

can be boiled by means of steam. He was a very prolific writer and his works are published as "Essays, Political, Economical and Philosophical," in three volumes, London, 1796-1803. His works are also published in French and in German.

In 1796 he endowed the Royal Society of London and the American Academy of Arts and Sciences with a considerable sum for a prize medal for practical and utile inventions.

In 1810 he founded the London Royal Institution.

Sir Benjamin Thompson died August 21, 1814, at Auteuil near Paris. Rumford Hall, the lecture room in the Chemists' Club in New York City, is named after this scientist and is adorned with his bust.

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### A BRIEF HISTORY OF THE HOMŒOPATHIC PHARMACOPŒIA AND SOME COMMENTS THEREON.

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It will doubtless surprise many of our members to be told that the homœopathic school of medicine has a pharmacopœia which is just as carefully revised and edited, as is the United States Pharmacopœia under the direction of a permanent body, the American Institute of Homœopathy, an association corresponding to the American Medical Association, in its relation to physicians and surgeons of the homœopathic school.

I have had the opportunity lately of observing the homœopathic practice of pharmacy and its study has been so interesting and full of valuable information, that I am sure it will interest others and that a brief history of its origin and development will be appropriate for inclusion in the contributions to Historical Pharmacy from this Section. We know very little of homœopathic pharmacy, as practitioners of allopathic pharmacy, but such knowledge should be a part of our equipment: "*Pharmacistus sum et nil pharmacopœiæ mihi alienum est*" should be our motto. I hope that some member will contribute a history of Eclectic Pharmacy at our next meeting, to round out our archives.

Most of us trained in the allopathic school look somewhat derisively upon the homœopathic materia medica, as nothing but little sugar pellets, or infinitely diluted tinctures or triturations of drugs, but this is a very mistaken idea; the homœopathic pharmacist must be acquainted with many drugs, their constitution and methods of preparing them for medicinal use and the proper form in which they should be prepared. The essence of homœopathic medication being simplicity, the administration of a single drug at one time, the homœopathic pharmacopœia does not contain mixtures such as are given in our pharmacopœia.

All preparations are made from a single drug as tinctures or triturations and then diluted or exhibited as powders, globules, etc., etc. In fact, the homœopathic pharmacopœia is more the materia medica of homœopathic practice than a pharmacopœia such as the U. S. P.; the drugs are described singly, directions are given as to the quantities to be used for making the mother tincture or first trituration

and the dilutions or attenuations to be made from these. General methods are described and directions are given for preparing each class, which apply to all the drugs included in the official list, so that the pharmacist is never in doubt as to the proper method of preparing remedies from crude drugs. This simplicity and the rigid rules laid down as to methods of preparing tinctures, triturations, etc., makes uniformity in strength and appearance possible, much more easily than does the manufacture of compound preparations containing several drugs. The only drawback to absolute uniformity is the lack of assay methods in the homœopathic pharmacopœia. Tests for many chemicals are given, but no assay methods for vegetable drugs, which constitute the larger part of homœopathic materia medica nor for inorganic salts. Serums are not mentioned, although used freely by homœopathic practitioners. Many animal products are official, also preparations derived from insects (apis mell), and snakes (lachesis).

If the digression will be pardoned, I would like to say that I am beginning to believe that Hahnemann was a prophet in his theories as to the principles of drug action, his theories, considered in the light of latter day scientific discoveries, are startlingly near to what modern science has partially proven. For instance the famous text, "*Simila similibus curantur*," (like cures like), is the basis of modern serum therapy. We give antitoxins prepared from the very germ that causes the disease. Is not that like curing like? Hahnemann's theory was that a drug that would cause certain effects in the healthy body, would counteract the same conditions if caused by disease. Where is the difference? Again, his theory of attenuation, is but the ionic theory of dissociation applied to drugs. Homœopathy does not teach that the more diluted a drug is, the stronger it is, as is believed by many, but it does claim that a drug is rendered more potent by minute sub-division than if administered in masses. This is the ionic theory, that the activity of a salt is proportionate to the dissociation of its molecules or atoms into electrons or ions, the homœopathic theory is, that the more minutely the particles of a drug are divided the more points of active contact, or absorption, it will have. This theory is the basis of homœopathic pharmacy,—division of the drug into the most effective number of minute particles, each of which is free to exert its action without being hampered by inclusion in a comparatively large mass with few free particles. Contrary to another erroneous belief, homœopathic pharmacists do not claim infinite divisibility of a drug, they recognize that it is impossible to subdivide a drug into particles of infinitesimal or molecular size and that each drug has a limit as to sub-division and size of particles in tincture or in trituration. It is not for me to express an opinion as to the truth or error of the two schools of medicine, these comments are made in hope of correcting misapprehension as to the practice of homœopathic pharmacy.

