

NEW DRUGS INTRODUCED DURING THE LAST FIFTY YEARS.*

BY E. M. HOLMES.¹

Mr. Clyde L. Eddy, Secretary of the Section on Historical Pharmacy of the American Pharmaceutical Association, has asked me to contribute any historical facts in connection with new drugs with which my experience as Curator may have brought me into contact.

Any such notes that I may be able to contribute will naturally be botanical and personal rather than commercial.

Mr. Eddy has mentioned a few, concerning the history of whose introduction some points might be of interest, *viz*: Coca, Jaborandi, and Strophanthus. If to these I add Chrysarobin and Chaulmugra, I hope that I may throw a little light on their introduction.

COCA.

At the time that *Pharmacographia* was published in 1878, Coca leaves had not come into use, for no mention is made in it of the drug, although it was known that 40,000,000 pounds of the leaves were produced annually and used throughout Peru and Bolivia, in Europe the extraordinary properties of the leaves were treated rather as a traveller's tale, and it was only about the year 1876 that it attracted serious notice—when Professor Christison's experiments directed attention to the fact that it did possess the power of exciting and sustaining the vital functions, at the same time that it possessed an anaesthetic action which lessened the sense of fatigue and hunger. Weston, who was a celebrated pedestrian about that period, did not find that he derived the stimulant action from chewing the leaves that Christison described, and which were universally attributed to it in Peru and Bolivia. The fact appeared to have been lost sight of that a crystalline alkaloid had been obtained from the leaves by Gaedeke in 1855, which he named erythroxyline, which was further examined in 1860 by A. Niemann, and by W. Lossen in 1865, the name being then changed to Cocaine, also the fact that it produced a transient numbness when placed upon the tongue. But I felt sure that if the alkaloid could be obtained in sufficient quantity for physiological experiments, there would be the possibility of proving whether the plant possessed the properties attributed to it. I asked Mr. Walter Hills, of the firm of J. Bell & Co., if he would prepare from some leaves I supplied to him some of the alkaloid which I would have tested physiologically at one of our Universities. He found, however, that so small a percentage of the alkaloid was obtainable that he was discouraged and would not waste more time in preparing it. Not long afterwards the anaesthetic action of cocaine was published in Austria.

It was not known at that time that two varieties of this plant were in cultivation, one of which contained another alkaloid, nor was it known that the leaves rapidly lost their properties and their percentage of alkaloid when exposed to a sea voyage, or even to a damp atmosphere. Practically all that was known about it was that "*Coca fresca*" was always used, and that it was chewed by the natives with a small dusting of alkaline ash called "*Lipta*," but the effect of this in producing the invigorating symptoms was not determined.

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But when cocaine came into demand as an anaesthetic, cases of poisoning were not infrequent, until Paul and Cownley pointed out the means of obtaining pure cocaine free from isotropyl-cocaine, the second alkaloid found in the Truxillo leaves. On the commercial side it was found to be more economical to have the cocaine extracted in the crude state in Peru and have it purified in Europe, and when pure cocaine was obtained free from isotropyl-cocaine the danger attending its employment disappeared and confidence in its use as a local anaesthetic returned. Its use by the public has during the last few years developed into a craving which has produced most serious results.

But it is remarkable that the beneficial results accruing from the chewing of the fresh leaves under native conditions have not been traced to their source, whether due to benzoyl-ecgonine or ecgonine alone, produced by decomposition of the cocaine by the alkaline ash chewed with it. The difference ultimately pointed out by botanists between the Truxillo and Bolivian coca plants has, however, led to the galenical preparations being usually made from the Bolivian kind, the Truxillo kind, cultivated chiefly in Java, but also in Ceylon, is mostly reserved for the preparation of alkaloid, since it was found that by reducing all the alkaloids of coca to ecgonine, the cocaine could be built up synthetically from the alkaloid.

STROPHANTHUS.

The history of the use of *Strophanthus* seed is an interesting one. Dr. Livingstone had told Sir John (then Dr.) Kirk that the natives used an arrow poison derived from some plant, which they would not point out to him. Dr. Kirk being a keen botanist was desirous of finding out and securing herbarium specimens of the plant. While making botanical collections, he was attempting one day to get some leaves of a tall climber, and proceeded to gather some, but the natives with him tried to dissuade him, telling him the plant was dangerous to touch. He, however, managed to secure a twig of the plant, which the natives ultimately admitted was the Kombé plant, and sent it to Kew, where it was referred by Prof. D. Oliver, in the absence of flowers, to *Strophanthus hispidus*, as a more hairy form of that species, and named var. *Kombé* after the native name.

