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Contributors

Laycock, Thomas, 1812-1876.
Royal College of Physicians of London

Publication/Creation

Place of publication not identified : Publisher not identified, [1858]

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**ON THE NEW PHARMACOPŒIA;
WITH SOME PRELIMINARY CONSIDERATIONS ON THE PAST AND
FUTURE CONDITION OF BRITISH PHARMACY.**

*An Introductory Address, delivered at the first Scientific Meeting (Session 1858-59) of the
North British Branch of the Pharmaceutical Society of Great Britain.*

BY T. LAYCOCK, M.D., &c., &c.,

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INDEPENDENTLY of the commercial and merely professional interest which necessarily attaches to a new Pharmacopœia, the forthcoming official text-book of British Pharmacy is associated with considerations of unusual importance. It will be brought out under the authority of the first British Medical Council. Hitherto our Pharmacopœias have been English, Scotch, Irish: this will be national. Nay, since our great and growing colonies look to this country as the source of their science, literature, and laws, so their practitioners and chemists will look to our national Pharmacopœia as a safe guide in their vocations. Nor ought we to forget that our great empire in India is only the more closely bound to us by recent events, and that there, too, British medicine has triumphs to win. Hence the new Pharmacopœia will be, in fact, not so much national as imperial. But I might further add that, as natives of the British colonies and of India come in greater numbers every year to the medical schools of Great Britain, and especially to that of Edinburgh (for one third of my own class at the University is either English or colonial), it is of no little importance to them to have but one official text-book to study in the place of three, while it is of still greater importance that it should be not only as near perfection as it can be made, but universally useful. So that when these gentlemen depart from our schools to exercise their art in their respective spheres of labour, or when our native-born students march with our armies, or migrate with their fellow-countrymen to the remotest bounds of the empire, they may all still bear with them, in its amplest meaning, the classic designation which the Apothecaries' Society of London have taken as their motto from Ovid—

"Opiferaque per orbem dicor."

Knowing the deep interest the Pharmaceutical Society must take in the forthcoming Pharmacopœia, and moved by such considerations regarding it as I have stated, I thought it would be a fitting subject for an introductory address. But before I refer to it more especially, I would premise a few remarks on the past and present position of Pharmacy and its relations to the medical profession in this country. I think it must be acknowledged that the art is a sort of human instinct. If it were not so, it would be hardly the pleasing pursuit some persons find it to be. I was honoured the other day, by being asked my opinion as to the value of a receipt for a hair-wash, which one lady of my acquaintance had sent to another, and I specially noted that the fair Pharmaceutical Chemist said, "I send you this receipt because I imagine you are as fond of messing and experimenting as I am." The "still-room maid" of large domestic establishments in this country derives her official title from the fact that she was the assistant of the lady of the house in her multifarious pharmaceutical duties at a time when the noblest woman in the land had her stores of "simples," "juleps," "waters," "robs," confections, and the like—all sovereign remedies for fevers, coughs, gout, hysterics, &c. And doubtless, when tea and coffee was first introduced, it fell to her department to prepare the decoction and infusion of the new herbs—a business still connected with her duties—besides that of helping the housekeeper to pickle and preserve. In the early period of medicine, when practitioners were few, and Apothecaries only to be found in towns, the still-room was an important part of a nobleman's house. I do not know if the ladies are as yet generally aware from what foetid sources modern chemistry has extracted the sweetest and daintiest odours for their toilette tables, but I rather think the still-room