*History.*—The first publication that may be called a homœopathic pharmacopœia was Hahnemann's "*Fragmenta de viribus medicamentorum positivis sive in sano corpore humane observatis*," published in 1805. This was followed by his "*Materia Medica*" and "*Chronic Diseases*," published in parts, between the years 1811 and 1832. In 1832, was published his "*Archiv*" which contained much material from the preceding works. In all of these, directions were given for the preparation of remedies. The first homœopathic dispensatory was written by Caspari and published at Leipsic in 1825, German being the language used. A

revision of this work was published in 1828. The year 1829 was a period of great activity among homœopathic writers, the first distinctive homœopathic pharmacopœia being compiled and published by Hartmann, at Leipzig, in German, a revision of the Homœopathic Dispensatory by Caspari, (German) and homœopathic pharmacopœias prepared by Belluomini and La Raja, the two latter being printed in Italian. The first Latin pharmacopœia was published in 1834, being a translation of Caspari's revised dispensatory. The first pharmacopœia written in French was compiled by L. Noirot and Ph. Mouzin and was published in Paris and Dijon in 1835. The first homœopathic pharmacopœia written in English, was a translation by Dr. James Kitchen, of Philadelphia, from the *Nouvelle Pharmacopée et Posologie Homœopathique* (French) of Jahr, Paris, 1841, published in Philadelphia in 1842, pp. 306. Numerous revisions of older works and several new works were published in various languages between 1833 and 1842, German, French, Italian and English being the languages employed. Jahr's pharmacopœia was published as a Spanish translation, edited to date, in 1847 (Madrid) and as a French edition in 1853. In 1845, Gruner issued a very complete work on homœopathic pharmacy and materia medica (German) which served as a standard with the works of Jahr for several years. Later, 1850, Jahr and Gruner collaborated in the compilation of a new homœopathic pharmacopœia which was the most complete work of its kind at that date and which, translated into many languages, served as a text book for many years. The first American edition was a translation by Dr. Charles J. Hempel, published in New York in 1850, under the title, "New Homœopathic Pharmacopœia and Posology." This gave detailed instructions as to the preparation of homœopathic remedies and their dosage. From 1850 to 1865, numerous works on pharmacy were written and published and many revisions of the works of Caspari, Gruner and Jahr were issued by various collaborators. Most of these were written in French and German, Spanish being second, Latin third, Italian fourth, English fifth, as to languages employed. A complete bibliography of the works on homœopathic pharmacy and materia medica published between 1805 and 1865 may be found, by those wishing to go into further details, in the third edition of the *Homœopathic Pharmacopœia of the United States*, revised edition, 1914, and the mere recital of titles would be of little interest here.

Previous to 1870, all the various pharmacopœias and dispensaries were unofficial, that is they were the work of one or more men of high standing in homœopathic medicine, and they were accepted as text books and standards, because of the eminence of the authors and their collaborators, and of the editors of revisions of the original work. They might be compared, in a way, to our Dispensatories. The first homœopathic pharmacy to be issued officially, under the auspices and sanction of a recognized homœopathic association, was the *British Homœopathic Pharmacopœia*, published by the British Homœopathic Society, London in 1870, pages 336. This was revised and a second edition issued in 1876, many new drugs being added to its materia medica. The first American *Pharmacopœia* was published in the same year, 1876, by Duncan Brothers, Chicago, under the title, "The United States Homœopathic Pharmacopœia." This was an adaptation of the *British Pharmacopœia* and contained a section devoted

to pharmaceutical processes, and methods and directions as to the nature and strength of its preparations. The next important date is 1880, when a "*Pharmacopœia Homœopathica Polyglotta*" was compiled and published by Schwabe. This work was written in German in the original, and this text was translated into English, French, Italian, Spanish and Dutch, the entire work being issued in several volumes. This was a very ambitious work and chapters were added by each collaborator covering materia medica and pharmaceutical practice in the various countries in whose languages the volume was written.