Professor T. Fraser, of Edinburgh, who had been working on the physiological action of the seeds of *S. hispidus*, received some of the seeds of *S. "Kombé"* from Africa through Mr. John Moir, I believe, who was employed by the E. Africa Lakes Co. One day Mr. Moir came to me with an introduction from Professor Fraser, and told me that he had received a shipment of the seeds, and wanted to sell them, so as to show some return in business for the expense of the steam boat which the Company had on Lake Nyassa, and that Professor Fraser told him that I was probably in a position to give him the addresses of wholesale houses who might be willing to purchase the seed. I gave him the addresses of our leading London firms, but not one of them was willing to invest in purchasing the whole of his stock for which he wanted £300. I then advised him to try two American firms in London who were very enterprising, and were building up businesses in this country, viz.: Messrs. Parke, Davis & Co., and Messrs. Burroughs & Wellcome.

The last named purchased the whole of Mr. Moir's stock. Mr. Thos. Christy, who was interested in introducing new drugs, offered Mr. Burroughs to take half the quantity, but Mr. Burroughs said "No, the whole or none."

Mr. Christy then sent to Africa to try and get some seed by communicating with Sir John (then Mr.) Buchanan, who sent him some seeds, and also sent some to Professor Fraser. But Sir John, unfortunately, was deceived by the natives, who supplied him with pods so similar in appearance externally to those of *S. Kombé*, that he presumably sent them in good faith as being genuine. Mr. Christy, who was always fond of horticulture, grew some of the seeds in his greenhouse at Sydenham, and to his surprise found that species with different leaves were produced by the seeds, and asked me to look at them. I obtained leafy twigs of each variety, and found that there were two or three different species so far as could be judged from the leaves alone. I learned from the Botanical Gardens at Edinburgh that they had obtained the same results from *S. Kombé* seeds furnished by Professor T. Fraser. The first lot purchased by Messrs. Burroughs & Wellcome seemed to have been entirely *S. Kombé*, but the seeds that subsequently came into commerce were often mixed, though very difficult to distinguish when taken from the pods.

When Mr. J. Moir had sold the seeds he promised to send me flowering specimens of the *Kombé* plant, but when he called on me 10 years afterwards for information concerning the cultivation of *Ipecacuanha*, I asked him why he had not sent the *Kombé* flowers, and he said they had been so taken up with fighting that there had been no time for botanizing.

Then I wrote to his brother, Mr. F. M. Moir, the manager of the East African Lakes Co., and asked him if he could not send me specimens in flower of the different species from which the seeds were collected. From him I received nice flowering specimens and fruits of two forms *Strophanthus Courmontii*, Sacleux and *S. Courmontii* var. *Kirkii* and through Messrs. Burroughs & Wellcome *S. Courmontii* var. *fallax*. The last named was grown from seed introduced by the late Sir J. Buchanan, grown at Zomba, and was therefore presumably supposed by him to be *S. Kombé*.

S. Courmontii has pods and seeds apparently identical with those of *S. Kombé*, but the corolla is much larger and has no tails to the petals, and the seeds give a rose, not dark green color with sulphuric acid, and anyone who saw this plant in flower could not possibly mistake it for *S. Kombé*.

The two varieties were new and described by me.

S. Kirkii has shorter pods and if sent over in the pods would at once be recognized as different. *Strophanthus* seeds at first were sent over in the pods, but even then, testing the seeds showed that the pods sent as *Kombé* were mixed, although of the same size and length. But after a time the seeds were sent over freed from the pods, on the ground that the difference in freight added to the cost of the seeds, and since then it has only once or twice occurred that pure *Kombé* seed has been obtainable in commerce. I wrote to Mr. F. M. Moir, and asked him if it would not be possible to send the *pure* seed under a brand name, for which a higher price could be obtained, and he offered to me the word "Mandala" Brand. (*Pharm. Journ.*, Oct. 1901, p. 389.) He also sent to me a medical man who was going out to Nyassaland for the Company, for me to show him how to use the sulphuric acid test, since difficulty was experienced in obtaining the green reaction. I therefore showed him how to obtain it by using a mixture of eight parts of ordinary oil of vitriol and two of water.