maid of the last and preceding centuries knew a curious medicinal secret or two of this kind. All flower-water was formerly considered "good against the gout, running gout, rheumatism, stone, stoppage of urine, &c., being very effectual;" and was known as the "*Aqua Arthritica*." Its formula was "cow-dung, gathered in May, adding to it a third of white wine and then distilled," or, "fresh cow-dung and snails with their shells bruised equal parts, mix and distil in a common still." But there is in Bate's Dispensatory, by Salmon (1694), from which I have just quoted, a story of a female Pharmaceutist (who made the all-flower water) so curious, that I shall repeat it to you. "There was a certain woman who, from the most obscure fortune set up for a doctress, and undertook the cure of all diseases with this only remedy, or rather the same worse made; and from the state of a beggar became mistress of more than twenty thousand pounds. This she gave in all distempers and against all diseases; and so happy and successful she was that she cured almost all such who were given over by others for incurable, and it was rare that anything came under hand that miscarried; this was her excellent secret by which she did such wonders in the art of physick:—℞ Fresh cow-dung gathered in the morning, lbxij.; spring or rain water, lbxxx.; mix and digest twenty-four hours, let it settle, and then decant the clear brown tincture. It is, without doubt (continues Salmon), a good thing, and so much the better because of its general tendency, and being constantly used with such an approved success. By reason it is extracted from cow-dung, it has a pretty kind of sweet scent, as if it was perfumed with musk or some other odoriferous thing." So that the medicine was both cheap and pleasant. We may smile at this, but little more than a century has elapsed since Dr. Rutherford, a predecessor of mine in the University—indeed the first teacher of clinical medicine therein—prescribed cow-dung as an external application in cases of rheumatism treated in the infirmary. I have an authentic MS. of his clinical lectures in my library, and I find in the case of Janet McPherson, who had rheumatic fever, Dr. Rutherford remarked:—"I have ordered her a poultice of cow's dung, yn which I know no better medicine to reduce ye parts yt have been so much and so long distended, ye good effects of which I have often experience'd. I will mention to you but two examples of ys medicine's efficacy &c.: ye first was in ye case of David Hayburn, whose knee was much swollen and very stiff, and after trying many medicines without success, he at last regained ye use of his knee by ye use of ys medicine. I dont pretend to say yt ys will cure every disease of ye kind. I am not so sanguine in my expectations as to expect it would, especially if ye seat of ye disease should lay in ye ligaments of ye joynts. You likewise might see ye good effects of ys medicine in another case, a very dismall one; I mean in yt of Ann Gypson's, who had a hard swelling of her ancle," &c. Accordingly, the poultice of cow's dung abated the pain and swellings in Janet's case. Dr. Rutherford might have quoted the experience of the Eastern sages in the use of the remedy, for it is an approved article of the Hindu materia medica, and probably was such for many centuries before Hippocrates. In this country it is still a popular external application with the country folks, and although the still-room maid may have abandoned it as the main ingredient of all-flower water, it is still used by French chemists for the production of esprit des millefleurs. Now, Chemistry and modern experience afford us a clue to the persistent and continued use of this article of the ancient materia medica. I do not suppose it will have a place in the new Pharmacopœia, but phosphate of soda and benzoic acid, which are the essentially medicinal ingredients in medicinal cow's dung, probably will. Both are known to be useful remedies in gouty affections, and in the form of an alkaline lotion to inflamed joints, the phosphate would be useful externally as a sedative. This story of the beggar-doctress reminds me of a more modern instance of female pharmacy. Not long ago there was a celebrated woman in the midland counties, known as "the wise woman of Wing," who cured all diseases. Her practice was so enormous, that a railway company made a station for the convenience of her patients, who nevertheless had to wait for whole days before they could see her. Her "Catholicon" was a preparation of quinine, which was generally prepared in a large brewing-tub—a brew more costly, as to materials at least, than the *Aqua Omnium Florum*.

The old Pharmaceutical Chemists were exceedingly apt to dabble in the practice of physic, somewhat like some of their successors in modern times. Many surgeons also joined pharmacy to surgery and medicine, and hence at last a distinct class of general practitioners sprung up, especially in England, termed apothecaries. The

old apothecary was of course a famous hand at "messaging and experimenting," and long after wholesale Chemists and Druggists were developed, an occasional country Surgeon still gathered simples and made his own extracts, and distilled "waters." A medical practitioner, with whom I am most intimately acquainted, was articled about thirty years ago, for special reasons, to two country surgeons (father and son), practising in a rich agricultural district in the north of England. The wife and mother of the house was something more than a sleeping partner in the firm, for she was not only a notable hand at distilling and making extracts, ointments, and plasters, but she knew the virtues of (and prescribed "in the absence of principals") *sal polychrest*, *hiera picra*, *pilulæ cocciæ*, the yellow basilicon, *pulvis basilicus*, *paregoric*, *balsam of luccatelli*; all which, with not a few of a like era, were on the shelves of the surgery or shop in the back yard. The practitioner to which I refer has a pleasant reminiscence of his excursions as a student for simples, and of the "messaging and experimenting" which followed; varied in winter with a day of fly and tackle-making, for the coming fly-fishing season, or a stolen gallop after the hounds. He could even now go direct to the shady lane, where he cut down the dark-green belladonna, or to the hedge-row, where towered the dark-spotted stem of the hemlock, with its bright sap-green leaves; or to the heathery upland, where the elegant foxglove waved in the breeze, or to the sunny, stony bank, covered with the hairy-looking dingy henbane; or to the wide pasture, studded with patches of ragged-looking *colchicum* leaves, which the numerous cattle had carefully left untouched. Then, in spring, there was the warm bank, where he gathered the violets from which he made his syrup of violets (for, in the country, oil of almonds and syrup of violets are popular baby-stuff); and in summer, the corn-fields, brilliant with red poppies, fit for making the syrup. Nor did he forget to gather rose-leaves and elder-flowers, and pennyroyal, and distil and bottle the waters thereof. Dried powder, extracts, tinctures, distilled waters, were all thus duly made at home. There was *digitalis* powder, I know, of a perfect green colour, and extract of hemlock as redolent of mice as Battley's prepared *in vacuo*. The only "messaging and experimenting" which failed, was an attempt to convert juice of white currant into prime champagne, by first removing from it the citric acid. Whether any one has since carried out this brilliant idea, I don't know, but at the time I allude to, it was thought by the projector that failure was only due to the fact, that a lady-assistant attracted the attention of the young operator too much at a delicate stage of the process. Of course, I am not at liberty to mention names and places, but you may rely upon the facts being as authentic as mere memory can make them; and I may add, that since one of the most distinguished of my predecessors in the chair of the Practice of Physic was, at the outset of his career, a country surgeon and apothecary, I am not ashamed to confess, in presence of Professor Cullen's pestle and mortar, which is placed before you, that my own early experience, as a medical student, was exactly like that of the medical practitioner to whom I have referred. And I venture to think, if your excellent President or Secretary, or Messrs. Duncan, Flockhart, and Co., would give me a month's trial, they would find me to be a useful assistant.

