At the present time there are about 15,600 registered chemists and druggists, of whom it is estimated that about one-tenth only, whom for convenience we will call pharmacists, actually derive their principal income from the dispensing of prescriptions, a small number from what is known as counter-prescribing, and the remainder from light retail and dispensing business, the dispensing being a comparatively small proportion. In some parts of the country, especially in Scotland, there is a much larger proportion of pharmacists who dispense medicine than in England. Even in different parts of England, in some towns the medical men almost invariably dispense their own medicines, whilst in other towns a few miles distant the dispensing is done almost entirely by pharmacists for the medical men. The cause of these local differences seems worthy of investigation, which might lead to more uniformity of practice. There is little doubt, as was pointed out last autumn by Dr. D. J. Leech (whose premature decease we all deplore), that the practice of pharmacy by medical men is not only an evil to the pharmacist but a disadvantage to the medical men themselves, and that medical men would gain if, wherever possible, they gave up dispensing. It is obviously for the safety of the public that every dispenser of medicine, whether employed by a pharmacist, by coöperative stores, or by a medical practitioner, should have passed a qualifying examination in the art of dispensing medicines, and that every medical man who dispenses his own medicine should have passed the same examination in the subject as the pharmacist whose duties he takes upon himself. But under the modern system the medical student, although he has the opportunity of taking up a course of pharmacy at a hospital or medical school, is often not very conversant with the

subject. The safety of the public is best secured when the dispensing of prescriptions is checked by a second or third qualified dispenser, as is the case in dispensing establishments where several assistants are kept. In respect of poisons especially the public needs protection, inasmuch as it does not know their properties or their antidotes, and the chemist and druggist—as being familiar with both and therefore capable of devising suitable precautions to safeguard their use and to give advice in cases of accidental or other wrongful uses of them—is obviously the fittest person to sell them, whilst it is probably largely due to his lack of energy and want of business enterprise that the poisonous articles used in the arts and for sanitary, insecticidal, or horticultural purposes have not always passed through his hands.

There is another direction in which the safety of the public is likely to be affected. Drugs vary exceedingly in quality. In order to sell cheaply at a working profit it is necessary to buy cheaply. As prices are lowered by coöperative stores the tendency will therefore be to buy inferior qualities to meet the demand for low prices. In the case of drugs used in medicine this may lead to serious results, since when medicine is required to act quickly and effectively, as in croup or in parturition, &c., if the ipecacuanha or ergot be of inferior quality serious danger to life may result through its want of activity. In Russia, Germany, Scandinavia, and Greece this difficulty is met by a legalised tariff for dispensed medicines. In this country it is left to the public themselves to judge by the British Pharmacopœia which upholds a high standard of purity in medicine, and the importance of asking for “B.P.” preparations might well be taught to the laity by the wider use of these two letters on ordinary labels.

It has been stated by medical men that what is known as counter-prescribing by pharmacists is one of the causes why dispensing is not entirely handed over to the latter by the medical profession. The subject is no doubt surrounded with practical difficulties, but probably these are not insuperable. There is no law to prevent a man, however ignorant he may be, from prescribing remedies for himself, his friends, or his household, and it has been stated on high medical authority that it would not be objectionable for persons to apply at a pharmacy “for simple remedies for toothache, muscular pain, or trifling dyspeptic ailments, provided the person seeking relief knew what he was about and was not deceived by the assumption of an authority, or of titles, on the part of the chemist, and provided that such relief was merely to be regarded as first aid, or a temporary expedient” for a definite complaint stated by the patient. But this is a very different state of things from what is known as a prescribing business, in which the chemist goes beyond his province in diagnosing disease and supplying remedies for it. In such business the straightforward plan would be for the proprietor to qualify as a medical practitioner or to arrange with a properly qualified man to see his clients. The converse of this is the medical practitioner who keeps open shop like a chemist, and to whom is largely due the difficulty that the uneducated public find in distinguishing between a chemist’s and a doctor’s shop. It might be possible, perhaps, for representatives of the medical profession and the Pharmaceutical Society to arrange a conference to make mutual provisions for counter-prescribing by chemists to cease on the one hand and the keeping open shop by doctors on the other. This would need disciplinary powers for both bodies to deal with offenders, but the two bodies united could probably, by a good organisation, bring sufficient influence to bear upon the Government to pass an Act authorising such powers.