But apparently the work of testing the pods that came in was too irksome, for I found that the mixed pods still came over and Mr. F. M. Moir told me that *Strophanthus* seeds did not pay to export, as the quantities sold were so small, and the profit consequently so little.

Even the possibility of growing Kombé seed as a crop, and thus getting it pure, presents difficulties, since it is a tall climber and will only grow in suitable localities, and the fruits take a long time to ripen.

Unfortunately the chemistry of the various seeds and their differences of physiological action have only been determined in a few species, and even then it is not certain that the results obtained were from unmixed seed. Certainly some of the seeds sent by Buchanan to Prof. T. Fraser were mixed, since Dr. Tillie (who subsequently died in S. Africa) gave me some of the seeds out of the bottle of seeds he had used in the experiments made by Prof. Fraser and some of these seeds gave a green and others a rose reaction with sulphuric acid when I tested them. In the case of the seed from which Arnaud obtained ouabain, it is apparently not certain whether he used those of *S. gratus*, or *S. Tholloni*, both of which have glabrous seeds and the seeds used by him were formerly known as "*Strophanthus glaber*."

The seeds of other species, such as those of *S. Emini*, *S. Nicholsoni* and *S. Sarmentosus*, have also been met with in the *Strophanthus* of commerce. The seeds of *S. Nicholsoni* described by me in *Pharm. Journ.* (Vol. 4, p. 209) are easily recognizable by their dense, whitish, hairy coat. They were first brought to me by the Rev. Horace Waller, before the introduction of Kombé seed into commerce, but have occurred in commerce unmixed with the Kombé seed some few years after the introduction of the Kombé seed. These seeds are considered by the natives even more poisonous than the Kombé. They give the rose-colored or ouabain reaction with sulphuric acid.

The ouabain was originally obtained by Arnaud from the ouabai or Wabei poison, *Acocanthera Schimperii*, another apocynaceous plant (*Pharm. Journ.* (3), Vol. XXIII, p. 965; Vol. XXIV, p. 41).

JABORANDI.

This drug first came under my notice in 1874 when Mr. W. Martindale exhibited it at an Evening Meeting of the Pharmaceutical Society. It had been referred by Professors H. Baillon and G. Planchon to *Pilocarpus pennatifolius*, Lemaire, and this species was accepted as the source of the drug by Bentley and Trimen, and was figured in their *Medicinal Plants* as the source of Jaborandi. On comparing the leaves of the commercial Pernambuco Jaborandi supplied to me by Messrs. Hearon, Squire and Francis, on which I found some fruit, with those of *P. pennatifolius* at Kew, and with specimens of those from the Hanbury Gardens at Ventimiglia, I noticed that the leaves of the imported Jaborandi plant were more coriaceous, and that the veins were much more prominent on the upper surface, and the leaflets more rounded below, and that the fruits were larger than those of *P. pennatifolius*, Lemaire. (*Pharm. Journ.* (3), Vol. V, p. 582.) But the flowers had not been seen in the imported drug, so that the plants could not be fully described. It was not until seventeen years afterwards that I was able to obtain the flowers for examination. I saw in the *Pharmaceutical Journal* that

a living specimen of the plant brought home from Pernambuco by a medical man, Dr. Paterson, had been exhibited at Edinburgh, and learned that it had been grown there and that it was also under cultivation at the Botanic Gardens at Cambridge. When I saw it at Cambridge I recognized at once that it was the true plant, and asked the Curator, Mr. R. I. Lynch, to send me, if possible, a flowering spike for the Museum Herbarium at Bloomsbury Square. When it arrived about 5 years afterwards, I saw at once that it was quite different, the color of the flowers being yellowish rose instead of a dark purple as in *P. pennatifolius*, and the rachis more slender. It was described by me in the *Pharmaceutical Journal* (3rd. ser.), Vol. XXII, p. 875, and in Vol. XXIII, p. 1008.

But the Pernambuco drug was difficult to obtain in regular supply, and the leaves of *P. pennatifolius* from Rio Janeiro soon appeared in the market. My first introduction to them as a commercial article, was by Mr. John Williams, of the firm of Hopkin & Williams, who wrote enquiring if I could explain why some samples of the drug yielded only half the usual percentage of alkaloid. I asked to see a sample of the leaves he had used, and found that they were unquestionably those of *P. pennatifolius*. These leaves for some years replaced those of the official *P. jaborandi*, and on enquiring at Liverpool I found that although there was a quantity of the genuine leaves on the market there, those of the *P. pennatifolius* from Rio Janeiro were so much cheaper that it was not possible to sell the genuine leaves. The exporters at Pernambuco did not care to continue the export of leaves that entailed a loss, and the export subsequently ceased.