The connexion of medicine with surgery and pharmacy has been a fertile subject of discussion and discord in the profession. The old grand academic physicians looked down upon both with contempt, and sedulously excluded practitioners of midwifery, surgery, and pharmacy from their society. The surgeons and apothecaries, on their side, were by no means reluctant to engage in controversy, and stand up for their rights. Hence the annals of our Colleges are full of details as to the struggles for privilege and monopoly which were made on both sides. The two Royal Colleges of Physicians of London and Edinburgh were, from an early period, the exponents of exclusive views, and not only solemnly required their fellows to abstain from surgery, midwifery, and pharmacy, but refused to admit any to their fellowship who had, at any time, practised them. Those practitioners, however, whose early training (as in Cullen's case) had brought them into immediate contact with the people at large, and more especially in thinly populated districts, knew well that such severance was impossible, and that if the attempt were rigorously carried out, could only end in the practice of physicians being restricted to the wealthy class, and to towns, while men of inferior education and literary attainments would necessarily become the physicians of the great body of the people. Such, in fact, was, in England, the final development of their principles, when, in 1815, the College of Physicians of London surrendered to the Society of Apothecaries of

London the educational control of the entire body of General Practitioners in England—men who are virtually the physicians of the English people. In Scotland, the opposite result took place. Cullen, and the first Munro, joined the College of Physicians of Edinburgh in 1756, and, in a few years after, united with Drs. Thomas Young, Ramsay, John Gregory, Joseph Black, and James Hay, in an opposition to the exclusive regulations of the College. The contest was carried on, for many successive years, with varying and alternate success, until, in 1788 (when Dr. Hay was President), the liberal party was finally victorious; and, on the proposition of Dr. Cullen, the late learned and accomplished Dr. Charles Stuart, who hitherto had been debarred admission by the operation of the exclusive law, was admitted a Fellow. Since this date, no restrictions have been placed on the practice of the Edinburgh Fellows.*

Perhaps it is to this step more than to any other that we owe the high development of pharmaceutical science, and that general separation of it from the practice of medicine in Edinburgh, which the advocates of the exclusive laws referred to, really so much desired. For, by breaking down the wholly conventional line of demarcation which was drawn between the practice of physic and of surgery and midwifery, the physicians became dangerous rivals of the surgeon-apothecaries for the general practice amongst the middle classes, and the latter were thus gradually led to assimilate themselves more closely to the physicians in titles, education, and mode of business, and more especially to dispense with the shop as apothecaries. Thus it has happened that in Edinburgh, not only is pharmacy separated from practice, to the great advantage of pharmaceutical science, but the standard of education and the social position of the general practitioner has been also raised.

Looking at the probable working of the new medical bill, I confidently hope that a change equally advantageous to pharmaceutical science and to the medical profession will take place rapidly in England. The recent enactment places our Scottish graduates in such a position, that henceforth they may legally practise any or all the departments of practice in which they are educated. It may be true that without the apothecaries' licence they cannot charge for the mere drugs supplied to patients; but as they can recover reasonable charges for attendance on those to whom the drugs are supplied, this is not a heavy grievance; indeed, perhaps it would be rather advantageous than otherwise, for such disqualification would only hasten the extinction of the race of apothecaries, and develop a more able class of physician-surgeons, who will look to the chemist to supply his medicinal agents in the mode most convenient and advantageous both to patient and practitioner. Further, it is said that the College of Physicians of London is at last being actuated by the same liberal principles which were introduced into the Edinburgh College a century ago by Cullen and the first Munro. If this be the fact, and those principles take effect as they ought, it cannot be doubted that the influence on Pharmaceutical Chemistry will be great. For the College of Physicians has powers over England (perhaps throughout the empire) possessed by no other medical corporation, and may, if it wields them in a liberal spirit and with a wise vigour, both rival the Colleges of Surgeons, and draw to itself all the influence of the Society of Apothecaries, and so replace it as the centre and life of the great body of physician-surgeons of England. That would be a remarkable turn in medical politics, for under such circumstances the Society of Apothecaries of London and your own Pharmaceutical Society would soon be in a position to amalgamate, and thus Pharmaceutical science itself would receive a new and vigorous development.

In thus predicting and hoping for the separation of practical pharmacy from medical art, and a return to the unity of medicine, I would wish to be clearly understood as in no degree disparaging the dignity of pharmacy or the value of pharmaceutical knowledge to the practitioner. On the contrary, I hold that that knowledge is a most essential element of medical art, and that no physician is complete without it. It is his lot to be *opifer per orbem*, a truly catholic and universal helper, and although in a large town he may indulge in all the appliances and means which a division of labour supplies, he should nevertheless be qualified to act as herbalist, chemist, cupper, nurse, and doctor at once. His duties may unavoidably be those of the Man of Ross:—

* Address delivered at the opening of the New Hall of the Royal College of Physicians of Edinburgh, Nov. 27th, 1846, by William Beilby, M.D., President.