Homœopathy, at first bitterly opposed in this country and in England, was confined chiefly up to 1860, to continental Europe but after that year it steadily increased in popularity in both countries and hence we find greater activity in the publication of works on homœopathic medicine and pharmacy. The third edition of the British Homœopathic Pharmacopœia was issued in 1882 and a "Companion" or dispensatory in the same year. The first edition of the American Homœopathic Pharmacopœia was published, also in 1882, by Boericke and Tafel, New York and Philadelphia, compiled and edited by Dr. Joseph T. O'Connor. Subsequent revisions were made and published in 1883, 1885 and 1890 and succeeding years. The last revision, the ninth, having been issued recently. The publication of this work caused some confusion and much controversy, in early years, as there were now two homœopathic pharmacopœias for the United States, differing to some extent in the materia medica included, and as to systems of dosage, dilutions, etc. As the pharmacopœia issued by the American Institute of Homœopathy had not been revised since its first appearance, 1876, naturally the later work was given preference by the majority of physicians and pharmacists of this school, and it continued to be the practical pharmacopœial authority until 1897, when the Homœopathic Institute issued a second revised edition of its original pharmacopœia. A dispensatory was published in 1884 by Dr. Theodore Williams, Chicago, under the title the "American Homœopathic Dispensatory," which was similar to our dispensaries in that it gave much medical information as to the materia medica as well as to its pharmacy. In 1897 the efforts of the American Institute of Homœopathy to compile and publish a pharmacopœia that would be the official standard for homœopathic practice and a text book in such schools was crowned with success and the "Pharmacopœia of the American Institute of Homœopathy" was completed and published. This book represented the work of years by a special committee appointed by the Institute, and was most complete both as to its chapters on pharmacy, pharmaceutical practice and materia medica. This was accepted as the official homœopathic pharmacopœia by most practitioners and colleges. France and Germany followed the example of the United States in issuing an official pharmacopœia sanctioned by the national association of homœopathic physicians and surgeons, the French Pharmacopœia being published in 1898 and the German in 1901. Both works represent the most advanced pharmaceutical practice of the two countries and were prepared much as our own pharmacopœia is, by committees of revision appointed by the associations representing homœopathic practice. The British Pharmacopœia has also been revised several times and has a similar official status.

This brings us up to the date of the last revision of the pharmacopœia in this country, the "Homœopathic Pharmacopœia of the United States," published as

the third revision of this work, in 1914, under the sanction of the American Institute of Homœopathy. Previous editions were published in 1897 and 1901 under the same title. The present work is divided into three sections: Part I—General Pharmacy; Part II—Materia Medica; Part III—Tables of Reference, Index, etc. It is a most comprehensive work on homœopathic pharmacy and compares very favorably with the United States Pharmacopœia in its particular field, its section on materia medica being especially well written and complete as to description, history and other data. This pharmacopœia is now recognized as occupying the same official standard for homœopathic practice as is the U. S. P. in its sphere, and is the official text book of homœopathic colleges where pharmacy is taught as part of the curriculum. Every homœopathic physician is supposed to know how to prepare his own remedies if necessary, hence a thorough course in its special pharmacy is a necessary part of his education. It is desired by many homœopathic physicians that this pharmacopœia be given the same legal standing as an official standard for drugs used in their practice as is given the U. S. P. and doubtless this will be done in the near future as at present there is no legal recognition of this work as presenting the standard requirements of drugs used by homœopaths.