Several other substitutes for the true Jaborandi appeared in the market, the most interesting of which was one which was first noticed by Mr. T. H. Wardleworth in 1893 (*Pharm. Journ.* (3), Vol. XXIV, pp. 394), and was regarded at first as young Jaborandi, and as such forwarded to Kew and to the Museum of the Pharmaceutical Society.

The specimens sent to the Museum were by a mistake handed to Professor Greenish instead of some leaves which Dr. B. Paul had given to me for examination, and which he had received as Senna leaves from Tunis, and which I regarded as the leaves of *Pistacia*, and intended to have given to Professor Greenish to determine whether they were those of *P. lentiscus* or *P. atlantica*. I did not see the leaves afterwards, until Prof. Greenish read a paper on them as those of false senna, which was due to my mistake. In this he rightly referred the leaves he actually received to the *Rutaecae* and as near to *Xanthoxylon*, which indeed they so nearly resembled, that at Kew Dr. Stapf found in the Herbarium there a specimen of identical leaves labelled "Xanthoxylum, Rio Janeiro, Dr. Glaziou," and as this specimen was in flower, Dr. Stapf on examining the plant was enabled to refer it to the genus *Pilocarpus*, and to describe it as a new species, *Pilocarpus microphyllus*, in the *Kew Bull.*, 1894, p. 4.

It is evident that the three bales of these leaves which Mr. Wardleworth said formed part of a consignment of the ordinary Jaborandi of commerce were regarded by the exporters as small-leaved, but equally good, Jaborandi, a conclusion in which the chemists on this side agreed, since Mr. M. Conroy, who first examined them at Mr. Wardleworth's request, obtained from them "an alkaloid possessing all the chemical properties of Pilocarpine."

The alkaloid manufacturers of pilocarpine soon found that these small leaves

yielded more pilocarpine than those of *P. pennatifolius*, and that it paid better to use them. The leaves of *P. microphyllus* consequently soon came over in increasing quantity, and in the absence of the official leaves were used for galenical preparations. The Chairman of the Pharmacopœia Committee, of whom I enquired if the use of these leaves could not be officially recognized, permitted their use only on condition that the label indicated that the preparation was made from these leaves. Ultimately the leaves of *P. microphyllus* became official "together with those of other species of *Jaborandi*" in the B.P. 1914, but in the U. S. P. of 1916 the leaves of *P. jaborandi* remained official, together with those of *P. microphyllus*, and the latter has thus now been used for 28 years.

CHAULMUGRA.

This drug has a somewhat chequered history.

When arranging the specimens of Chinese materia medica presented by the late F. Porter Smith, I was surprised to find some seeds labelled "Lucrabau (Chaulmugra) seeds" with the Chinese name *Ta-fung-tsze*, which certainly were not the Chaulmugra seeds of commerce, being much smaller and with a thicker shell.

In Dr. F. Porter Smith's "Materia Medica of China," 1871, they are said to have been imported into China from Siam. On looking through the collection of Chinese drugs presented by the late Daniel Hanbury, I found the same seeds under the name of *Ta-fung-tsze*. In his description of this drug ("Science Papers," p. 244-5) Hanbury attributes them to Chaulmugra Sp. (he gives an illustration of the seeds on p. 244, Fig. 9), and states that they are imported into China from Siam, and that they have a reputation as a remedy in skin complaints, especially leprosy. He remarks that the plant affording these seeds is not well ascertained. It has always been a pleasure to me to try and carry on Hanbury's work and to attempt to solve problems that unfortunately his early death precluded his solving. On the occasion of Dr. Pierre's visit to this country, therefore, I took the opportunity of asking him if he could throw any light upon the source of this seed, and of some other Chinese drugs, as he was well acquainted with the forest flora of Cochin China and the neighbouring countries. In this case he was fortunately able to solve the problem, and presented to the Herbarium specimens of the plant which he told me was a new species, and had recently been described by him under the name of *Hydnocarpus anthelminthica*, Pierre.