"Is any sick? The Man of Ross relieves,
Prescribes, attends, the medicine makes and gives."

Nay, I am not sure whether this completeness of knowledge does not give dignity and grandeur to the professional character, by implanting a manly feeling of independence. Thus armed at all points, the practitioner has a mind unfettered by conventionalities, and a heart for every fate. And certainly, it may be observed that, while those gentlemen, whose hands were never soiled by petty surgery and pharmacy—who, like Shakspeare's fop, object to "slovenly unhandsome corses" and "villainous saltpetre"—are the least successful in practice, they are often the most restrictive and retrograde in their views of medical polity. On the other hand, pestle-and-mortar men, like Cullen and Joseph Black, have made themselves known in the world by a large success, and have persistently advocated medico-political principles and changes, the good effects of which we can clearly recognize in our own time in a greater development of all branches of medical art, and in a more cordial union amongst those who practise them. And this credit is due also to the Apothecaries' Society of London. I am therefore quite prepared to maintain, on the substantial grounds of a well-tryed experience, that practical pharmacy ought to be an essential element in the education of the medical practitioner, and that the practice of it by him, wherever the state of society calls for it, is worthy his position as a professional man, and ought only to add to his dignity by so much as it increases his usefulness.

I must, however, further remark, that this change in the pharmaceutical position of the profession will be all the more beneficial and extensive in proportion as the Pharmaceutical Chemists conscientiously restrict themselves to the duties for which they are fitted, and seek not to perform those for which they are unfitted. I say conscientiously, for I believe no parliamentary enactment can restrain the Chemist and Druggist from engaging in the practice of medicine, surgery, and midwifery if he think fit to evade the law. But I would appeal to the judgment of all of you, whether there is not a great depth of moral turpitude in that man who ignorantly, and for the sake of mere gain, presumes to tamper with the health, the ease, and even the life of those who come to him for temporary relief? Pharmaceutical chemistry is a department of medicine, not medicine a branch of pharmaceutical chemistry. If a Chemist desires to treat disease as a vocation, let him pursue the necessary studies and have his knowledge tested by the appointed examiners. These duties completed, he may be honestly and lawfully a medical practitioner, and in an open shop if he pleases. And I don't know why as such he may not honourably and usefully administer to the wants of that large class of the numerous poor in our large towns, or in thickly populated districts, who can afford to pay a few pence only and no more, for advice and medicine.

Of course, the Pharmaceutical Chemist cannot be expected to sink his duties as a man in the conventional restrictions which a division of labour imposes. Cases of urgency may occur in which he may help a suffering fellow-creature on the spur of the moment; but there is a marked difference between such medical aid which need only be temporary, and the continued treatment of the case as the medical adviser. A sense of honour ought always to forbid the latter course.

We will now examine a few questions relative to the forthcoming Pharmacopœia. And first, with reference to the form, let us ask in what language should it be written? My vote is for our own English tongue, except as to the formulæ and names. It can be translated into Latin, as it can, and will be translated into French and Hindustanee; but I cannot conceive any sufficient reason for the continued use of a dead language when our own is as copious as the Latin, and even now is spoken over a larger space of the world's surface than ever the Roman speech was heard. If this be so now, how much more widely will it be a vehicle of thought when our colonies have grown up into populous empires?

2. It would be well, however, with a view to uniformity of pronunciation everywhere, if a key to the proper sound of the technical words used were added to the Pharmacopœia. Curiously enough, this is no new thing in Pharmacy. In 1688, James Shipton, a London apothecary, published in Latin the famous *Pharmacopœia Bateana*, to which he added an "*Orthotonia Medicorum*," or correct method of pronouncing words usually, from ignorance or bad habits, wrongly pronounced by the apothecaries. I am satisfied every Pharmaceutical Chemist, whether at home, or in

the colonies, or in the United States, would hail such an addition to the Pharmacopœia as a great boon.

It is a curious fact that some of the modes of pronunciation thought vulgar at the present day are in truth quite correct, and the supposed correct method is a corruption. Thus we speak and write of *senna*, but the old country surgeon to whom I referred always spoke of *sēna*. This is also the popular pronunciation. Now Rhases, Actuarius, and others of the same era, wrote the word *sene*. Old James Shipton seems to have thought it unnecessary to give the orthotony of the word in his list, but he gives the spelling with one *n* in an example to one of his rules, "*Sena Alexandrina, Manna Calabrīna*," as if the *e* were long.

3. The forthcoming Pharmacopœia should be published officially, in a handy size, at the lowest possible price. The demand will certainly be large, and a quick sale may be relied on. Hence, after paying those gentlemen handsomely to whom the editorial duty may be entrusted (as they surely ought to be), it will be possible to sell the work at a low price in editions on good paper, and on inferior paper at prices that would defy competition, even in the United States.

