A REVIEW OF THE LITERATURE IN PHARMACEUTICAL BOTANY AND PHARMACOGNOSY FOR 1922–1923 (AUGUST 1, 1922–AUGUST 1, 1923).*

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The past year (August 1, 1922–August 1, 1923), like the one before it, has been fruitful in excellent research work and valuable papers, and I am honored, I know, in being permitted to review and indirectly to compare the literature resulting from these years. In fact, along certain lines, the past year has exceeded the one before it both in bulk and in quality of the scientific crop.

Whenever I wish to convince myself that Pharmaceutical Botany and Pharmacognosy are really progressing, I need only look at the results attained in 1922–1923 by that vast army of scientific searchers who have slowly but surely cleft their way into realms unexplored, seeking eagerly for truth, adding new facts to knowledge and stripping old teachings of fallacies.

If, at the same time, I view the avenues along which progress has been made, I see them ever increasing—not confined to morphology and chemistry alone but including microanalysis, drug plant cultivation, applied plant physiology, drug exploration and others as well. Some paths, it is true, are trodden more than others for various reasons. They may be large, important, accessible, or perhaps they may give promise of ready transportation to the goal. Such, it seems, has been the lot of plant chemistry with its inevitable harvest of valuable research.

In the end, however, it has been the keen enthusiasm and coöperation shown by all that has resulted in such progress. The morphologist has helped the chemist; the chemist, the morphologist, etc. The work produced by Viehoever, Rosenthaler, Rusby, Reutter, Wherry, Keenan, Kremers, etc., is highly inspiring and a source of lasting good. Truly, upon such reflections, I realize that our science is progressing.

In this paper, I have retained the headings that I adopted last year—(1) morphology, (2) drug cultivation, (3) microanalysis and microchemic methods, (4) drug adulteration and substitution, (5) plant chemistry, (6) ash determination, and (7) history, so that the reader by referring to my last year's review of similar nature may be able to quickly compare the productions of the two years along the lines mentioned.[1]

I shall now briefly mention some selected papers in each of these fields.

Along morphological lines, I take delight in mentioning "Occurrence and Forms of Calcium Oxalate Crystals in Official Crude Drugs," by E. T. Wherry and G. J. Keenan appearing in a late number of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.[2] This paper contains a discussion of calcium oxalate monohydrate, magnesium oxalate monohydrate, potassium hydrogen oxalate, a list of observations on the crystals of individual drugs and a list of drugs not containing calcium oxalate. Here might also be placed provisionally the "Traité de Matière Médicale et de Chimie Végétale,"[3] by Dr. Reutter whose beautiful work commands attention. An interesting investigation is one conducted by Fanchon Hart, "The His-

* Scientific Section, A. PH. A., Asheville meeting, 1923.

[1] Page 122, February JOUR. A. PH. A., 1923.

[2] Page 301, April JOUR. A. PH. A., 1923.

[3] See Book Notices and Reviews, p. 472, JOUR. A. PH. A., May 1923.

tology of Vilca Bark,"[1] the medicinal bark of *Piptadenia macrocarpa* collected by Dr. H. H. Rusby during his recent Amazonian exploration. Lastly, I mention the third edition of "Microscopical Examination of Foods and Drugs," by Henry G. Greenish.[2]

Turning next to drug cultivation, I may especially refer to "Cultivation of Medicinal Plants in France," a report on the awakening of France due to the War with respect to her activity in raising and harvesting drug plants. Another very interesting article appears in the same issue of the *American Druggist* dealing with the Yerba Maté industry of Paraguay written by Trade Commissioner W. L. Schurz, Asuncion. I take opportunity here to repeat my plea of last year with respect to drug cultivation as it offers a most fertile field for research.

Advances have been made in microchemistry and its methods. As a result, we have some excellent papers to record. Of these, I name two: "Sublimation of Plant and Animal Products—Third Report," by A. Viehoever, which appeared in the *J. Assoc. Official Agric. Chem.*, 6, 473, 1923. This paper discusses a new sublimation flask which the writer designed for micro- and macro-sublimation. A most interesting and valuable paper is that of L. Rosenthaler entitled "Neue Microchemische Alkaloid-Reaktionen," appearing in *Schweiz. Apoth. Ztg.*, 61, 117, 1923. This covers a series of tests performed on various alkaloids (Brucine, Cocaine, Stovaine, Morphine, etc.), together with drawings of their crystal shapes.