The real difficulty for the conscientious pharmacist lies in the impossibility of ascertaining whether the case, very often that of an absent person, comes within the limits of first aid or temporary expedients. This difficulty would probably be met most satisfactorily if a small official work were issued by the General Medical Council or by Government authority to the general public indicating on general lines the premonitory symptoms of dangerous or zymotic diseases such as would distinguish, for instance, an ordinary cold from incipient pneumonia or a sore throat from approaching diphtheria or scarlet fever. Such a work in the possession of the heads of families and on the desk of every chemist might serve to indicate both to the public and the pharmacist a dividing line between first aid and the necessity of medical treatment and supervision.

Another difficulty lies in the fact that in small villages where

there is no chemist and no carrier it is difficult for the medical man to avoid dispensing. Here, however, is the opportunity of the enterprising chemist in the nearest town to see that the medical man has a portable outfit which he can carry with him on his rounds. The advantage of such portable medicine chests in country villages and for travellers has already been recognised by enterprising London firms which have adopted and enlarged upon the hint given by Brockedon’s compressed potassium bicarbonate of 50 years ago. The increase in the rapidity of travelling and the absence of an international Pharmacopœia has caused a demand for portable medicines which has been increased by the opening up of new countries where it is impossible to obtain medicine, so that a new industry in this direction has been developed in which English pharmacists, with characteristic conservatism, have allowed Americans to take the lead. The great advantage in the saving of time by the use of portable medicines to both the medical practitioner and the patient in country districts where there is no chemist within several miles and where the considerable delay in the delivery of medicine, by reason of the distance, is often of serious importance, is almost certain to lead to the permanent adoption of such time- and labour-saving devices. The value to the public of portable medicine for travelling purposes cannot be denied, as well as to the Government, since in military and naval operations the sudden demands made upon medical stores and appliances necessitate the use of drugs and preparations occupying as little space as possible, in a form as concentrated as is compatible with safety and not readily affected by the vicissitudes of climate. This form of medicine has therefore become a feature of the pharmacy of to-day and is likely to develop still further. It has, however, the disadvantage of placing in the hands of the laity powerful remedies which they are apt to use without proper medical advice and without the ability to judge of the nature of the disease for which they employ them.

The vast number of new vegetable, chemical, and animal remedies introduced during recent years, and the impossibility of keeping pace with them, on the part of the medical men and the pharmacist, especially in the provinces, where as a rule new remedies do not come into use until two or three years after introduction into city practice, has led to the comparative disuse of the Pharmacopœia for prescribing purposes and to more dependence being placed by physicians concerning new remedies upon such works as Martindale’s “Extra Pharmacopœia” and Squire’s “Companion to the British Pharmacopœia,” works which enterprising pharmacists have produced to meet the necessities of medicine and pharmacy during the time that elapses between the publication of one Pharmacopœia and another. These works have also the additional advantage that they contain tables of diseases and of all the most modern remedies used for them, as well as the doses and formulæ showing useful combinations of the various preparations. In these rapidly progressive times the pharmacopœias cannot, even if published decennially, be actually up to date; it can only crystallise into a definite shape formulæ that have already been in use for some time. The Pharmacopœia is now really more used by pharmacists as a standard for insuring uniformity in official preparations than by physicians for prescribing purposes. It is only just, therefore, that pharmacists as a body should have an influential voice in its construction, especially as they have shown by publication of numerous formulæ that have been accepted in the previous pharmacopœias that they are quite capable of devising approved formulæ. The medical profession must, of course, necessarily determine what remedies and preparations shall be included in it for their convenience.

THE PHARMACOPŒIA AS A LEGAL STANDARD.