The seeds in 1871 were exported from Bangkok to China to the extent of 6400 lbs. (48 piculs). But it is also exported from Saigon. The herbarium specimen sent by Dr. Pierre was gathered in the Province of Bien Hoa in Southern Cochin China (*Pharm. Jour.* (3), Vol. XV, p. 41). Dr. Pierre told me that the seeds are used as a vermifuge by the Annamites. This statement is confirmed in the "Kew Report," 1878, p. 33, where the seeds are said to be used under the name of "*Dai-phong-tu*" in Saigon as a vermifuge, after the extraction of the oil.

Another seed *Hydnocarpus Wightiana* yields an oil that is apparently sold as Chaulmugra oil or as a substitute for it in Western India. The fruit of this species is illustrated in Cooke's Report on the Oil Seeds of India, p. 17, and the seeds in the *Pharm. Journ.* (4), Vol. X, p. 522. It has the advantage that the seeds are only half the price of those of the true Chaulmugra, but, like it, are also used for leprosy and other cutaneous diseases.

As late as 1900 the Chaulmugra seed of commerce was believed to be derived from *Gynocardia odorata*, and that plant is illustrated in "Bentley & Trimen's Med. Plants" as the source of the oil, and it was only through an accident that this source was shown to be erroneous. M. Georges Desprez directed attention in 1900 (*Journ. de Pharm.* (6), Vol. XI, p. 315) to a new kind of Chaulmugra seed from Sikkim, that he had received from Dr. Prain, Director of the Botanic Gardens at Sibpur, India. M. Desprez had evidently written for authentic seeds of *Gynocardia odorata*, and he got them! Dr. Prain is too careful a botanist to send the wrong plant. But in the Indian and Colonial Addendum in 1900 Chaulmugra was given as the produce of *Gynocardia odorata*, R. Brown, or of "*G. Praini*," Desportes. Being desirous of seeing the new Chaulmugra seed and to obtain specimens for the Museum, I wrote to Dr. Prain at Calcutta, and he kindly sent me typical specimens both of the genuine Chaulmugra seed and of the seeds of true *Gynocardia odorata* which were the seeds M. Desprez wished to name after Dr. Prain, not recognizing that there had been any mistake about the botanical source of Chaulmugra seed.

When Dr. Prain sent me the seeds, he stated in his letter that so far as the imperfect material in his possession permitted, he had formed the opinion that the Chaulmugra seeds of commerce do not belong to the genus *Gynocardia* at all, but probably to the genus *Hydnocarpus*, but that he could not determine this point satisfactorily until the tree flowered, which might not be till June.

In May, however, he wrote to say that as far as could be made out Chaulmugra seeds are the produce of *Taraktogenos Kurzii*, which is the plant that is named *Hydnocarpus heterophyllus* by Kurz and is a native of Burmah (*Pharm. Journ.* (4), Vol. XII, p. 596).

During the last 20 years the chemistry of the oil of Chaulmugra has been carefully worked out by Dr. F. B. Power and others, and the United States Department of Agriculture has obtained through Mr. J. T. Rock, who holds the office of Agricultural explorer, full and interesting details concerning the natural history of the Chaulmugra tree and its allies, which have been published in *Bulletin* No. 1057. Indeed our own Agricultural Department might well follow the excellent example set by that of the United States of America.

There is one interesting point in connection with the oils of *Hydnocarpus antisiphilitica*, and that is the use of the seed cake as a vermifuge and insecticide. Mr. Rock appears to think that it is more largely used for this purpose in China, than for leprosy. The seed may contain some other constituent than Chaulmugra and that may be worthy of further chemical research.

ARARоба.

The history of this drug is of interest as showing how difficult it may be to determine the botanical source of a drug.

The first specimen that came under my notice was a small sample of purplish red powder presented to the Museum in February 1864 by Mr. D. S. Kemp, of Messrs. Kemp & Co. of Bombay. It was then called by the name of Goa Powder, as it came from Goa. He described it under this name in the *Pharm. Journ.* for July 1864 (2), Vol. V, p. 345.