I must now pass over the next heading as rapidly as possible. Massatsch and Nestler both give interesting cases of drug adulteration—the former of santonin, the latter of saffron. Tanert cites an example in his "Seigle Ergoté Falsifié" of adulterated ergot where wheat starch paste was used after being passed through narrow apertures, suitably broken, and then colored first with red ink and then with black ink.

Again, I find that most of the research of the past year has been along chemical lines. This tendency I noted last year in my paper before this society. Microchemistry, we also note, has greatly developed. The following papers I select from the large number of estimable ones published and let them serve as powerful representatives of their group: "A Reinvestigation of the Proximate Composition of Rhamnus Frangula," by Gunton and Beal, the splendid papers of Rosenthaler on "Beiträge zur Blausäurefrage," the publications of Annett and his co-workers on opium and Simonson's papers on oils. Of course, here can also be included the exacting and much-praised "Traité de Matière Médicale et de Chimie Végétale" of L. Reutter. It must be understood that only the lack of space prohibits me from mentioning many more.

Scarcely any papers on ash determination have come to my attention nor could I find many in hunting through the literature. However, I know that Prof. E. L. Newcomb of the University of Minnesota has done a vast amount of work along this line as well as extended investigations on the problems concerned with the powdering of vegetable drugs in connection with the revision of the new United States Pharmacopœia and National Formulary. I hope that we shall soon hear from him in a series of profitable papers.

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[1] Page 906, November JOUR. A. PH. A., 1922.

[2] See Book Notices and Reviews, p. 377, *Ibid.*, April 1923.

With respect to drug history, I want to call attention to the "Romance of Spices," by C. H. LaWall of the Philadelphia College of Pharmacy and Science. This paper is an outgrowth of one of an inspiring series of evening lectures held at that college and reads like a most fascinating book. "De l'Opium comme Drogue Sensorielle" by Reutter de Rosemont also deserves marked attention at this time. Finally, the paper on "Some Interesting Plants of Bolivia" by H. H. Rusby gives us a valuable insight into the history of Coto and Cocillana barks and their substitutes.

The following list of references to papers in Pharmaceutical Botany and Pharmacognosy, which the writer realizes is necessarily incomplete, yet represents those papers which have come to his attention and which he deems beneficial to workers in these fields. It is to be noted that a number of the titles of foreign works have been translated into English for the benefit of those who do not read several languages.

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Histology of Cocillana and Substitute Barks. C. W. Ballard, JOUR. A. PH. A., 11, 781, 1922.

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Botanical Source of Coto Bark. H. H. Rusby, *Bull. Torrey Bot. Club* (Sept. 1922), 259; through *Pharm. J.*, 109, 483, 1922.

Picrolima klaineana. E. M. Holmes, *Pharm. J.*, 109, 478, 1922.

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Cascara Sagrada. E. M. Holmes, *Pharm. J.*, 110, 314, 1923.

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[1] See also JOUR. A. PH. A., July 1922, p. 521.

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PRIVILEGE OF CLEANING AND RELABELING IMPORTED FOODS AND DRUGS MAY BE WITHDRAWN.

The privilege of cleaning, sorting and relabeling imported foods and drugs that contain foreign matter, or that are misbranded to make them comply with the requirements of the food and drugs act before formal entry, may be withdrawn, according to a statement by the officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the act. Attempts have been made recently by some importers to evade the relabeling and cleaning requirements on imported food and drug products, say the federal officials.

Importations of foods and drugs found to contain excessive dirt or foreign matter, or found to be misbranded, are released conditionally and allowed to be entered after cleaning or relabeling, if entire correction of the fault can be effected by such action. Conditional entry of food and drug products in this manner is a privilege rather than a right and is predicated upon the theory that all importers will carry out in good faith the cleaning or relabeling conditions imposed, say food officials. Conditional entry is now permitted in the interest of importers generally who would be put to great expense and would be occasioned loss if all illegal shipments were required to be exported or destroyed.

Should this form of control prove to be ineffective, some other form of control must be devised, and consideration is being given to an entire revocation of the privilege of all conditional entries, according to the food and drug officials. If this is done, all importations of food and drug products found to be misbranded, or found not to comply with the Government standards of purity, will have to be exported or destroyed.

The authorities are considering an alternative proposition of withdrawing the privilege of conditional entry from any individual importer who may attempt to evade the provisions which are imposed for conditional entry. Consideration is also being given, according to the officials, to the establishment of a list of accredited recleaning warehouses where all recleaning operations must be carried on.