

gram a paper from a lady pharmacist, an instructor in a college of pharmacy. He expressed the hope that this prompt recognition of the merits of the paper presented by Miss Cooper would stimulate others of the gentler sex to contribute, for certainly this paper had proven that the ladies were fully as capable as the men of making contributions of real merit to the work of the Section.

Miss Cooper briefly expressed her sense of the honor conferred upon her by her election as one of the Associates on the Committee, and said she would be glad to do all in her power to further the work of the Section.

Mr. Shuptrine then brought forward Mr. Craig, of New York, and introduced him as one of the Associates on the Committee who was able to speak for himself. Mr. Craig, being a modest man, was inclined to repudiate this suggestion, and said that he had been overlooked by the Chairman. He thought perhaps the reason he had been overlooked was because he had been too quiet. It had been his disposition to get up and talk upon the \$5-fee proposition, recently under discussion, because he always liked to discuss financial (!) matters. He assured the members that they would not have another chance to overlook him, because, if he had the good fortune to be present next year as Associate, they would certainly hear from him.

The Chair asked if there was any further business to come before the Section, but none was offered. Thereupon, on motion of Mr. Anderson, seconded by Mr. Sass, the Section, in joint session with the National Boards and the Conference of Faculties, adjourned *sine die*.

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## THE MISUSE OF THE TERM PHARMACOLOGY AND OTHER TERMS

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Times change, and the meanings of words change with them. There is a growth and development in words just as there is in the sciences and arts. Words which had a certain meaning yesterday have come, through human progress, to have a different meaning today. Especially is this true of technical and chemical terms, which, with the development of the sciences and arts, broaden in meaning, or become more limited in meaning, or, sometimes, lose their original meaning entirely.

It is for this reason that the definition of such terms in the usual dictionaries do not give their full and true meanings as understood by technical and scientific workers.

"The term fermentation was first applied to the fermentative process which leads to the formation of alcohol, the knowledge of which goes back to very remote antiquity. The name fermentation probably arose from the copious evolution of gas which accompanies the production of the spirit, and which gives the liquid in which it is taking place the appearance of a gentle ebullition." (J. Reynolds Green.)

Today the term fermentation is applied to any enzymic change, or any change

whereby complex organic material is resolved into simpler substances through the intervention of ferments.

Alcohol once meant only grain or ethyl alcohol; now it is applied to many other hydroxides of organic radicles.

Aldehyde formerly meant only acetic aldehyde; now it is applied to many primary products of oxidation of primary alcohols.

Take, also, the use or misuse of the term drug, a word the exact origin of which is obscure; but the most reasonable explanation is that it has been derived from a root meaning "to dry," because the term was applied only to plants, plant parts, and plant products, many of which had to be dried before they could be used. Today, the term is employed in a much broader sense. It is applied to any substance, whether of animal, vegetable or chemical origin, capable of preventing, relieving or curing disease; or, to express the term more tersely, a drug is any substance having medicinal properties.

The term medicine was formerly applied to chemical compounds only, and later was used interchangeably with the word drug, but such use is rapidly becoming obsolete. The term is broadening in meaning to embrace, not only the "science of the treatment of disease," but also, collectively, all the sciences and arts of the modern medical world.

It is pleasing to note that the national and state food and drugs acts of this country use the term drug correctly, that is, as indicating all kinds of remedial substances, whatever their origin, and their preparation.

For these reasons, the writer believes that it would be advisable to change the title of the "Committee on Unofficial Standards for Drugs, Chemical Products and Pharmaceutical Preparations of the American Pharmaceutical Association" to that of "Committee on Standards for Unofficial Drugs."

With reference to certain familiar terms, John Attfield writes that:

"Persons who practice the art and science of chemistry are known as chemists. Some two hundred or more years ago, and before chemistry was a science, the 'chemists' were the makers or vendors of chemicals, then only used as medicines. They were the successors of the alchemists. In Great Britain, these chemists and the herbalists, otherwise drug-grocers, otherwise druggists, gradually associated to form the 'chemists and druggists.' Between the 'chemist and druggist' and the physician, there existed the apothecary—the putter together of medicines or compounder of physicians' prescriptions. The apothecary has since become a medical practitioner, prescriptions now being 'made up' by the chemist and druggist. The whole class is often spoken of as that of pharmacists or pharmaceutists, terms also used in the United States."

There are other terms used in the pharmaceutical world which have changed in meaning. Thus, Henry Kraemer writes that, "Pharmacognosy, according to its Greek root, means a knowledge of drugs, but according to modern usage, it means the study of the structure and chemical constituents of crude drugs"; and even this definition—modern as it is—will probably broaden to mean, not only the study of the structure and constituents of crude drugs, but also, the art of identifying, selecting and preserving them.

Probably the most striking misuse of a technical word today is that of pharmacology. This term, according to its Greek derivation, means medicine and dis-

course, or, as Dorland expresses it, "the sum of knowledge regarding medicines"; but, according to modern usage, pharmacology means only the study of the action of drugs upon healthy living tissues, or pharmacodynamics; in contradistinction to the study of the action of drugs upon diseased living tissues, or therapodynamics. The first study is based largely on physiological chemistry, and the second on pathological chemistry.