Many vexatious prosecutions of chemists have resulted from the fact that the British Pharmacopœia has been erroneously supposed by many analysts to be a legal standard for the purity of drugs. The statement in the Pharmacopœia that the work is “intended to afford to the members of the medical profession, and those engaged in the preparation of medicines throughout the British Empire, one uniform standard and guide, whereby the nature and composition of substances to be used in medicine may be ascertained and determined,” in no way indicates that it is to be used as the legal standard of purity for drugs used in commerce for domestic and technical purposes. To prosecute chemists because, for instance, tincture of myrrh, which is

used as a dentifrice rather than as a medicine, or benzoin, which is used in French polish, or soft soap, or ammonium carbonate, soda water, or other articles in regular household use, do not answer to the tests of purity of the B.P. would constitute an interference with trade that would be as absurd as it would be vexatious. That the standard of purity used in dispensing physicians' prescriptions should be as high as it is possible to make it is an article of faith of the British Pharmaceutical Conference, but there are many cases in which drugs and preparations which are B.P. articles are used for other than medical purposes, and for such the average of normal condition of purity meets all the requirements of the case. There is, therefore, a need for a published standard of normal or average purity of drugs for this purpose until such time as the Government realises its duty to publish a legal standard, by which the provisions of the Sale of Food and Drugs Act can be effectively and justly carried out. In the absence of any definite Government standard for drugs this is the work which analysts, in conjunction with pharmacists, should take up, and one that the conference should support in the interests both of the public and of chemists themselves.

There appear to have been several causes that led to the erroneous supposition that the B.P. is a legal standard for the purity of drugs. One is the misleading use of synonyms in the B.P. The names of commercial products in several cases in which they differ considerably in composition from the official article are given as synonyms, such as "milk of sulphur" for sulphur præcipitatum and "soft soap" for *sapo mollis*. Such synonyms are misleading and serve no useful purpose, since medical practitioners never use them in their prescriptions, and they might well be omitted. Another cause that leads to unjust prosecution is due apparently to the ignorance that exists amongst analysts who are not also pharmaceutical chemists concerning the rapid changes that many vegetable and other preparations undergo when kept in stock. Indeed, it would be a considerable advantage to both analysts and the public if the former were required to pass the major examination of the Pharmaceutical Society before going in for the more stringent chemical examination of the F.I.C., since a knowledge of the physical and histological character of crude drugs is practically essential to the accurate determination of their purity or otherwise.

It may here be remarked that a fear lest the B.P. might be used as a legal standard seems to have had a deteriorating influence on its construction, having apparently led in some cases, such as those of myrrh and aloes, to a lowering of the limits of purity, so that it is possible for very inferior qualities of the same drug to be sold and still meet the B.P. requirements. Such latitude is deplorable, since it leads to unfair competition and affords no security to the public that they get the article they want when they desire that their medicines—for instance, compound liquorice powder, Gregory's powder, or confection of senna—should be of the best quality and effective action, even if prepared according to the B.P.

AN INTERNATIONAL PHARMACOPŒIA.

A general pharmacopœia that would enable a pharmacist to dispense a prescription with uniformity in any pharmacy on the continent may be regarded as a utopian rather than a practical idea and could only be attained by alphabetically arranging in dictionary form all the formulæ in all the known pharmacopœias. But there can be no reason why an approach towards it should not be made by a congress of medical men and pharmacists, limiting their attention, in the first place, to poisonous preparations only, and in order to avoid international jealousies adopting as a standard the formulæ that approach nearest to decimal proportions. The comparison of different formulæ is rendered a simple matter by the publication of the different strengths of preparations of the various pharmacopœias in Squire's "Companion to the British Pharmacopœia." The next step might be to make uniform the strength of the most generally used preparations that are not poisonous. A really useful International Pharmacopœia cannot be otherwise than a gradual growth.

The introduction of standardisation of the more powerful preparations of the Pharmacopœia and the stringent chemical and microscopical tests now ordered in that work to ascertain the purity of drugs cannot be carried out in any but large businesses where several assistants are kept and where one man can devote his whole time to testing drugs and standardising preparations. Hence the personal

guarantee of the purity of the preparation he supplies is passing out of the hands of the single-handed retail pharmacist.