The greatest obstacle to sanctioning the homœopathic pharmacopœia as a legal standard for homœopathic drugs is its lack of definite standards and assay methods. As the greater part of its materia medica is composed of vegetable drugs, for which no method of analysis or standardization has yet been worked out, the only test possible for these would be botanical identification, but definite assay methods for many potent drugs, such as aconite, belladonna, hyoscyamus, etc., are available and doubtless will be adopted in future revisions. There are no assay methods or rubrics of purity and strength for mineral or vegetable drugs, the tests given being chiefly identity-tests and for the detection of the usual impurities. The strength of liquid and solid preparations is, however, rigidly stated and each drug is treated separately in prescribing the menstruum for extraction, the quantity of fresh or dried drug to be used for tinctures or triturations and the dilutions or attenuations given. One feature is worthy of inclusion in allopathic practice, that of basing the quantity of menstruum used, for the extraction of plant principles, upon the amount of water contained in the green or dried drug. When the plant is used in the fresh state, a portion is taken, carefully weighed, dried and the amount of plant moisture estimated by the loss in weight. This plant moisture, is considered as part of the menstruum and allowances are made accordingly. For example, the mother tincture of aconite is made by the following formula: Aconitum, moist magma containing solids 100 gm., plant moisture 350 cc.; strong alcohol (95%) 683 cc.: to make 1000 cc. of mother tincture. Dilutions: 2 X to contain 1 part of tincture, 2 parts distilled water and 7 parts alcohol; 3 X to be made with one part of 2 X dilution and nine parts of dispensing alcohol (88% alcohol by volume). Triturations are made with milk sugar solely, although cane sugar globules are used for making dry pellets from liquid preparations. These are prepared by adding the required quantity of tincture to a given number of globules to saturation, then evaporating the excess of menstruum by drying.

Homœopathic pharmacy recognizes but four menstrua for use in preparing

crude drugs for administration, these are alcohol, glycerin and water for fluid preparations and sugar of milk for triturations. The fluid menstrua differ in the proportions of alcohol, water and glycerin used, combinations best adapted to exhaust the plant-drugs being carefully worked out and specified for each drug. Milk sugar is used for making triturations and attenuations from both solids and tinctures because of its hardness and inertness, the gritty crystals of milk sugar aiding materially in breaking up the drug into minute particles. It is surprising to what minuteness such refractory substances as silica and the metals, can be subdivided by repeated dilutions and trituration with milk sugar; the particles are almost microscopic. A good magnifying glass is part of the equipment of the homœopathic pharmacist, for he must subject his triturations to scrutiny with a magnifying lens to determine if he has reduced the drug to the requisite fineness.

While not mentioned in the homœopathic pharmacopœia, except as addenda, homœopathic pharmacy also includes the preparation of ointments, cerates and plasters, tablet triturations, globules and pellets of medicated cane sugar, antiseptic solutions, etc. The cerate is the most popular form of external medication; these are made by adding 1 part of the mother tincture of the drug to 9 parts of cerate and heating at a low temperature until the menstruum has been evaporated, then final thorough incorporation of the drug extract. Plasters are similar to those used by allopathic physicians, except that they are made in definite strength according to the usual decimal system. Lead plaster and rubber plaster are chiefly used as bases. Nowadays the homœopathic physician makes use of many drugs not mentioned in the homœopathic pharmacopœia, such as ether and chloroform for surgical anesthesia, ethyl chloride for local anesthesia, etc., etc. Indeed it seems that the two schools are coming into closer agreement every year as to the materia medica used to combat disease, the chief difference being their preparation and methods of administration.

*Nomenclature—Weights and Measures.*—The nomenclature of the homœopathic pharmacopœia, is different from that of the U. S. Pharmacopœia in many respects. Plant drugs are given the botanical title in Latin, with sub-headings giving the natural order, part used, common name and usually the name in French, German and Italian or Spanish. The plant is fully described, its habitat given, its history and the date and author of its "proving" as suitable for use as a homœopathic remedy. Mineral drugs are described, tests are given as to identity and purity and their physical properties are briefly noted. No directions are given as to the manufacture of any chemical salt or for preparation of the elements employed in a pure form. It is in the nomenclature of metallic salts that the greatest difference between the H. P. and the U. S. P. is noted, the H. P. following closely the old German nomenclature in Latin terms. For example, copper sulphate is *Cuprum Sulphuricum*, copper carbonate is *Cuprum Carbonicum*, calcium chloride is *Calcareo Muriatica*, calcium oxalate is *Calcareo Oxalica*, ferric chloride is *Ferrium Muriaticum*, mercury nitrate is *Mercurius Nitricus* and calomel is *Mercurius Dulcis*. This system of nomenclature seems unsystematic to us, as there are several different terminations used for metals, as shown above, there is no use of the genitive in the Latin titles, all being in the nominative. The nomenclature does not distinguish by termination or formation between alkaloids, glucosides or

