mercial lots of this salt assayed 104.5%, 99.43%, 98.7% and 99.25% crystallized salt, respectively. It appears likely that the lot which assayed 104.5% had lost some of its water of crystallization. Three experiments with chemically pure metallic zinc dissolved in hydrochloric acid to which sufficient phenolsulphonic acid was added to represent that which would be present if the zinc had originally been present as phenolsulphonate, yielded 99.5% of the amounts of metallic zinc used. Therefore the ferrocyanide titration method appears to be applicable to the assay of this salt.

Zinc Sulphate.—The experiments outlined above under zinc acetate were repeated, using sulphuric acid in place of acetic acid. Several assays yielded 99.6% of the weight of metallic zinc used. A commercial lot of this salt assayed 102.9% crystallized salt by this method; the high assay indicating a loss of water of crystallization. Therefore, the ferrocyanide titration method appears to be also applicable to the assay of zinc sulphate.

Zinc Valerate.—The experiments outlined above under zinc acetate were also repeated using valeric acid in place of acetic acid. Triplicate assays yielded 100.4% of the amount of metallic zinc employed. This method is, therefore, applicable also to the assay of zinc valerate.

Zinc U. S. P.—Since the determination of the strength of the standard solution of potassium ferrocyanide is based primarily upon the use of a definite amount of chemically pure metallic zinc, the ferrocyanide titration method, of course, is perfectly applicable to the assay of U. S. P. metallic zinc.

ANALYTICAL LABORATORY,
H. K. MULFORD COMPANY,
PHILADELPHIA, PA.

MEXICAN HERBS AND DRUGS.*

Noticing in the pharmaceutical press that a number of medicinal vegetable raw products have been received from the secretary of the British Trade Board of Mexico, and were on view at the chemical section of the Overseas Trade Department, at 35 Old Queen Street, Westminster, the writer paid a visit there in order to see if any of them presented possibilities of use in this country. Mr. T. W. Rogers, the gentleman in attendance, most courteously permitted me to peruse all the information that had been provided concerning the specimens, but unfortunately this information was of the scantiest character, even the names of the plants being in several cases incorrectly spelt, and the specimens apparently selected without the advice of either a scientific or trade expert, or without intelligent supervision. The specimens consist of seventy boxes, about 3 by 3 by 2 in., containing about an ounce of herb or root in each, and consequently insufficient material for botanists in this country to identify them with certainty if previously unknown to them. A small number occurring also in Europe, such as *Ocimum basilicum* (Albahaca), *Foeniculum vulgare* (Hinojo), *Matricaria chamomilla* (Manzanilla comun, or M. del Pais), *Ruta graveolens* (Ruta), *Rosa centifolia* (Rosa de Castile), were so badly prepared that they certainly could not compete with the same herbs as sold in Europe. The majority of the samples of purely Mexican drugs exhibited had nothing to recommend them as superior to the drugs or herbs of other countries.

* E. M. Holmes, F.L.S., in *Chemist and Druggist*, January 8, 1921, p. 52.