The increase of knowledge in every branch of medical science has caused the study of pharmacy and pharmacognosy and dispensing to be somewhat neglected and forced them to occupy a comparatively unimportant position in the curriculum of medical study, so that the act of prescribing is in danger of being lost. The medical practitioner—anxious to utilise the most recent improvements in scientific remedies, but with his time fully occupied in visiting patients and diagnosing diseases—consequently indicates what he requires to the pharmacist who readily supplies him with a list of formulæ compiled from the most recent publications or specially devised to meet the wants of the prescriber who accordingly chooses from those put before him the one he considers most suitable. Naturally, these preparations can be more economically prepared on the wholesale scale. The retail pharmacist has little chance of success unless he can conduct his operations on the large scale and many of the more enterprising are therefore turning their businesses into limited liability concerns. Co-operation is a growth of the times, an outcome of competition. Judging from past history it is as unwise and useless to attempt to oppose coöperation as it was for the courtiers of Canute to ask him to forbid the advance of the sea. Coöperation has come to stay and, like a forest fire, can only be met by similar tactics—i.e., by coöperation. The only hope for a livelihood for those who have not much capital is in coöperating with those who possess it—a coöperation of knowledge with business capacity.

With respect to the use of the titles "pharmaceutical chemist" and "chemist and druggist" by companies it is difficult to find any sound objection to this provided all the members of the company are legally qualified to use it; but where they are not, and company laws are utilised to cover incompetent persons who have possibly failed to satisfy the legally-appointed examiners of their competency to dispense medicine, such an illogical and unjust use of the titles should be uncompromisingly opposed by a thoroughly well-organised political resistance to any Bill proposing it. In other words, no company should be allowed to use a legal title for which its members have not the qualification prescribed by law. The logical result of such a concession would be to nullify the Pharmacy Act, since if one man who fails to pass an examination in pharmacy can join with six others to form a limited liability company which can use the titles of "pharmaceutical chemists" or "chemists and druggists," a number of persons would be able to do what the law has expressly stated one man may not do. The injustice that would thus be done to those who have already expended much time and money to obtain the title is so obvious that it can hardly be possible that disinterested and conscientious legislators could support such a provision for disregarding vested interests or could adopt the principle it would involve of making one law to enable persons to evade another.

Another change noticeable during the latter part of the century has been the enormous increase in the public demand for what are known as patent medicines. This may be seen from the amount derived from the sale of medicine stamps, which has increased from £43,692 in 1860 to £266,404 in 1899. The preparations commonly alluded to under this heading consist in reality of at least three different classes. 1. The quack medicine, a preparation advertised to cure everything, or nearly so. 2. Proprietary medicines, such as chlorodyne, liquor opii sedativus, liquor bismuthi, fluid magnesia, pepsin wine, &c., which have some real value as medicinal agents, and have been so much prescribed by medical men that in many cases official imitations have been introduced into the Pharmacopœia. 3. Proprietary articles for domestic use, such as perfumes, hair lotions, peptonised and pancreatised and malted foods, inhalers, court plaster, and skin soap. The articles in the first class are objectionable from every point of view. But proprietary medicines are often the result of the application of chemical knowledge and pharmaceutical skill in advance of the time, and, as such, and as comprising also the personal element, have a value of their own. So long as they are prepared by one person directly interested in the excellence and uniformity of the production they are even more likely to be uniform in character than a B.P. preparation prepared by different operators within the too often wide limits of quality of drugs allowed by the descriptions and tests of that work. Proprietary

articles, as distinct from proprietary medicines, are usually started to meet a public want, and although their sale doubtless depends largely on advertisement, they would soon go out of use, like date coffee, if they had no intrinsic merit of their own. Those articles, therefore, form a part of the chemist's business that is worthy of attention from another point of view than that of retail sale. Whilst the limit of profit is reduced by the competition of stores to a level at which it does not pay the chemist to keep his money lying idle in stock, the obvious remedy is for the chemist not to retail any proprietary articles except his own or those which are protected by the P.A.T.A.¹ Each chemist should manufacture his own specialty, since the manufacturer's profit is certain and can be arranged at a paying rate, whilst that of the distributor is not so in many cases. The stores and large capitalists by buying in very large quantities can alone make these retail sales pay at the present ruinous prices, and the heavier their stock and the more numerous the articles they are compelled by the demands of the public and by advertisements to keep in stock the less profit they will get, until a time arrives when the interest lost on money lying idle in such stock must lead to the raising of prices or to giving up the sales.