4. Next, with reference to the plan. It is plain that uniformity of weight and measure and strength is a primary object. I presume, therefore, that no change will be made in those particulars as to which uniformity exists. We shall still use the imperial wine pint, with its subdivisions, and the traditional apothecaries' weight; and if preparations which it is resolved to retain are of a uniform strength and composition in the three Pharmacopœias, it is to be hoped that no mere love of change will lead the compilers to alter the composition or mode of preparation of those. I rather think, however, that the great difficulty will be found in the selection and arrangement or classification of the *materia medica*, and the compounds thereof. A Pharmacopœia necessarily reflects the existing state of opinion and knowledge; and as these vary from time to time according to various circumstances, a comparison of the past with the present opinions will indicate the changes which have taken place, and consequently the changes that will probably be found in the new Pharmacopœia. I shall not attempt this comparison on the present occasion, but content myself with indicating one or two leading points that require attention.

1. The use of articles of the *materia medica* varies according to caprice, accidental circumstances, or "fashion," as it has been termed. Now experience shows very amply that this cause of variation has caused drugs of the highest therapeutic value to be disused. The *Hyoscyamus Niger* was most probably naturalized in this country (as my learned friend, Dr. Adams, of Banchory, thinks) by the Romans, a proof of the estimate they put upon it as a medicinal agent. The *Hyoscyamus Albus* has been a valued remedy since, if not before, the age of Hippocrates. Yet Dr. Adams says* "that about 100 years ago, the henbane had wholly disappeared from the dispensatory. Thus Quincy does not treat of it at all, and Lewis represents it as a medicine which had been deservedly expelled from practice." The pharmaceutical history of antimony is curious in this respect. In 1566 the Supreme Council of Paris forbid its use, and Bernier was expelled the faculty of medicine, in 1609, for having administered it to a patient. In 1650 a new law repealed that of 1566, and antimony was restored to favour; while in 1720, the French Government actually purchased from a pupil of Glauber's, named La Legerie, the secret of an antimonial preparation, called *Panacea Glauberiana*, afterwards known as the *Kermes mineral*. Mercury, so important a drug in modern practice, in ancient times was "scarcely used for medical purposes," says P. Ægineta, "being deleterious." In more recent times, *Cinchona* bark offers a well-known and very remarkable illustration of the changes in the use of drugs, caused by prejudices and caprice. Thirty years ago the use of oil of cod-liver would have been classed with such remedies as a fox's lung or viper's fat. When, returning from Germany about twenty years ago, I introduced this article into practice (chiefly in cases of chronic rheumatic gout, in which it is a valuable remedy), I had to direct the patient how to get the oil from cods' livers, which were obtained direct from the fishing-boats at Scarborough. There was no oil fit to use medicinally, to be got from the shops. Yet it is a popular remedy, of great traditional antiquity, and I need not say is sure to have a place in the new Pharmacopœia.

2. The mode of administering remedies has changed so much, that the old plan of

* Translation of *Paulus Ægin.*, vol. iii., p. 387.

endermic medication is almost wholly excluded from the Pharmacopœia. We have a few liniments, ointments, cataplasms, and clysters left; but they are more like fossils of the old "Compound Externals," than anything else. Yet there was hardly an object to be attained by the internal administration of drugs, which the ancients did not aim at by their external application; and succeeded in, too, with much advantage to the overworked stomach of the patient. A hip-bath of oil, albeit oil of the fox, was not improbably found to be sometimes as useful to arthritic patients, as P. Ægineta states—namely, that if they are put into it for a considerable time, it removes the complaint entirely. Not wishing to load the intestines with irritant drugs, in a case of stricture of the rectum, under my care, I tried a purgative cataplasm or epithem to the abdomen (or navel), like that recommended by this writer, and it answered remarkably well. I have applied castor oil to the abdomen with similar results, in cases in which the slightest excess in its operation would have been dangerously debilitating. I can confirm the experience of Professor Trousseau and others, as to the diuretic activity of squill and digitalis, applied in like manner. The external application of quinine, opium, arsenic, &c., is well known and valued. Why, then, should we not have a class of epithems?

