address the agronomists on December 3 on statistical methods. This statement has never been authorized by me and in fact I have more than once assured the secretary of this society that I would make no decision with respect to consenting to speak on this occasion until certain conditions had been complied with. There has been no indication that the conditions will be complied with. I seriously object to being dragooned into giving public talks by being announced as a speaker before I have consented to speak. I shall not make the address announced for me.

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QUOTATIONS

DR. WELCH'S NEW CHAIR

JOHNS HOPKINS UNIVERSITY in establishing a chair for the history of medicine, believed to be the first of such scope in America, is emphasizing the importance of the physician's background. In no other profession, unless it be the ministry, is a background more important than in that which has to do with progress in knowledge and treatment of bodies in which there is something, as Dr. Thomas Browne said, "that can be without us and will be after us, though it is strange that it hath no history what it was before us nor can not tell how it entered in us." But history in the hands of physicians and surgeons and research students has been written during the three centuries since that physician who desired to be remembered only in the "universal register of God," wrote his "Religio Medici." No one in America knows that history better than Dr. William H. Welch, who is to be the first occupant of the first American chair in this subject.

Dr. Welch has already two major achievements to his credit. In 1884 he organized the faculty of the Johns Hopkins Medical School, and in 1916 he organized the Johns Hopkins School of Hygiene and Public Health. In the first he led "a new departure in medical education," and incidentally trained a number of the foremost pathologists of America, besides doing important research work himself. In the second, he organized and directed the work of the first medical institution in the world designed primarily to promote research and teaching in the field of preventive medicine and public health.

Now he enters upon a third undertaking in which the cure and prevention of disease are linked into a unity. With his unusual experience and learning, unsurpassed since Dr. Osler's death, and with a personality drawing all men to him, he comes in the autumn of his life to give of his own culture to the enrichment of those who are to carry on in his profession. Some may look upon such study as a mere ornament in medical practice; but his answer is that it is "an asset to successful practice and to the pursuit of medical science." It is essential to a further development of what we now have to show how we came into possession of it. He cites Dr. William Osler, his former associate, "one of the outstanding physicians of all time," as a man whose knowledge was "very largely based on the history of medicine." He might have cited also Sir Thomas Browne:

> I could never content my contemplation with those general pieces of wonder—the Flux and Reflux of the Sea, the increase of Nile, the conversion of the Needle to the North; and have studied to match and parallel those in the more obvious and neglected pieces of Nature which without further travel I can do in the cosmography of myself. We carry with us the wonders we seek without us; there is all Africa and her prodigies in us. We are the bold and adventurous piece of Nature which he that studies wisely learns in a compendium what others labor at in a divided piece and endless volume.

It is the history of man's exploration and discovery in the cosmography of his own self that Dr. Welch will now teach; and his own achievement is the best testimony to the value of his subject. His entrance upon this work is itself another milestone in the history of medicine in America.—*The New York Times.*

SCIENTIFIC BOOKS

General Botany. By C. STUART GAGER. Pp. xvi + 1055, 689 text figures. P. Blakiston's Son & Co., 1926.

THE multiplication of botanical texts indicates not only the progress of botany, but also the great variety of judgment as to its presentation to students. Gager has written several texts, but the present one is a voluminous compendium of botany in general, presented with an unusual purpose. In the preface, the author discusses the purpose and emphasizes the idea that all education should regard "the individual and society as of primary importance," the subject being merely a means of training the student in thinking and in rendering public service. As he puts it, "the great need is not so much to know *what* to think, but *how* to think." It is expected that laboratory work will be the foundation for using the text, but this is "enriched" with information of educational value. The thought is summed up in the statement that "the aim has been to show that plant life has been, throughout history, and still is closely interwoven with human life." The title of the book states

that it deals with botany "with special reference to its economic aspects." The text is really a presentation of botany as contributing to human welfare throughout its whole history. It is made interesting, therefore, not only for students who propose to specialize in the subject, but also for those who come only into brief contact with it, opening up a perspective that is full of information and suggestion. The chief constituency for which the text is prepared, however, is for those interested in the application of botany "to horticulture or agriculture and other occupations founded in whole or in part upon the science of botany." With such a purpose, the organization of the text is of interest.