The present state of pharmacy is a somewhat anomalous one. As hitherto practised in this country it consists, like the fabulous mermaid, of two incongruous halves. On one side it is a business which to be successful must be carried out on business lines; on the other side it is a profession which should be conducted in accordance with professional principles. But as both are usually carried on in one room the public finds a difficulty in discriminating between them and concludes that the price paid for the dispensing of medicine represents an enormous profit on drugs, instead of being partly a legitimate profit and partly a very small professional fee, no allowance being made for the skill and knowledge bestowed on the preparation of medicine or for the responsibility of insuring accurate dispensing. This is not to be wondered at if the pharmacist himself does not draw the distinction, but carries on both the business and the profession in one and the same room. Patent medicines and packed goods and ready-made preparations which require no skill and entail no responsibility cannot be sold at professional prices, and it should not be a matter of surprise, if such prices are demanded, that business men step in and sell them according to business methods. The two departments must be kept quite distinct if the public is to recognise the professional side of pharmacy. But the public is perhaps beginning to understand that there is such a side, for in cases of serious illness most people prefer to have their medicine dispensed by firms whose reputation as accurate and conscientious dispensers is unquestioned rather than at stores. If the public has not yet learned that there is as much difference in the qualities of drugs as there is in the quality of tea, coffee, and other groceries it is the fault of the druggist for not pointing it out and proving that those who sell cheaply must necessarily buy cheaply, since a business man is not likely to sell the best article at the price of the lowest and try to live by the loss. So long, however, as the Pharmacy Act of 1868 continues in operation it is almost impossible for the pharmacist to divorce his business and his profession. He is faced by the position that the Government requires from the pharmacist, for the safety of the public, an expensive and tedious course of study before he can legally acquire the title of "chemist and druggist" and before he can supply certain scheduled poisons to the public, although he may rarely see a prescription, and other traders can sell other poisons, equally fatal and more frequently used, such as carbolic acid. Those, therefore, who live in districts where the business obtainable partakes more of the nature of that of a general dealer in chemical substances used for technical, agricultural, or horticultural purposes, and involving no personal responsibility, only pass the qualifying examination because they are obliged to do so by law, not because the knowledge of dispensing is of much use to them. This class forms probably at least three-quarters of those engaged in business as chemists and druggists, especially in the more populous centres in the Midlands and North of England. What they most need is a commercial education, instructing them in business methods and modern requirements. This has not hitherto formed part of a pharmacist's education and therefore the importance of the course

of commercial education which has been started in some of our universities, and already forms an optional subject in the Philadelphia College of Pharmacy, cannot be over-estimated—at all events, for those chemists and druggists who have to depend chiefly upon the sale of miscellaneous chemical and other articles rather than on dispensing. The conditions which have hitherto obtained in the retail trade of chemists and druggists have not during the last 50 years been favourable for acquiring a useful knowledge of business methods, and such knowledge has undoubtedly in some cases been sought in a practical form at coöperative stores in the same way that Germans come to this country to learn English methods of business and then use them against us. The stores have, at all events, served a good purpose in tending to cause coöperation among chemists themselves. Coöperation can only be successfully met by coöperation, and when competition has lowered profits to a point at which it is impossible to live the natural reaction is bound to follow in the form of combinations or trusts to keep up the price to a remunerative ratio. This has been manifested already in connexion with the paraffin oil and cotton thread industries and iodine, and the P.A.T.A represents a step in the same direction.

THE FUTURE OF PHARMACY.

The history of the closing century indicates that scientific progress may be expected to be increasingly rapid in the coming one. As each new theory opens up new roads of discovery new trades will follow, or a differentiation of old ones. The pharmacist or dispenser of medicine will probably find enough to do in connexion with new synthetical products, proprietary articles requiring knowledge and skill, and new medical appliances. The chemist and druggist will find that he must keep pace with discoveries in chemistry and the technical uses of new chemicals, and will learn to realise the meaning of Playfair's maxim, that the competition of industries is the competition of intellect.