other organic salts. Morphine is *Morphinum*, santonin is *Santoninum*, naphthalin is *Naphthalinum*, etc. Acids all have the same termination, as *Acidum Aceticum*, *Acidum Muriaticum*, *Acid Phosphoricum*, etc. Most of the metals and metallic salts are given the usual chemical names but the old Germanicized titles as *Kalium*, *Natrum*, *Calcarea*, etc., are used for potassium, sodium and calcium, *Plumbum* for lead, etc. The definitive has always the same declension terminative as the subject, as *Calcarea Bromata*, *Ferrum Iodidum*, *Mercurius Nitricus*, etc. Few alkaloidal salts are mentioned, preference being given to the plant itself.

As the homœopathic system of dilutions is based on the decimal system, naturally the metric system of weights and measures was adopted in the later revisions of its pharmacopœias and text books. Formerly the old style apothecary's system of weights and measures was used, most of Hahnemann's original works and those immediately following, using it in connection with the centesimal system of dilution. For instance it was directed that a 1 C. dilution of a mother tincture be made by adding 1 drop of tincture to 99 drops of menstruum, triturations were to be made similarly with milk sugar. The adoption of decimal dilutions as the standard, makes it easy in fact to use any system of weights and measures. Numerous tables are given in the Homœopathic Pharmacopœia for converting weights and measures from one system to another, also tables of alcoholic strength, specific gravities, etc., etc.

There is still some confusion as to dilutions and attenuations, because of the two systems of dilution used, the old style, that of Hahnemann, being centesimal dilution and the modern style introduced by Dr. Constantine Hering, of Philadelphia, being decimal dilution. In the centesimal system one part of the mother tincture or first trituration is diluted with ninety-nine parts of alcohol or sugar of milk, to form the first dilution (1 C.), the second dilution (2 C.) is made by adding 1 part of the first dilution to 99 parts of the menstruum, and so on. The highest dilution commonly used under this system is 3 C., which represents 1 part of drug in 1,000,000. It was early seen that the jump from one to a hundred was too great, both as lacking a dilution of intermediate potency and because of inaccuracy due to manipulation. The decimal system of dilution was therefore generally adopted and is now the one official in the homœopathic pharmacopœia and in prescription writing. This system is distinguished by the letter x prefixed by a number denoting the dilution, thus 1 X means a tincture or trituration containing 1 part of drug in 10 parts of menstruum called the mother tincture or first trituration, 2 X, 1 part in 100, 3 X, 1 part in 1000 and so on. These preparations are made by taking 1 part of the higher dilution, as 2 X, and attenuating it by addition of 9 parts of menstruum, so that each succeeding dilution is one tenth the strength of the preceding one in the scale. Dilutions and attenuations are invariably progressive, that is each succeeding dilution must be made from the next preceding dilution. For example a 3 X dilution must not be made by mixing 1 part of drug with 999 parts of menstruum, it must be made progressively, first the 1 X, or mother tincture, is taken and diluted to 2 X, 1 part in 100, and then 1 part of the 2 X is taken and diluted to 3 X, 1 part in 1000. The object of this successive dilution is to insure the greatest possible sub-division of

the drug, triturations made by this method, especially, showing very minute division. 6 X, 1 part of drug in 1,000,000 parts, is the highest in the decimal scale; it corresponds with the 3 C dilution of the Hahnemann scale. Hahnemann at first used even higher dilutions but such dilutions are seldom used and only for very potent drugs, 2 X and 3 X being the dilutions usually prescribed. The medicated sugar globules of the homœopathic physicians are made of the desired dilution by saturating them with a tincture of the desired strength and carefully drying them. These globules are made of standard weights so that a definite amount of tincture or dilution will be absorbed. Tablet triturates are made directly from the attenuated triturations. Of late years certain combinations of drugs in tablet or triturate form have become popular with physicians and patients of the homœopathic school, although not in strict accord with its teachings. Most of these are simple cathartics, laxatives and tonics and are made from homœopathic tinctures or triturations. (Hypodermic tablets are also used.) The use of the Eclectic concentrated plant principles, such as hydrastin, irisin, podophyllin, etc., is also becoming popular with many physicians as they are highly concentrated plant extracts and well adapted to dilution by trituration. Pills, such as we are accustomed to, are seldom or never employed by the strict homœopathist, although some of the younger men occasionally use them.