It is divided into five parts. The first is called the "Introduction." It introduces the student to the problems of botany by using the clover as an illustration. All through the text, the plants used are those that are familiar, rather than forms that are generally unknown. The general problems as presented by a flowering plant are numerous and difficult and are extended to include cell structure.

With this introduction, the second part deals with "The vegetative functions of plants," in twelve chapters, practically the problems of physiology, such as water absorption, transpiration, respiration, nutrition, growth, adjustment to surroundings, and many kindred problems. In short, it presents the plant in action, based on the structure illustrated by the clover.

The third part presents, in eleven chapters, the subjects of reproduction and life-histories, beginning with seed plants, telling "how seeds are made," and continuing the presentation through the Cryptogams. This part closes with a chapter on the problem of sex in plants.

The fourth part deals with the classification of seed plants, the preliminary chapters stating the principles of classification and evolution. The classification of Dicotyledons is presented in seven chapters, and that of the Monocotyledons in four. The families of economic importance are presented, and fully illustrated, so that the student is able to understand the origin and structure of the plant products with which he is familiar. This part of the book naturally resembles an encyclopedia, for consultation rather than for continuous reading.

The final part presents the subjects of genetics and evolution in four chapters, whose titles are suggestive: Heredity, variation, and environment; the physical basis of heredity; generalizations and special cases; evolution.

The general order of presentation of the plant groups is to descend from seed plants, with all their complexities, to the lower groups, reversing the order of evolution. The argument in favor of this sequence is that the first contact is with commonly known plants. The argument against such a sequence is that the first contact is with bewildering complexity of structure. There will always be differences in judgment as to which argument should prevail.

The belief that botany should be presented in its historical position and economic importance should certainly be commended, for it develops general interest in a great field of scientific activity, a field that has too long not received the appreciation it deserves. After all, the usefulness of a text depends largely upon the teacher who is using it, and Gager's book is full of information that can be made the basis of various kinds of teaching. The numerous excellent illustrations are to be especially commended, since they make the facts visible and help to interpret the text. As a whole the book is a valuable addition to our botanical texts, being a great collection of information and suggestion, and broadening the perspective of botany for the student. The details are too numerous for a critical review, but the attitude of the author may be judged by a quotation from Epictetus with which he closes the preface:

"If they who find some faults in it were as intimate with it as I am, they would find a great many more."

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SPECIAL ARTICLES

THE FACTOR OF AGE IN THE CHEMICAL STABILITY OF THE BLOOD DURING GESTATION[1]

DURING the past six years, investigations[2,3,4] have been undertaken in this laboratory which were concerned with the stability of the acid-base equilibrium of the blood in normal dogs at different age periods, and also in normal and nephropathic animals when subjected to a general anesthetic or intoxicated by uranium nitrate, an acid or an alkali. Such experiments have shown the relative inability of old animals to maintain or when disturbed to reestablish this fundamental balance of the blood. It would appear that

[1] Aided by a grant from the Ella Sachs Plotz Foundation.

[2] MacNider, Wm. de B., "Concerning the Influence of the Age of an Organism in maintaining its Acid-Base Equilibrium," SCIENCE, n. s., Vol. XLVI, No. 1200, 643, 1917.

[3] MacNider, Wm. de B., "A Consideration of the Relative Toxicity of Uranium Nitrate for Animals of Different Ages," *Jour. Exp. Med.*, Vol. XXVI, 1, 1917.

[4] MacNider, Wm. de B., "On the Stability of the Acid-Base Equilibrium of the Blood in Normal and in Naturally Nephropathic Animals," SCIENCE, n. s., Vol. LIII, No. 1363, 141, 1921.