As the science of sanitation increases, and the laws of health become better known, demands for antiseptics and preservatives of all kinds, both for public and domestic purposes, are certain to increase, and the time may come when liquid air or liquid oxygen will be as commonly sold for sanitary purposes as potassium permanganate is at the present day. The study of animal chemistry, as yet in its infancy, may lead to the preparation of foods that will involve no waste of energy in digestion, and in combining the maximum of nutrition with the minimum of space. The immense importance of such concentrated food for travellers and for armies engaged in districts where transport is difficult may be easily conceived. The investigation of cellulose and protoplasm will probably reveal to chemists the methods by which gum, wax, fats, oil, starch, and even alkaloids and glucosides, are formed by plants, and before another century is over it may be as easy to obtain artificially by chemical means all these important commercial products from sawdust as it is to prepare glucose at present.

The knowledge that bacteria and ferments can produce substances which result in their own destruction will probably be carried out to its logical conclusion, until for all diseases resulting from these causes appropriate antidotes will probably be discovered and kept in stock by the pharmacist, by whom means of preserving them in active condition for a definite time will have to be discovered. The study of the healthy glandular secretions of the human body as remedies in disease will almost certainly lead to a study of the chemical processes by which they are formed, and the attempt to produce them artificially. This, again, may possibly be followed by an investigation of the nervous stimuli under which they are produced in nature, and to the properties of the nerve force which causes the secretion of the various fluids produced by the glandular system for the reparation of bodily waste.

Another and far-reaching object of research may be the scientific investigation of the inter-relationship of mind and body, the possibility of disease being caused and cured through the mind or by the power of the will to control the supply of nervous force to the various organs of the body. Possibly many of the diseases attendant on lowered vitality might thus be successfully combated. A study of the laws regulating the curious phenomena of idiosyncrasy, which is one of the greatest hindrances to the scientifically accurate treatment of disease, may lead to the possibility of preventing it or curing it at an early stage by hypnotic

¹ Proprietary Articles Trade Association.

suggestion or other means. But whatever discoveries the future may have in store the existence of the pharmacist will in any case depend upon the power of accommodating himself to new conditions and his ability to turn to practical account the very latest discoveries in science.

ADDISON'S DISEASE AND LEUCODERMA.

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PHYSICIAN EXTRAORDINARY TO HER MAJESTY THE QUEEN; CONSULTING
PHYSICIAN TO GUY'S HOSPITAL.

IN a lecture lately given at the Medical Graduates' College and Polyclinic by Sir William Gairdner, amongst other subjects said that he wished to say something about the connexion of leucoderma with Addison's disease. He spoke as follows, taking only the points at issue: "Possibly some of you may, and others may not, recollect a very early instance of this association which is of some historical interest. It is in Dr. Addison's famous monograph on Disease of the Suprarenal Capsule. I show you here the book and the plate. It is an evident case of leucoderma which Addison himself at least must have included in the book because he thought it was a case of disease of the suprarenal capsules. But, unfortunately, he had not a post mortem in this particular case. It is curious that Dr. Wilks, writing in Reynolds's 'System of Medicine,' puts his finger on this case and says because it was of a leucodermic order it is not a true case of Addison's disease. In short, he disputes Addison's own view of it. Now a good many years ago I had a case sent to me very late in the disease, when the patient was extremely ill, for an opinion. It was to my mind a case of Addison's disease, with pigmentation, largely of the usual Addisonian type but interspersed with circular and sometimes coalescent patches of vitiligo. That opinion I maintained until the patient's death. A post-mortem examination showed the usual form of disease of the suprarenal capsules. Dr. McCall Anderson, who had seen the case at an early period, had 'spotted' it as a case of leucoderma, but I do not know whether at that time he had made up his mind that there was any sufficient evidence of Addison's disease. However, the case is published in his book." "Not long after this the International Medical Association met in London in 1881 and Dr. Headland Greenhow read a most elaborate paper upon Addison's disease, and you all know how careful Dr. Greenhow was, not only as an observer, but as an almost exhaustive commentator on the literature of a subject. In reference to Addison's disease he may be said to have left almost nothing unnoticed up to the date of his research which is now published in a volume accessible to most of you. At the end of the paper I raised a question and stated briefly the leading facts of the case just referred to which had not at that time been published. I brought forward no theory, but thought the opportunity was a favourable one for ascertaining if anybody else at home or abroad had anything to say on the matter. We got no response. I alluded to the fact of Dr. Wilks having differed from Dr. Addison himself about the significance of leucoderma, as shown in Dr. Addison's own book, and suggested that it was a point requiring to be more carefully dealt with. But there was no information forthcoming and therefore we are bound to assume that no one there present (and it was a large assemblage) had anything to show. I have not seen many cases, but I have seen two or three more or less suggestive of the same thing and I happen to have at this particular time one such case under my care."

