in mustard (SCIENCE, Vol. 19, page 583). Of the eighty samples examined only six contained boric acid to exceed 1 part in 100,000. Five of these samples were examined for boric acid by Thompson's method, with the following results: 0.020 per cent., 0.096 per cent., 0.202 per cent., 0.064 per cent., 0.080 per cent. All of the samples which ran high in boric acid were obtained from the western part of the United States, and the majority from Nevada.

Solubilities of Food Colors: EDWARD GUDEMAN, Suite 903–4, Postal Telegraph Building, Chicago.

Preliminary report on collaboration work with Professor E. R. Ladd, Associate Referee on Colors, Association Agricultural Official Chemists.

The solubilities of three coal tar colors, Oraline Yellow, Turquine Blue and Amaranth Red, and of three vegetable colors, Accoline Yellow, Lazuline Blue and Cladonal Red, were determined in cold and hot water, muriatic acid (1 per cent.), ammonia (1 per cent.), ether, petroleum ether, ethyl, methyl and amyl alcohols, acetone, acetic and amylic ethers, carbon disulphide, class; and conclusions drawn were that solubilities of the colors themselves and of the extraction values of the solvents are no criterion to judge the character nor the class of the colors, and that such methods are of no value in differentiating between coal-tar and vegetable colors.

Determination of Boric Acid in Butter: ROBERT HARCOURT. Reported by title.

Meat Extracts and Juices: W. D. BIGELOW and F. C. COOK. Reported by title.

Notes upon Composition and Analysis of 100 American Honeys: C. A. BROWNE, JR. Reported by title.

B. E. CURRY,
Secretary

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SCIENTIFIC BOOKS

A Laboratory Manual of Invertebrate Zoology. By GILMAN A. DREW, Ph.D., professor of biology at the University of Maine. Pp. vii + 201. Philadelphia and London: W. B. Saunders Company, 1907. $1.25 net.

For the majority of our students the value of our biological courses lies not in the acquisition of a more or less detailed knowledge of a series of animals or plants. Such a knowledge is, of course, a necessity in training the specialist, but the average student soon forgets the number of podobranchs and pleurobranchs of the lobster, never remembers long the exact position of the synergides and in six months' time can not tell whether yellow or green is the Mendelian dominant in peas. The greatest gain to the student is in a training of the powers of observation and the cultivation of a spirit of independence which does not accept a thing as so upon the *ipse dixit* of the text.

From this standpoint Drew's laboratory manual seems most excellent pedagogically. It does not tell him what he will find (and usually he will find it if so told), but it asks him what he does find and refers him to the specimens for the answers. In the hands of the competent teacher the resulting training is most excellent, while such directions in the hands of an incompetent instructor—well, such books will force the incompetent into other lines.

The proof of the pudding, says the old saying, lies in chewing the string. Just so the real test of this as of all other class books, lies in its actual use with students. As far as one may judge from reading the pages, Dr. Drew has produced a work of real value. Twelve groups of invertebrates are recognized, and in each, detailed directions for the study of one or two forms are given and accompanying these are hints for the external study of allied forms. If these are followed out they afford ample illustration of the tables of classification with which each group is introduced. More matter is introduced than can be used in the ordinary year's course, but this is not a disadvantage, as it allows a choice of forms according to the exigencies of location,

the predilections of the instructor and the like. A rather careful reading of several sections reveals no serious faults, while typographical errors are few. We have not met any directions for injection; although starch mass is mentioned several times, no formulæ are given for its preparation. "Calkins" is referred to several times, but the beginner can hardly be expected to know of Calkins's work on the Protozoa. Aside from this, references to the literature are few. *Lencosolenia* occurs on p. 17.

J. S. KINGSLEY

Makers of Modern Medicine. By JAMES J. WALSH. Fordham University Press. 1907.

Dr. Walsh describes in this book the life and works of several famous men who are in a way the founders of modern medicine, but the names are hardly those which one would select as representing in a well-rounded way the foundation of modern medicine as a whole, since some of the very greatest are not mentioned. Vesalius, Harvey and Virchow would certainly deserve places if there were any intention of making such a complete list, but in his preface Dr. Walsh explains that this is a series of sketches which may be followed by others. In these subsequent sketches we may perhaps hope to find some mention of the great surgeons who have done so much to help in building the foundations. Morgagni, Auenbrugger, Jenner, Galvani, Laennec, Graves, Stokes and Corrigan, Müller, Schwann, Bernard, Pasteur and O'Dwyer form the subject of the sketches, which are very uniform in plan and general treatment.

Perhaps the most striking thing in this uniformity is that every one of the men described was of the Catholic faith and the essays in each instance lead up to a discussion of their devotion to the church, and to the dominant idea that great scientific work is not incompatible with devout adherence to the tenets of the Catholic religion.

Dr. Walsh recognizes well the salient characters of these men, the great teachers, the great humanitarians, the toiling investigators and the brilliant geniuses who make one step into the unknown, and makes clear too the interdependence of these qualities upon one another in the truly great. Thus there seems no doubt that in comparing Laennec with Auenbrugger we must see that while their most brilliant achievements were alike signal advances in the art of physical diagnosis, Laennec's power as a teacher, his discoveries in the realm of pathological anatomy and his deep human sympathies mark him out as a man standing on a higher plane than that of Auenbrugger. In any such series of essays it becomes necessary for the writer to form some such estimate of the relative importance of the life-work of each man and here doubtless many would differ from Dr. Walsh in some respects; but as far as he allows himself to discuss this, he is fair and his estimates well weighed.

The papers were written and published separately at intervals and later put together into book form, and this results in a good deal of repetition of monotonous discussion as well as of incident and quotation, but on the whole for the purpose for which they are aimed, the general instruction of the public in matters pertaining to medical history, they are, like the similar essays of Richardson, extremely entertaining and useful.

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SCIENTIFIC JOURNALS AND ARTICLES

The American Naturalist for July opens with a note on the "Agassiz Centennial," being the remarks of Charles W. Eliot. These remarks, being brief and to the point, and couched in smooth English give a much better idea of the charm of Agassiz and the great influence of his personality than do most of the longer articles that have appeared. A. W. Morrill gives a "Description of a New Species of Telenomus with Observations on its Habits and Life History," the species being named *Telenomus ashmeadi*. Frederic T. Lewis discusses "The Development of Pinnate Leaves" and D. P. Penhallow makes some "Contributions to [our knowledge of] the Pleistocene Flora of Canada," based on leaves from the interglacial deposits of the Don Valley,