In this respect the modern practitioner has a great advantage over those of past times in the gutta-percha tissue. I was, I believe, one of the first to introduce its use into practice nearly twenty years ago, for the purposes of endermic medication, for which it is much better fitted than oiled silk, from the simple circumstance that it resists the action of many chemical remedies. Thus I have by its means applied iodide and bromide of potassium and chloride of sodium endermically to bronchocèles, to enlarged strumous glands, and even to the scalp in cases of strumous idiocy, with both comfort to the patient and marked success in the treatment. Amongst endermic remedies I hardly think that suppositories and clysters will be neglected, but the class of tents are entitled to a re-consideration as means of endermic medication. The old *turundæ acousticæ* are ear-tents for this purpose of a more artistic construction than a twist of cotton-wool. And perhaps even the "amulet against pestilences" had a virtue in them as endermic medicants in addition to their psychological influence as antidotes to depressing fears. The febrifuge powers of arsenic are well known when used as a remedy, but its fumes also are antidotal, for in Cornwall the arsenical fumes from the mines are said to "kill" all the fevers in malarious unhealthy districts. But arsenic was probably applied endermically in the form of vapour in these amulets, and thus had an influence in counteracting the action of the miasmata which is strongly predisposed to attacks of pestilential fevers. I give you the formula from Salmon's edition of Shipton's Bates "*R Auripigment (orpiment) ʒiiss., angelica roots ʒvj., mucilage of gum tragacanth q.s., mix and make a paste, of which make amulets, No. xij. of a globe-like form, which roll up in silk and hang against the region of the heart.*" These amulets are said to have produced deleterious effects when worn for the purpose specified. Crato observed an ulcer of the breast, and Vernascha violent pains and syncope to follow their use.* Old Salmon says, "Paracelsus, Crollius, Hartman, and others, are of opinion that there is a mighty force and virtue in such like *amulets*, made to defend against the infection of the plague. I will not say much to the matter, but leave every one to use their own freedom. However, this, I will say, that if my own life lay at stake, I should rather trust to some known and approved inward specifick antidote, than to all the force of amulets in the world. Tho' if the philosophick reason of the thing be considered and enquired into, there may be much more in it than many are aware of." Between 1694 and 1858 we have advanced to a "philosophick reason of the thing," and think the arsenic, being slowly vaporized by the heat of the body, is absorbed by the skin, and so acts, as well as the inward specific antidotes or febrifuges, quinine or arseniate of potass—for arsenic may be absorbed in poisonous doses by the unbroken skin. Let us turn to another circumstance influencing the selection of remedies.

3. The ancients used, what we consider, very nauseous and disgusting remedies, and we have, therefore, neglected them; but they had their reasons: the main one being, probably, that beneficial effects resulted from their use. We have seen that one of this class of remedies (cow-dung) actually contains valuable drugs. I believe this will be found true of other remedies drawn from the animal kingdom. The Hindu

* Paris's *Pharmacologia*, 7th edition, vol. ii., p. 100.

physicians give the ashes of bones, mixed with other medicines, in nervous diseases, and in those of children;* that is, the salts of lime. Now, it is only lately that these salts have been introduced into practice in this country for similar diseases. Amongst the "quiddonies" in Bate's Pharmacopœia is a "gelatina corroborans," formerly prescribed in cases of phthisis. It is made from sheep and calves' feet, a sea-horse pizzle, the raspings of ivory and of hartshorn, together with roots of satyrion, ladies' mantle, and daisies; a curious compound to modern eyes, but really offering an excellent mode of administering the animal salts of lime in cases of tuberculosis. Another formula of this kind—a "cordial for consumptions"—is so elegant and pleasant that, with a slight modification, it might well have a place in the new Pharmacopœia. \mathcal{R} Ivory, \mathfrak{z} iss.; crab's eyes, prepared pearl, of each, \mathfrak{z} j.; oil of cinnamon, gtt. vii.; treble refined sugar, dissolved in red rose-water, \mathfrak{z} xvj.; mix and boil S. A. Dose \mathfrak{z} ss. to \mathfrak{z} j., either alone, or in any proper vehicle, three or four times a day. Here, again, we have the animal salts of lime, which modern experience has shown, after long neglect of them, to be efficacious tonics and alteratives in struma, phthisis, strumous dyspepsia, infantile debility, and the like. I could mention a whole series of remedies of this class, amongst the most famous of those included in the old Pharmacopœias and Dispensatories, and which have fallen into unmerited neglect from the disgusting ideas associated with them, or from mere caprice. Thus the incontinence of urine observed in delicate children was treated by a *diatrachia* made up of raspings of ivory and tooth of sea-horse, and windpipes of sheep and capons. The ancient much-valued bezoar is a remedy into the composition of which the ammoniaco-magnesian phosphates largely entered, and these, perhaps, might be usefully administered when animal salts of lime are indicated. The *Bezoar animale* was an artificial substitute, made of calcined hartshorn. To this class belong Lemnian earth, cuttle-fish bones, bone of a stag's heart, snails in their shells, red coral, crabs' claws, lapis manati, elks' hoofs, vipers' skins, and human bones. King Charles II. paid one Goddard £1500 for the receipt of a preparation (ammoniacal in its nature) obtained from human bones; and Salmon says he had made a long series of experiments with them. Man's bones calcined and added to hermodactyls (or colchicum), senna, scammony, and turbeth, made a powder "good against the scurvy, dropsy, jaundice, and king's evil." Sponge dried and powdered was the basis of the "*Pulvis ad Struma*," a powder against struma. The practitioner to whom I have referred diligently dispensed boluses of burnt sponge for bronchocele long before iodine and bromine were discovered; and in the Pampas of South America, where goitre is prevalent, the remedy—a so-called goitre-stick—is nothing more than the thick stem of a sea-weed. Now in all these instances (and they are only a few of the many I could mention), we, who have the advantage of all that wonderful knowledge which modern chemistry supplies, can readily recognize an efficient medicinal agent, independently of the disgust or superstition connected with the preparation, and can see that if they were rejected on the ground that they were simply fanciful, disgusting, or superstitious, a class of useful remedies would be lost.