I should now like to say something with reference to these remarks of Sir William Gairdner which I think places the subject in a somewhat different position from that in which he sets it forth. I should like to take the opportunity of repudiating altogether the suggestion which some of my friends have made that I had any share in Dr. Addison's work. He was entirely original in his observations and I did no more than that which every pupil does, collect the cases, get the drawings made, and help the publication. This small participation, however, gave me special opportunities for continuing the work. During the next three years several fresh cases came under my notice and then I discovered

how unique the disease was, that the change in the capsules was of one uniform kind, and that the discolouration of the skin also had its special characters. The malady, it may well be surmised, was a constant subject of conversation and I may here state that Dr. Greenhow was a frequent attendant in Dr. Addison's wards and acquired knowledge of Addison's views. I then placed all the new cases together, showed what three years had done in defining our knowledge, and in that paper repudiated the case of vitiligo. Before publication I showed my paper containing this repudiation to Dr. Addison. He returned it without comment, but wished me to publish it.

This paper was published in the Guy's Hospital Reports for 1859. I therein say: "As regards the character of the colour when it occurs the observation of several instances since the publication of the original memoir has shown that very great similarity has existed in all of them both as regards the colour itself and its method of affecting the body by a uniform implication of the whole surface. It is true that a case is represented [in Dr. Addison's work] where the body is covered with patches of colour chequered with white, but here no post-mortem took place to verify the diagnosis, and thus the fact is left as we state, that in the first related cases as well as in all subsequent ones there has existed a uniform discolouration of the whole integument. So remarkable has this been that the body has presented the appearance of a person with dark blood rather than that of a European and therefore the answer which Dr. Addison continually makes to interrogatories respecting the peculiarity of the discolouration is that he regards only those cases as characteristic where the surface of the body is seen to be gradually approaching in colour that of an inhabitant of some southern nation."

After another three years I had collected several new cases and wrote a second paper for the Guy's Hospital Reports for 1862. In this I reiterated my statement as to the uniform character of the disease. I say: "My principal object in bringing the subject before the profession is not only to strengthen the original facts by fresh instances but to point out how Addison had somewhat overstepped his own boundaries by including amongst his own cases some which did not present the true features of the disease and thus I hope, by purging his treatise of these examples, to place this remarkable affection on a much surer basis than it has hitherto had. The disease, indeed, will have more unique and special characters of its own and may be regarded with more justice in the light of a true discovery than Addison himself conceived and even more worthy to be honoured with his name than would a disease having the undefined nature which he himself assigned to it. I may at once admit that this want of definition and precision as to its true pathological character has constituted the great hindrance to the progress of the discovery; the belief of Addison being at the time of the publication of this work that any disease which affected the integrity of the suprarenal capsule would be attended by the remarkable phenomena which he described, and consequently his cases include a variety of morbid conditions of these organs which are clearly not true forms of the disease, and Addison, I believe, was beginning to see the truth of what is now evident that some of the cases which he had published have only stood in the way of the full development of his discovery, for all subsequent observations have shown that, so far from his early conclusions being correct, we have no recorded instance of the affection being connected with cancer, or, indeed, with any other kind of disease of the organ than the one which was found in the genuine cases which he first described, and which all subsequent experience has shown to constitute the true form of the malady. Unfortunately, too, Addison had placed in his work the drawing of a patient of whom no necropsy was made to reveal the true nature of the disease and that illustration has in all probability misled many by giving a false representation of the usual character of the discolouration of the skin.

"If these doubtful cases be eliminated from Addison's list there remain five which constitute a sufficient basis for his conclusions. I might say, also, that these were his early ones and those on which his own opinions were formed; it is therefore to be lamented that in the ardour of a fresh discovery he was led to include cases of which he had no opportunity of proving their genuineness. Fortunately for myself I was well acquainted with all the cases which Dr. Addison describes and have also had the opportunity of examining every subsequent example of it which has occurred in Guy's Hospital as well as seeing and discussing with the late lamented