In concluding this very incomplete reference to homœopathic pharmacy, there is one of its cardinal doctrines that I would like to emphasize as an admirable one for every pharmacist to adopt, that is the doctrine of absolute cleanliness. The basis of homœopathy being the administration of a single drug in as pure a state as possible, great emphasis is given to the importance of cleanliness of utensils, apparatus and materials. Hahnemann, indeed, laid down the rule, that a separate mortar and pestle be provided for each drug and used for that drug only, the same as to percolators, dilution flasks, etc. As it is practically impossible to provide separate apparatus for all the drugs now official, because of expense and inconvenience, it is customary to have a set of apparatus for a group of drugs that resemble each other in general therapeutic properties, even this, requiring an equipment that would daze the average druggist. Great stress is laid on the cleaning of mortars and pestles and general directions are given for their care, use and cleaning. It is easily seen that the slightest adherence of one drug to the sides of a mortar, would affect the properties of a very dilute attenuation of another drug. The mortars and pestles are further directed to be made of the hardest and most impervious ware, glass apparatus and containers to be made of hard glass containing the minimum of water-soluble constituents. All drugs, fresh or dried, are ordered to be kept in air-tight, dust-proof containers, separated by a small space to prevent accidental contamination, and stored in a cool, dark place. Vegetable drugs must be frequently renewed. Macerating-jars, much used for making mother tinctures, are ordered to be made of hard glass or glazed porcelain. Tincture-presses, etc., must be lined with pure block-tin, if of metal, glazed earthenware is recommended for many drugs. Special attention is given to corks, it being recognized that their porosity is a serious disadvantage, so new corks, thoroughly cleansed by boiling in distilled water, are directed to be used for every container or in preparing dilutions.

If simplicity in medication is the gospel of homœopathy, cleanliness in all things



may be called its commandments. It is indeed a pleasing sight that greets one when visiting the laboratory of the homœopathic pharmacist, it is so clean and orderly. Comparisons are odious, so I will not compare it with the average drug store apology, for laboratory and apparatus, either as to completeness of outfit or general order and cleanliness. There are very few homœopathic pharmacists, however, outside the large cities and hospitals, the bulk of the medicines used, either being prepared by the physician himself, or are manufactured on a large scale by firms making a specialty of homœopathic materia medica. As with us the large manufacturer has come to stay and the majority of physicians purchase their supplies from one firm or another. Probably this is for the best as it makes possible the manufacture and standardization of drugs of high quality, at less cost and labor, than could be done by the individual pharmacist himself. There are many more interesting topics that I might add to this paper, but I have tried to include those of general interest, and hope that I have succeeded in giving a fair idea of homœopathic pharmacy to my associates of the other school. I might add that I hope some member will contribute a historical paper of similar nature to this on eclectic pharmacy at our next annual meeting.

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#### CAMPHOR PRODUCTION IN INDIA.

The Indian Trade Journal states that the camphor tree (*Cinnamomum camphora*), so well known in Japan, Formosa, and China, has been successfully planted in Burma, Ceylon, and the Federated Malay States.

In Burma there are plantations in the upper Chindwin, Myitkyina, Bhamo, and southern Shan States. In the Peninsula of India there are experimental plantations in the Nilgiri Hills and in certain isolated patches of Bombay and Madras. In Ceylon, which lies south of the latitude of its habitat, the tree grows only in the more elevated parts; there is a plantation at Hakgala. Great difficulty has always been experienced in getting good seed imported direct from Japan, and there is often wholesale failure to germinate. Seeds can be obtained from the Yokohama Nursery Co., but the seeds sown for the Burma plantations were obtained from Hongkong. In Ceylon it has been found economical to grow the trees in hedges about 6 to 9 feet high, running in the direction of the prevailing winds. As soon as the plants have reached a fair size and formed woody stems they can be clipped—in three years' time in suitable situations. The simplest method is to use hedge shears. Only the leaves and twigs are required, as the use of the wood and roots only leads to wanton destruction of the plants.—Consul Henry D. Baker, Bombay.