Probably the most comprehensive definition of pharmacology is that of Torald Sollmann, as follows:

"Pharmacology, in its modern meaning, treats of the action of chemical substances on living tissue—of the changes produced in the structure, composition, and function of living bodies by unorganized chemically acting substances not belonging to their natural environment. Pharmacology, therefore, goes a step further than what used to be called physiological action, in that it aims to furnish the explanation for the changes observed."

That this definition of pharmacology is the accepted view of the medical profession in this country today is shown by the fact that the American Medical Association uses the title "Section of Pharmacology and Therapeutics," for one of its most important sections.

The term pharmacology does *not* mean the sum of knowledge concerning drugs, nor does it represent all the pharmaceutical sciences, as might be thought by its manner of use in the New York state pharmacy law. If the term ever had such a comprehensive meaning, outside of the dictionaries, it has certainly lost it, and today stands for pharmacodynamics only. The term is used, erroneously, also, by the National Association of Pharmacologists, a national association of drug clerks. But such misuse will probably be corrected.

It is pleasing to note that the term pharmacy is rapidly broadening in meaning. As used today, it embraces all the sciences and the art of pharmacy, just as the term medicine, today, embraces all the sciences and the arts of medicine. The meaning of pharmacy is not limited to "the study of the preparation and dispensing of drugs and medicines," but means much more.

As Reynold Webb Wilcox stated, "Pharmacy covers a field of nearly as much importance, breadth and difficulty as that of medicine itself, and requires a special, extensive, and thorough preparation."

Briefly, pharmacy is the science of drugs and the art of preparing them for use; or, as Joseph P. Remington more fully defines the term: "Pharmacy is the science which treats of medicinal substances. It comprehends, not only a knowledge of medicines and the art of preparing and dispensing them, but also, their identification, selection, preservation, combination and analysis."

By this, it will be seen that pharmacy is the most important branch of study in the curricula of pharmaceutical schools, embracing all the sciences, as well as the art, covered by all forms of drug knowledge.

The use of the term pharmacology to replace the well established term pharmacy will result in confusion, provoke endless criticism, substitute a longer word for a shorter one, and the advocates of the change have produced no reasons which are adequately conclusive to warrant the great inconvenience and loss which would be entailed by continuing the wrong use of the term pharmacology.

A word with reference to *materia medica*. According to modern usage, this term means that study of the natural history of drugs not covered by pharmacognosy, or, in other words, the study of the commercial history of drugs, a most necessary branch of pharmaceutical science. It may be that *materia medica* will become, ultimately a division of pharmacognosy, in the form of practical or applied pharmacognosy, in contradistinction to theoretical pharmacognosy as now embraced in the main term, but this is a matter the future only can determine.

#### DISCUSSION.

Dr. H. H. Rusby said he was very much pleased and interested to have Mr. England present his subject so thoroughly. It was true, as the writer had stated, that the correct use of the term "pharmacology" included the whole subject of the knowledge of drugs. The present restricted use of the word, he said, represented one of the most striking illustrations of the misuse of a scientific term. He said that Mr. England correctly so stated, although he did not think he intended to do so. He could give one illustration which was still more striking: About two generations ago the term "natural history" was used to mean the history of nature, including geology and botany as well as zoology. An English writer lived about that time, who knew a great deal about zoology, but little about the rest of natural history, and he concluded that anything he didn't know wasn't worth knowing; therefore, he said, "I will apply the term 'natural history' to zoology." For a generation that use, or misuse, of the term "natural history" held, as all the members knew. But scientific accuracy would bring the use of a term to its proper meaning, "if it took ten generations to do it," and today if a man wrote a book on zoology and called it a book on natural history he would be thrown down. Dr. Rusby said he might not live to see it, but with the utmost confidence he predicted that the term "pharmacology" would come back to its original use, when a certain group of men whose vanity was greater than their sense of loyalty to scientific accuracy had passed away.

Continuing, Dr. Rusby said he wanted to tell the members about some other things that this same group of men held to. One of them said that the Pharmacopoeia should only contain four drugs, and from that they went up to twenty-two; twenty-two was the largest number he had known any of them to admit ought to be in the Pharmacopoeia. They also said that both *materia medica* and therapeutics should be left out of the medical curriculum,—and they were left out today, he believed, from the University of Pennsylvania's medical course. He said he might be mistaken about this, but he had been so informed. He knew they recommended leaving out *materia medica* and therapeutics from the medical course, to train physicians to cure sick people, and confined themselves wholly to experiments on animals, which they called "pharmacology." Dr. Rusby said that if all the mathematicians of the world would say that four times five were nineteen, he would never believe it. It made no difference to him how many people agreed, "We will say it is this way," it would never phase him in the least. For a time, as long as such were in control, they might succeed, but things would right themselves in the end. He simply looked to the great future, and he knew that everything inaccurate was just as certain to pass away as were the people of this earth when their day was done.