

humiliation you will have. Be a good mixer. Give and take. Meet every obligation. On the basis of common decency make all the friends you can. Then you will carry the spirit of your university with you and do much to pay the debt which you will always owe her.

But be on the alert for special opportunities to help her. Assume not too conclusively that it must be in the conventional way. The unexpected will happen. Half a dozen years ago the richest man in the country became suddenly ill. In the absence of his regular physician he called in a young graduate of the Harvard School of Medicine and impulsively assured him that if he would get him out of that scrape he would pay any charge that he might make. The case was not serious to an educated man. The young man understood the difficulty and soon he wrought the needed cure. No bill was sent and in time it was asked for. The young physician reminded the multimillionaire of the promise. "Oh, yes," he said, "but I assumed, of course, that your charge would be within reason." The doctor's time had come. He said: "I shall make no charge, but I shall ask you to do something for me. The Harvard School of Medicine needs help. I would help her if I could. Under all the circumstances I feel warranted in asking you to look into the matter with a disposition to aid her justly, as you easily may." The old man said, "Would you like to bear a message to President Eliot?" "Yes." "Ask him to come and tell me all about it." In a week the man of wealth had given his pledge to the president of Harvard for a million when the balance should be raised, and in a month the five millions had been assured which have erected and equipped the finest plant for a medical college that is to be found in the wide, wide world.

You may not accomplish all these things,

but if you will aim at them, if you will put the training of this university to its logical use, I am sure that when the long shadows come they will bring ease and comfort and honor and that when it is all over there will be peace with the hereafter.

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SCIENTIFIC BOOKS

A Text-book of Botany and Pharmacognosy, intended for the use of students of pharmacy, etc. By HENRY KRAEMER, Ph.B., Ph.D., A.B. Pp. 840. Illustrated with 321 plates and upward of 1,500 figures. Lippincott & Co.

To regard a piece of work as good pharmaceutical botany, under the educational conditions which have existed in modern pharmacy, is practically equivalent to a declaration that it is not good botany. The theory of professional education, that the technical study of a subject follows that of its general field, has not here applied, since, except in a very small minority of cases, such general preparation has been wanting. The teacher in the pharmacy school has been faced by the problem of presenting the technical aspects of his subject to students wholly unprepared for them. If he essays to supply this needed preparation, he encounters a strong protest from a profession that in the main regards schooling as objectionable in itself, and to be tolerated only as the necessary means to a pecuniary end. The chief interest, therefore, that inheres in a new book in this field of activity is the degree of ingenuity manifested by its author in juggling with his subject. If imbued, as most of these authors are, with a genuine ambition to improve existing conditions, he will not yield to the temptation to stand aloof, but will endeavor to smuggle more or less of the scientifically valuable into his presentation of the professionally necessary.

Professor Kraemer's book is more fortunate than those of his predecessors, in coming forward at a time of educational renaissance in

pharmacy, a renaissance, it may be remarked, that the author has had much to do in stimulating and fostering. With high ideals of professional duty, he was expected to treat his subject honestly, which he has done to a degree that quite meets the possibilities of the situation. The method followed, for the most part, is that of first presenting his subjects, then following each with its applications in pharmacy.

Eighty-one pages are devoted to an introduction to the principal groups of plants. Greater simplicity could scarcely be found consistent with the degree of concentration required. It is an encouraging sign when pharmacy students can be expected to submit gracefully to such an introduction to their botanical course and when boards of trustees will permit it. The economic relations of the groups are briefly discussed.

The "Outer morphology" of angiosperms is treated in sixty pages, and is accompanied by much excellent elementary physiology. This division of the work is far less commendable than other chapters. Nearly all the descriptive botany that the book contains is found here, and it is inadequate even for the interpretation of the following crude drug descriptions—wholly so for that of the chapters on "classification of angiosperms." The illustrations, apparently from photographs of dried specimens, are most unfortunate. Many of them, even where venation is to be illustrated, are mere smudges. The author adopts the broad interpretation of the term "flower" that has had its day in application to flowerless as well as to flowering plants. The essential characteristic of the flower as being a reproductive organism that supplies a special soil for the germination of the microspore, and for the growth and development of the male gametophyte, is not hinted at, and is indeed necessarily denied by the definition adopted. Notwithstanding this fact, it is found impossible, farther on, to avoid an incidental reference to this fundamental truth. Again, the artificial denial of the nature of the sporophyll as a leaf homologue, which has been so laboriously constructed by morpholo-

gists of recent decades, in the face of almost all natural evidence, is here adopted.

The sixty-three pages devoted to histology, under the title "Inner morphology," is most creditable. The language is simple and exhibits that clearness which bespeaks familiarity, and the illustrations are excellent and well selected. The 132 pages devoted to classification of angiosperms yielding vegetable drugs does not justify its title. The families are enumerated in order, with the drugs pertaining to each, but by no stretch of courtesy can this be called a classification. The condensation of this matter, in immediate connection with the study of drugs in the second part, Pharmacognosy, would have been more natural from the student's standpoint, and really helpful, which now one finds great difficulty in admitting.

Nearly 400 pages are devoted to pharmacognosy, the application of the matter of the first part to the study of drugs. About one fourth of this space is taken up with the subject of powdered drugs. In this entire part, special means are employed to simplify the work of actual identification, and the general discussions and instructions for procedure are admirable.

Altogether, Professor Kraemer's book is probably the most comprehensive and valuable of its kind that has yet appeared.

H. H. RUSBY

The Cambridge Natural History. Edited by S. F. HARMER and A. E. SHIPLEY. Vol. I., including Protozoa, Porifera, Cœlenterata, Ctenophora and Echinodermata. Pp. 671, 296 figures. London: Macmillan & Co.; New York: The Macmillan Co. \$4.25.

To have four very interesting groups of lower animals treated in one volume is to have none of them satisfactorily handled, and in the present volume of this important series we feel the limitations that have been set the various contributors. The different divisions are unevenly balanced as to both matter and substance, and in two of the divisions at least, the impression is gained that the author had