4. But what rule is to be followed in the selection of articles of the *materia medica*? Now I am inclined to think that the time has come for a change in the method hitherto followed, and which has consisted simply in adopting popular new remedies, and omitting those which caprice, or fashion, or new rivals have caused to be neglected. I think it is now possible to generalize the accumulated experience of times immemorial, and establish a philosophical analysis and classification of medicinal agents, so as to afford greater choice to the practitioner. With every successive edition of the Pharmacopœia the number of officinal drugs and preparations has diminished; and if we were to limit the list in the new edition to those most in use, we might reduce the number still more. Mr. Mackay has had the goodness to analyze some prescriptions for me. He has noted the preparations that enter into a prescription for a mixture, pill, powder, lotion, and ointment, made up in each week of the 52, or 260 in all. I find, on an analysis of his statistics, that 200 preparations were used in the dispensing of these, of which 12 were used from 28 to 14 times, 89 from 12 to 6 times, 74 from 5 times to twice, and 25 once only. Of individual drugs, I find that mercury was prescribed in one form or another 101 times, opiates 93, chalybeates 73, cinchona, quinine, and its salts 49, rhubarb 48, iodine 41, aloes

* Dr. Wise's *Commentary on the Hindu System of Medicine*, p. 117.

34, zinc 32 times. These represent the most popular articles of the Pharmacopœia, and show what a reduction is possible. That this reduction of the materia medica is not approved in reality by the public or profession, is shown by the fact that every new Pharmacopœia is followed by its "Supplement," and by a "Dispensatory," in which discarded or unrecognized articles of the materia medica find their place. But why not make the new Pharmacopœia a philosophical Dispensatory also, so that at least the Supplement may be dispensed with? I think, in consideration of the fact that it will be used in every clime, and wherever British science, language, and laws have penetrated, it should contain the materia medica so arranged as to constitute a universally useful volume, and be as complete in itself as the present state of our knowledge permits. And this I think might be done, or attempted, by a new examination and arrangement of all known medicinal agents and compounds, according to well-established general principles of therapeutics and combination—such as, for example, might be done with the salts of lime in the instances just referred to. In this way the soil and fauna of each country and climate would supply their own indigenous remedies; and thus their virtues would be better known and estimated, while, at the same time, a higher value and a greater importance would be given to the interchange of remedies between countries geographically distant. I have in my eye, in especial, the future condition of our empire in India, as regards materia medica and pharmacy. British medical science will have a powerful influence on India, being now taught there in native medical colleges to intelligent natives. These men not only read English well, but write it so correctly, that it is occasionally difficult to detect a foreign idiom. Now the native Hindustanee pharmacy is in much the same condition as our own was 150 years ago, both as regards the materia medica and the pharmaceutical processes—that is, it contains a large number of useful remedies, superstitiously, cumbrously, and ignorantly prepared. But the sort of analysis and classification to which I allude would render the work of reform and progress much easier, by grafting it on the native materials and doctrines. It is remarkable to observe the unanimity of opinion between the East and the West, the ancient and the modern, as to the virtues of certain drugs. Take arsenic for an example. The Hindu physicians consider the yellow orpiment as a very valuable medicine in fever and in black leprosy. They say it also improves the complexion; and this reminds us of the recent controversy as to the Styrian arseniceaters. We know how useful a remedy it is, in like cases, in modern Europe. I would not, however, have you limit your consideration of the future spread of British pharmaceutical chemistry and materia medica to India. We have had a medical student from China here, a graduate of our University. British medical science, we know, is gradually taking root in China, and ere long we may expect intelligent Chinese to come to Europe in greater numbers for the purpose of scientific study. Now I think we ought to pave their way to us by examining and analyzing Chinese materia medica and pharmacy, in the same way as I suggest we should do for Hindu medicine. These remarks, I need hardly add, apply with even greater force to the Japanese—if recent reports as to that people be correct—who seem to be fully ripe for the reception of all European knowledge. Nor should we wholly forget that Africa as well as Asia has a future in store for her; and I may add that an intelligent native from the West Coast of Africa, who speaks English remarkably well, is at present a member of my class in the University.

5. There is one other point I would suggest for consideration by those to whom the compilation of the new Pharmacopœia will be entrusted, and that is the propriety of supplying the public with officinal formulæ for popular use. I am well convinced that it is a question requiring the greatest caution in its discussion and solution, and I know it would not be difficult to adduce strong arguments against any such step. Nevertheless, I think the balance of argument would be determined in its favour by the sound, simple rule of policy—of two evils take the least. There always has been, and I think no one will deny there always will be, a demand for popular remedies. Every man and woman of intelligence ought, in fact, to know so much of medical art as to be able to render medical aid in cases both of a simple character and of emergency. In the former, because no sensible person likes to be always running to or for a "doctor;" in the other, because medical aid is not always at hand. Then there is the instinct for medication active in most men, and so active in some, that the practice of medicine is followed by them with much the same feelings of pleasure as the study of botany, geology, and the like, by others. In short, the

people always have had popular medicines, and always will have; and if remedies be not supplied to them officially and with the stamp of medical authority, they will buy drugs from the quack with the Government stamp.