One would have expected to find some of the Mexican drugs and economic products that have attracted attention in commerce during the last fifty years or have found new uses, such as the Mexican "scammony," *Ipomea Orozabensis*, or Queretaro jalap (*Ipomoea triflora*) and "Diabetol" leaves, which have for 200 years at least been used in Mexico as a remedy for diabetes; or *Chaparro Amargosa*, attributed to *Castela Nicholsoni* ("Y. B. Pharm.," 1918, pp. 205, 230; 1919, p. 189); or *Casimiroa edulis*, which Merck called attention to (see "Year Book of Pharmacy," 1902, p. 171), and of which an illustration of the plant and twenty-seven pages of text (pp. 111–138) are devoted in the second part of Mexican Materia Medica (1898). One might also reasonably have expected that a copy of the Pharmacopoeia Mexicana and of the "Annales del Instituto Medico Nacional" and of the "Datos para la Materia Medica Mexicana," containing descriptions of the medicinal plants and their uses, might have accompanied the specimens sent for reference for the use of visitors, especially as these works are officially published by the Secretaria de Lomento, Colonizacion é Industria, and could have been obtained without difficulty. A singular illustration of the British method of doing things in bureaucratic positions is given in the bare list of names supplied in the catalogue. A bark labelled "Tlaxlacal" has no botanical name or identification attached, but only this significant sentence: "Six cars of this bark are said to be sent away every month by Germans." Yet the taste of the bark and its color should reveal to any intelligent observer that the bark contains much tannin, and belongs to the few tanning materials having very little coloring matter of which oak bark, mimosa bark, and neb-neb pods are examples, and it would therefore be of considerable commercial importance. The very fact that Germans were utilizing a product in quantity should have led to commercial information concerning it and its botanical identification for British use being obtained. Canaigre root (*Rumex hymenocephalus*) is one of the few important tanning materials that have not escaped notice, but as a regular article of exportation it would be difficult to overlook it. Candelilla wax, a wax possessing properties similar to carnauba wax, is another. The majority of the herbs and roots do not appear to possess any special qualities to recommend them to the attention of either business or scientific men, and one wonders why they were sent; while there are others, which suggest possible extensive uses, such as the Yerba del Algel (*Eupatorium collinum*), used as a substitute for hops in beer, or the Yerba de la Cucharaia (*Macrosiphonia hypoleuca*), the powder of which is used as an insecticide for the American cockroach.

It can, however, be easily understood that herbs with such names as Yerba del Vibora (*Myriadesmus tetraphyllus*) and Yerba del Cancer should have seemed worthy of investigation, and, owing to the facts that the former, instead of being used for snake-bite, is employed as an antiperiodic, and that the latter name is applied to so many plants in different districts—*e. g.*, *Lythrum vulnerarium* and other species, *Gomphrena decumbens*, *Salvia indica*, and *Acalypha phloeodes*, etc.—that it would be difficult to get the same herb twice under the same vernacular name. The specimen of Yerba del Cancer sent is certainly a labiate plant, and might possibly be the Salvia which is used in Guadaljira. A similar difficulty would attend the importation of Mexican herbs having names identical with, or similar to, those of European herbs. Thus Poleo is not Pennyroyal, but a form of *Mentha*

arvensis, which is used in Mexico as a substitute for it. Oregano is not *Origanum vulgare*, but is a verbenaceous plant, *Lippia origanoides*, which is also called Origano del Pais and Origano de Tehuacan. The small heads of flowers are about the size and shape of those of *Origanum majorana*, but the leaves are more rigid, are reticulated with prominent veins underneath, and are not downy. The taste resembles that of thymol and carvacrol, and it might be of interest to examine the essential oil. The Azafran sent is not saffron, but the florets of *Carthamus tinctorius*, and should properly have been labelled "Azafrancillo," which is the name for the drug.

Peonéa, of Mexico, is *Cyperus esculentus*, but the specimen sent, although bearing that name, is unquestionably not that root, but that of the *Poeonia officinalis* of Europe. It is obvious, therefore, that better supervision should have been exercised, and the collection submitted to a scientific botanist, and commercial expert in drugs, before being sent to this country.

There are, however, a few of the drugs or herbs that deserve notice.

"Estafiate" is the name given to *Artemisia Mexicana*, Willd., which is one of the plants illustrated and fully described in the Mexican Materia Medica, pt. 2, pp. 95, 110. In this work it is stated to contain santonin in the flowers, and that the extracted active principle agrees with European santonin in all particulars. If this statement be confirmed, there should be no difficulty in cultivating the plant in British Colonies in the Tropics.

Another Mexican drug that might be worth attention at the present time is Lycopodium, which is produced from *Lycopodium clavatum*, in Orizaba, Oaxaca, etc., especially if it can be obtained free from the adulterations, talc, pollen, dextrin, starch, etc., used for that purpose. Tepopote or Yerba del carbonero, consisting of three or four species of *Baccharis—viz., B. Alamani*, D.C., *B. multiflora*, H.B.R., and *B. conferta*, H.B.K., nat. ord. *Compositae*—has a high reputation in the treatment of coryza. These species contain resin and essential oil, but in an allied species, *B. cordifolia*, a narcotic alkaloid has been detected by M. Arata, which he named "Baccharanine." Another herb, Acalhuatl, or Arnica del Pais, *Heterotheca inuloides*, Cass., is of interest only because it might possibly enter commerce under the name of arnica. The plant is illustrated in the "Materia Medica Mexicana," pt. 2, p. 141, and could evidently be recognized by its different phyllaries and much more numerous florets. A chemical examination of the plant did not reveal any alkaloid or glucoside, but only tannin and an acid resin, and its therapeutical properties were found to be *nil*.

