

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

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DEPARTMENT.

Continuing the discussion of the teaching of Pharmacology and Pharmacognosy begun by Dean Bliss in a recent issue of the JOURNAL, the following papers by Dr. Youngken and Dr. Christensen are worthy of careful study by every teacher of the subject. These papers complete the symposium on the subject conducted by the Teachers' Conference on Materia Medica at the Miami meeting of the Association.—C. B. JORDAN, *Editor*.

WHAT IS PHARMACOGNOSY?

BY HEBER W. YOUNGKEN.

To one who is regularly engaged in the pursuit of the varied problems of this science the first reaction to this question is that the answer is so simple that it could be given within the limit of a three-line paragraph and that any attempt to elaborate the answer into a paper would only be a waste of energy to himself and of time to his audience.

This is what first entered my mind when our chairman requested me to present a 15- to 20-minute paper upon that topic. But further mental reaction reminded me that all was not as lucid as it seemed and that there was an important reason for the chairman's request.

I recalled having heard this same question asked on previous occasions during our conference meetings but no one seemed willing or was bold enough to offer a positive answer. This is, indeed, not surprising if one takes into account that Pharmacognosy is a growing, applied science considerably less than a century old in America, whose workers have even differed among themselves as to the exact limits of its scope.

We might approach a solution by considering the origin of the term, the definitions for it given by authors of the past and present and then take up the problems embraced in its practice of to-day.

The term Pharmacognosy was introduced by C. A. Seydler in his "Analecta pharmacognostica" in 1815, and is formed of two Greek words, *φάρμακον*, a drug, medicine or remedy and *γνώσις*, knowledge, and hence literally means the science or knowledge of drugs.

The dissertation of Seydler was a compilation of the literature on Olibanum, Calumba root and Ammoniacum.

The term Pharmacognosy was early applied to a broad field of knowledge by naturalists and workers with drugs and drug plants.

It was adopted in 1825 by Th. W. C. Martius in his lectures at the University of Erlangen and used by this pioneer teacher of the subject in his book called "*Grundriss der Pharmakognosie des Pflanzenreiches*" which was published in 1832. In this treatise he defines the term as follows: "Pharmacognosy is part of the universal knowledge of commercial materials." "We recognize, thereby, the science of medicinal materials obtained from the three natural kingdoms in regard to inquiry about their source, tests for their purity, as well as investigation into their substitu-

tion and adulteration." "The word is formed from *φάρμακον* (poison, medicine) and *γινώσκω* (I recognize), therefore also known as the knowledge of recognizing poisons and medicines, commercial materials, crude drugs and raw materials.

Schleiden, author of the cellular theory for plants and the first histological pharmacognosist, called pharmacognosy the mother of all natural science disciplines.

Flückiger, co-author with Hanbury of the "*Pharmakographia*," states that it is the simultaneous application of various scientific disciplines with the object of acquiring the knowledge of drugs from every point of view. This definition is as broad as the literal interpretation of pharmacology.

Many of the authors of medical and pharmacy texts call it the science of crude drugs.

Let us see how pharmacognosists of the present day define this term.

Tschirch states "Under the name Pharmacognosy we recognize the knowledge whose problem it is to know the plant and animal drugs from all points of view and, with the exception of physiological action, to correctly describe them and classify them from all general points of view."

In his great work, "*Handbuch der Pharmakognosie*," now in its second edition, he points out eleven departments of this science, as follows: 1. Pharmaco-culture, 2. Pharmaco-handling, 3. Pharmaco-sorting, 4. Pharmaco-botany, 5. Pharmaco-zoölogy, 6. Pharmaco-chemistry (including variation statistics), 7. Pharmaco-physics, 8. pharmaco-geography, 9. pharmaco-history, 10. pharmaco-ethnology, 11. pharmaco-etymology.

Greenish, the renowned pharmacognosist, uses the terms *Materia Medica* and *Pharmacognosy* synonymously and defines either as that science which aims at a complete and systematic knowledge of crude drugs of animal and vegetable origin.

Rusby, in his "*Manual of Structural Botany*," states that pharmacognosy is the identification, valuation and selection of drugs.

Youngken, in "*A Text Book of Pharmacognosy*," 3d ed., defines pharmacognosy as the science which treats of the history, commerce, collection, selection, identification, valuation and preservation of crude drugs and other raw materials of vegetable and animal origin.

Newcomb, Darbaker, Gathercoal and Fischer, in "*Kraemer's Scientific and Applied Pharmacognosy*," 3d ed., define it as the study of organic drugs and allied products.

Suppan, in "*Wall's Handbook of Pharmacognosy*," defines it as that branch of knowledge which is concerned with crude drugs derived from the vegetable and animal kingdoms as they occur in trade.

Culbreth lists it as a subdivision of pharmacology along with pharmacy, pharmacodynamics, toxicology and therapeutics, stating that it comprises the physical and chemical characters of drugs—the knowledge of selecting, recognizing and identifying true and false specimens by such characteristics.

What is pharmacognosy? Are we to define it so as to make it cover the ground to suit our fancies or those of our predecessors or, are we ready to frame a definition based upon the ground covered by its practice to-day? If the latter, which to me seems the only logical method, let us consider its objects which are in the main the determination of identity, quality and purity. To accomplish these

the following kinds of work here summarized are actually carried out by pharmacognosists at the present time:

1. The collection of crude drugs and other raw materials from both living kingdoms.
2. The cultivation of drug, spice and oil plants.
3. The identification of crude drugs, spices, commercial gums, resins, paper and textile fibers, woods and other raw materials from plants and animals together with their adulterants and substitutes.
4. The garbling, grading, shipping and curing of crude drugs, condiments and other raw materials.
5. The valuation of crude drugs, spices, and other products obtained from plants and animals, involving organoleptic, physical, chemical, microchemical, microsublimation and pharmacodynamic tests, as well as histological examination.
6. The preservation of these raw materials of vegetable and animal origin from the ravages of insects, mites, molds, bacteria, yeasts and other organisms, as well as the influence of temperature, moisture and light.
7. Inquiry into the history, geographical distribution, trade routes and commercial sources of these natural products of plants and animals.

A definition embracing all of these practices involved in the modern practice of pharmacognosy might read as follows:

Pharmacognosy is the science which treats of the history, distribution, commerce, collection, cultivation, identification, selection, valuation and preservation of crude drugs and other organic materials of vegetable and animal origin, indeed a wide field and basic to the practice of pharmacy.

Accordingly, pharmacognosy would not be synonymous with *materia medica*, for the latter, being the study of all medicinal materials, not only includes the crude drug phases of pharmacognosy, but in addition the mineral drugs, the refined products of crude drugs, the medicinal synthetics and preparations of all of these. Nor would it be synonymous with pharmacology in either the broad or restricted use of the latter term, for in its broadest use pharmacology embraces every kind of inquiry into drugs and other remedial agents, while in its more restricted use it deals with the action of drugs upon living organisms.

MATERIA MEDICA—HOW DEFINED?

BY B. V. CHRISTENSEN.*

It appears that during the past half century there has been considerable confusion regarding the meaning and proper use of the term "*Materia Medica*." It has been confused with Pharmacognosy, Pharmacology and even Chemistry and has been frequently used synonymously with those terms and especially the first two.

According to Murray, "*A New English Dictionary*," this term was used by Galen (131–200 A.D.) in a generic sense, to mean "medical material," *i. e.*, the remedial substances used in the practice of medicine. As a science it was considered that branch of medical science which treats of these substances. At that time

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