Now popular medicines have supplied the Pharmacopœia with its best compounds; it is a fact, too, that these are the drugs and combinations of drugs which most especially have withstood every vicissitude of political and scientific change. I will mention aloes and its compounds as an illustration of this kind. There is hardly a "family pill," or "antibilious pill," or "stomachic" remedy which is devoid of aloes, while in the most popular official compounds of the Pharmacopœia it is one of the most active ingredients. Now, probably, the use of this drug is of the remotest antiquity, not only internally and for the same purposes as those for which we use it now, but in a mode almost altogether if not wholly lost—namely, externally. It was formerly used as an application to abscesses, ulcers, and ill-conditioned sores. Celsus prescribes it as an eye-wash, and it is used in India for this purpose at the present day. One of the most ancient formulæ for its internal use is the compound powder termed *hiera picra*—the holy or sacred bitter—an *Æsculapian*, or temple formula. That named after Galen contained, besides yellow aloes, various aperient, aromatic, and bitter ingredients, to the number of eleven—such as cinnamon, cardamoms, crocus, cassia fistula, mastich, asarum, wormwood. It is a remedy well known, even to the poorest people, who term it *hikery pikery*, or *hickerry pickerry*. In the Edinburgh Pharmacopœia, it is the "*species hiera picra*" of Galen, but the formula is simplified, so that besides aloes, there are only cinnamon, asarum, crocus, spikenard, and mastich. In the London Pharmacopœia of 1746, the number of ingredients was still further lessened, and although it still retained its ancient name, it was reduced to the compound subsequently known in more modern Pharmacopœias as the *pulvis aloes cum canella*; the ingredients being aloes and canella only. It may be doubted, however, whether this simplicity of composition was an improvement; for, although a strong advocate for simplicity in extemporaneous prescriptions, I am by no means certain that we should follow the same rule in these officinal compounds, and I really think that the original *hiera picra* of Galen was a much more useful formula than its modern descendant, the simple aloes and canella. I need only refer to the crocus and the wormwood as powerful adjuvants. But this same aloes appeared in another form, with very similar accompaniments, viz., the *tinctura sacra*—the parent of our *tinct. aloes comp.*, and with the same uses. We also have it in the once popular *decoct. aloes comp.*, the *pil. aloes cum myrrha*, the *pil. coccia*, the *pil. rhei comp.*, &c. Now, in the face of all these facts, I think it is worthy consideration (and I insist on no more than this), whether a drug so established in both popular and professional esteem might not in some of its compounds—as the *hiera picra*—have the honour of being raised to an officinal popular remedy? I am pretty sure that the sale of such a compound would be considerable, and would interfere beneficially with the sale of quack compounds containing nothing else than aloes and its established adjuvants, but sold at the cost of a profusion of falsehoods and systematic frauds.

6. I referred incidentally to the simplification of these old popular formulæ, and questioned its propriety. Amongst the most ancient and most valued of these were the *Mithridate*, or *Mithridatum Damocratis*, the *Theriaca Andromachi*, the *Dioscordium*, the *Philonium Romanum*, and others. There is a principle observable in the composition of these, which we find operative in nature in the constitution of mineral waters, and even in living organisms—namely, the multiplication of small doses of numerous ingredients that are similar, albeit not identical in character and virtue. Now the tenacity with which these remedies, in some form or other, have held their ground, is a proof, I think, that the principle of complex medicinal compounds is not altogether to be neglected. Take the *Philonium* as an example. It derives its name from Herrennius Philo, a native of Tarsus, who flourished about the third century before Christ. It underwent various modifications in successive Pharmacopœias, but it is still an officinal compound, in the simplified form of *Confectio Opilii*; now, it is true, almost dropped out of use, but simply because an improved chemistry has given us the various salts and preparations of morphia. Would it not be well, nevertheless, to reconsider such a formula, as well as others, and see whether modern chemistry could not supply the really essential ingredients of these multifarious compounds, in a form more adapted to modern requirements, and thus restore to use some very valuable remedies? I may

add, that I am by no means singular in these opinions—the late Dr. Paris and others have mooted them.

7. What will be done as to the selection of *new* popular compounds of this class? For example, we know what modern chemistry has done for us in supplying aërated and factitious mineral waters: will these find a place amongst our officinal compounds? But I could multiply questions like these to an almost indefinite extent; and I must now conclude with the remark, that in this address I have only attempted to suggest some of the future bearings of pharmaceutical science, and to hint at a few of the problems which the compilers of the forthcoming Imperial Pharmacopœia will have to consider; with perhaps a hint, too, of the criticism which awaits their completed work—and which every successive Pharmacopœia, I may add, has had to encounter.