The drug was really brought into use in this country through Dr. Fayerer of Calcutta who wrote an article in the *Medical Times and Gazette* for Oct. 24,

1874 on the successful treatment of Indian ringworm by Goa Powder, the composition of which was unknown. He found no remedy so rapid or so certainly effective as the solution in vinegar or lime juice of Goa Powder, which was sold in small phials by the chemists of Calcutta and Bombay under this name, and was believed by Dr. Fayer to be a secret preparation. He met with a powder similar in appearance and equally efficacious known as Poh di Bahia. It was suggested to him by Mr. D. S. Kemp of Bombay that the probable source of Goa powder was orchella (*Roccella Montagnei*) which was imported in large quantities from Africa, north of Mozambique, into India. Mr. D. Hanbury, however, alleged the Goa Powder to be a "secret remedy whose composition and place of manufacture are alike unknown."

Mr. D. Kemp of Bombay then sent some of the Goa Powder to Mr. D. Attfield to analyze, who found it to contain 80-84 p.c. of chrysophanic acid. Meanwhile a specimen of Arariba presented by D. C. Symes was exhibited by me at an evening meeting of the Pharmaceutical Society on March 4th (*Pharm. Journ.* (3), Vol. V, p. 716) which consisted of yellowish powdery lumps containing pieces of wood, the interstices of which were filled with a powder like that of Goa powder. Dr. Attfield's paper is headed Chrysarobine, Araroba powder, Bahia powder, Goa powder.

As the specimens of Goa Powder presented to the Museum by Mr. D. S. Kemp, Dr. C. Symes and Mr. Postans differed in color and appearance, I asked Mr. Plowman, then demonstrator in the laboratory, to compare them, as they apparently varied in the amount of woody matter present in them, and he found that Araroba yielded 84 p.c. of chrysophanic acid soluble in benzol, Mr. Postans' specimen 87 p.c., and Mr. Kemp's specimen (11 years old) 70 p.c. the crystals in the last named being not so definitely tufted as in the other two, apparently from some change having taken place during that period. But the Araroba of commerce always varies in percentage of chrysophanic acid, according to the amount of fragments of wood present.

The origin of the Goa powder and its identity with Poh di Bahia and the Arariba or Araroba of Dr. Symes, was cleared up to some extent in a letter to the *Med. Times and Gazette* on March 18, 1875, by Dr. J. T. da Silva Lima, translated by Dr. J. L. Paterson of Edinburgh.

Dr. Lima stated that the Goa Powder is known in Brazil in the province of Bahia under the name of Araroba Powder, and in other provinces of Brazil under that of Bahia powder or Po' de Bahia, and stated that Araroba or as some call it Arariba is the name of a Leguminous tree, related perhaps to the tree of the same family furnishing the Brazil wood of commerce. He had been led to suspect the identity of Araroba, Poh di Bahia and Goa Powder by a conversation with Dr. Palasne de Champeaux, chief surgeon aboard the French Steamer La Place, during that vessel's visit to Bahia, who informed him that in Saigon he had successfully used a native remedy called Poh Baia for skin diseases. Dr. Lima gave Dr. Champeaux some of the Araroba powder to compare its action with that of the Poh Baia of Saigon, with the result that the action of the two was found to be identical and an account of the remedy was given by Dr. Champeaux in the *Archives de Medicine navale* for May 1873.

Dr. Lima learned that large quantities of Araroba had for a good many years been exported by a well known firm in Bahia, to Portugal, but the drug was unknown to the chemists and medical men of Portugal, and he concluded, therefore,

that it was re-exported to the Portuguese Colony of Goa in India, and thence distributed under the name of Poh de Baia. Dr. Paterson who paid a short visit to Bahia in the beginning of 1874 learned from the Professor of Botany there, Dr. Bomfim, that the names Araroba and Ariariba are of South American-Indian origin, and derived from a root that means tawny-colored, and that the name is applied by the natives to a number of trees, some of which are described by Martius in his Botany of Brazil, none of which, however, correspond with the tree which yields the Poh di Bahia or Araroba of Commerce, which so far as Professor Bomfim was aware, had not been described by any botanist, and although he had specimens of the leaves and wood sent him, he had never seen specimens of the tree as it grew in a distant part of the Province. Dr. Paterson brought home with him, in default of the seed, two small Araroba plants from cuttings. These were placed in the Botanical Gardens at Edinburgh for transmission to Dr. Little of Singapore, who must have guessed that the Poh de Baia of the East came from Bahia.

The price at Saigon in 1874 was 2 francs per gram, and at Bombay £3.12.0 per lb.