The juice of the Yerba de la Golondrina (*Euphorbia maculata*, Linn.), known also as Celidonia del Pais, is used, like that of *Chelidonium majus*, to remove spots on the corner, and as an application in ringworm and other skin diseases.

The sample of Peyote labelled "Anhalonium Lewini," is certainly not that species, although apparently one allied to it.

The root of Molle de Raiz (*Agave Americana*) is used for washing cloth and silk material, but the Molle de Bolita, the fruit of a series of *Sapindus*, is probably richer in saponin. It is curious to note that *Anagallis arvensis*, the common scarlet pimpernel of this country, is used for the same purpose in Mexico. Nothing is more clearly evident from these samples than the fact that until Great Britain selects her consuls and commercial agents from the most intelligent and pains-

taking classes of the community, she cannot hope to retain commercial pre-eminence. Such positions should be filled, not according to political influence, but with regard to commercial and scientific knowledge and *savoir faire.*

THE USE OF DRUGS IN DISEASE.*

BY R. G. ECCLES, M.D., BROOKLYN, N. Y.

To how many of your minds has the idea come that pharmaceutical chemistry may be the oldest profession on the earth? The first of living things must have started as a drug compounder. As soon as the early Protozoa began colonial life—*i. e.*, when they changed from one-celled to multi-celled organisms—they must have exchanged with one another those kinds of drugs now known to physiologists as hormones. With progress upward to the higher forms of life we find, on study, that the exchange of drug commodities increased very greatly. Myriads of substances unknown to the lower forms appear among the higher. Prof. Huxley, the great English biologist of the end of last century and the beginning of this, declared that of the many millions of organic substances produced by plants and animals they are all combinations of exactly the same elements as are found in "smelling salts" with a trifling amount of mineral substances. Out of these cells—the primitive pharmacists—produced by their compounding almost the entire array of organic substances found upon your shelves labelled with what laymen look upon as hieroglyphics. While most pharmacists know, in a general way, that the great bulk of their medical supplies are the products of these ancient pharmaceutical chemists few have stopped to consider the fact that their own bodies are miniature drug depots, and that a quite respectable proportion of the drugs found therein vary but slightly from those they sell every day over their counters. The same identical radicals are found in them as are found in the store stock. Your bodies' cells have been licensed by nature, after a proper training in the nature of drugs, to put up the claim that within their membrane walls "Prescriptions Are Carefully Compounded." Within their walls they are constantly at work filtering, precipitating, dissolving, macerating, digesting, percolating, oxidizing, reducing, and hydrolyzing. An inventory of the kinds of goods they carry—not ready made, however, but as chemical radicals—would be astonishingly like those found in a Jersey pharmacy. There are in the cells of a normal human body material radicals for the production, on demand, of some very potent compounds but all so cared for as to be quite harmless. Let us, for a moment, look over part of the list as it occurs to us at first thought. There is phosphorus, phosphoric acid and phosphates; iron, iron oxides, sulphides, sulphates and carbonates; sulphur, sulphides, sulphates, sulphites, sulphurous acid, sulphuric acid, and sulphuretted hydrogen; ammonia, ammonium carbonates, sulphides, sulphates, sulphites and phosphates; nitric and nitrous acids with a host of nitrogen salts, t. n. t., nitroglycerin and dynamite; hydrocyanic acid, cyanogen, cyanates and cyanides; iodine, iodides, iodates, and thyroidine; arsenic acid, arsenic, arseniates and arsenides; formaldehyde, formic acid, formates and many polymers of formaldehyde; glycerin and a host of different kinds of tryglycerides; hydrochloric acid, chlorine and a multitude of chlorides; calcium,

* Read before New Jersey Pharmaceutical Association, Newark, 1920.