Being anxious to identify the plant if possible, I wrote to Edinburgh Botanic Gardens, and Mr. J. Sadler kindly sent me a leaf of one of the seedlings for examination. I was enabled thus to see that the leaf was not that of a *Centrolobium*, to two species of which Martins had appended the name of Araroba, viz.: *C. robustum* and *C. tomentosum* (*Pharm. Journ.* (3), Vol. 5, p. 801).

The next step in the identification of the Araroba plant was taken by Dr. Rameiro A. Monteiro, published in the *Journal de Therapeutique*, Vol. VI, p. 248 (*Pharm. Journ.* (3), Vol. VIII, p. 1048), who pointed out that the tree yielding it was apparently an *Andira* with dark purple flowers, and that the tree is not cultivated. It is distinguished by the name "*Angelim amargoso*" and the powder is invariably known as "Araroba."

Knowing that Mr. Thos. Christy, who was much interested in new drugs, was in touch with the Brazilian Consul, Mr. Knowles, at the time, I asked him if he would kindly try and obtain a flowering and fruiting twig of the Araroba tree. Mr. Christy kindly obtained for me through Mr. Knowles a section of a small trunk and a piece of an older one, showing the formation of the Araroba as a decomposition product in the tissues of the heart wood, and also a leaf and a portion of the flower-spike of the plant itself, and better still a pamphlet in Portuguese by Dr. J. Aguiar describing the Araroba plant under the name of *Andira Araroba* Aguiar. This pamphlet I translated and gave an abstract of it to the *Pharmaceutical Journal* (3), Vol. X, p. 42, and I placed the specimens in the Museum and its Herbarium.

Mr. Thos. Greenish, who took a leading position in advocating the use of the microscope in pharmacy, submitted the wood to a microscopical examination, and ascertained that the Araroba was apparently a decomposition product formed at the expense of a natural constituent of the sap of the tree (*Pharm. Journ.* (3), Vol. X, p. 814).

That it is due to a metamorphosis of the cell membranes also seems clear from the large lumps of pure Araroba that occur in commerce.

Dr. Aguiar seems to regard Araroba as formed by the oxidation of the resin which exists in great abundance in the tree, the oxidation being facilitated by the

canals made by insects, and explains the presence of the larger cavities containing it by the corrosive action of the Araroba on the wood, but he does not seem to have confirmed his theory by experiment. (It seems possible that it may be the work of destructive enzymes.)

It may be interesting to add that the common yellow lichen, *Physicia parietina*, so common on walls, roofs, trees and rocks in this country, was formerly used as a remedy for ringworm in England probably according to the doctrine of signatures, and that it contains chrysophanic acid.

SHALL THE SECTION ON EDUCATION AND LEGISLATION BE
DISCONTINUED?*

BY WILLIAM B. DAY.

In connection with the plan for the reorganization of the American Pharmaceutical Association it has been proposed, in all seriousness, to do away with the Section on Education and Legislation. The reasons advanced are that matters of education would be cared for best in the American Conference of Pharmaceutical Faculties, while legislative affairs would be discussed in the House of Delegates.

Against the discontinuance of this Section we should earnestly protest. It will be a sad day for American Pharmacy when we admit that we, as an organization of progressive and intelligent pharmacists, are so little interested in pharmaceutical education that we can afford no place for it on our program but are content to relegate it to an affiliated organization. Nor would this sister organization, the American Conference of Pharmaceutical Faculties, profit by our negligence for they need as much to keep in touch with us as we need to keep in touch with them. After all, the pharmacists of this country and the public which they serve are the most deeply concerned in pharmaceutical education and must give it their tacit approval and support if it is to realize its objective.

The pharmacists, as such, have a right to be heard in educational affairs. And where shall this right be exercised if not in the Section on Education and Legislation of the American Pharmaceutical Association?

For the A. Ph. A., too, it would be a serious mistake to allow these educational interests, which have for so many years been conserved and promoted by our Association, to be split off and turned over to other organizations.

A glance at the history of this Section is sufficient to prove its worthiness of a place in the A. Ph. A. Inaugurated thirty-four years ago, it has been presided over by many distinguished pharmacists and educators; such men as Bedford, Simon, Good, Hallberg and Oldberg, to mention only those who have passed on. The result of their efforts must not be lost to pharmacy. The Section on Education and Legislation has a wide field for usefulness. It can and should be made of increasing value to pharmacy.

* Section on Education and Legislation, A. Ph. A., Cleveland meeting, 1922.