of these the historical method of presentation is fundamental.

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SCIENTIFIC BOOKS

A Student's Manual of a Laboratory Course in Physical Measurements. By Professor W. C. SABINE. Ginn & Co. 1906. 8vo, pp. 97.

A Text-book of Practical Physics. By W. WATSON. London, Longmans, Green & Co. 1906. 8vo, pp. 626.

Elementary physical laboratory work in American universities has to fulfill two requirements, namely, to complement the first lecture course in general physics and to teach accuracy of observation. While it is desirable that the number of experiments to be performed should not be too limited, the characteristic value of physics as a culture study lies in the training of accuracy of expression and observation. In order to enable the student to perform a sufficiently large number of experiments—which is unfortunately often made the test of ability—and to give him the necessary training in accuracy, it has become the custom to describe only those exercises which he is expected to perform, and avoid a possible "waste of time" by rather minute descriptions of apparatus.

The selection of a few out of a large number of instructive experiments is always a difficult task and will lead to a different choice, according to the tastes of the author and the equipment of the school in which the book is to be used.

Sabine's well-known manual which has now appeared in its second edition shows this elasticity of selection in the omission of many exercises found in the former edition and the introduction of several new ones. Their number has been reduced from about seventy to thirty. Mechanics has practically remained unchanged. In sound a qualitative experiment, "Quality by the manometric flame," has been added. All the former experiments in heat have been omitted and a single one substituted for them, namely, "the determination of the mechanical equivalent of heat." Without questioning the great importance of this exercise it seems to the reviewer that some of the discarded experiments, as "specific heat, heat of fusion, or expansion" are better adapted, at least for an elementary course which is expected to teach only the rudiments of physical manipulations. In light also important changes have been made. "Equivalent focal length of compound lenses" takes the place of several exercises on radii of curvature and focal length of mirrors and lenses. "Wave-length of light by Newton's rings and the diffraction grating," also "Rotation of polarized light" are new. In the electrical part a good descriptive chapter on galvanometers adds much to the value of the book. The work with cells (internal resistance, different arrangement of cells, etc.) has been considerably condensed and an experiment with the dynamo added.

On the whole the changes made for the new edition are good; each exercise illustrates an important principle and a repetition of the same in other parts of the book has been carefully avoided. The instructions given for each experiment are more specific than in the first edition, but this has not been carried so far as to prevent a certain independence of the student and a possible variation of the apparatus used in the course.

Watson's "text-book" is of an entirely different character. It is more of the nature of Kohlrausch's "Leitfaden" and contains nearly 200 experiments. An introduction of forty pages treats of general methods used in the reduction and discussion of the results of physical measurements, and an appendix of twenty pages contains short practical information as to glass blowing, work with fused quartz, silvering glass, mounting of cross wires in telescopes and microscopes and the use of manganin wire for the construction of standard coils.

The book is intended for students who "have already spent a little time in the laboratory," and for such it is an excellent refer-

ence book with its wealth of information and the emphasis laid upon influences of errors. It is, of course, not expected that any class should work through all the experiments described, but that the teacher will make a selection from them.

The book is distinctly for undergraduate instruction, including the most elementary exercises given in any physical laboratory. Probably on account of its elementary character no measurements of dielectric constants and no experiments in atmospheric electricity or with electric waves are given.

While a manual of the "American" type, as Sabine's, seems more suited for beginners in laboratory work, especially in our colleges where large classes must be handled by one instructor, Watson's text-book would be particularly suited for a course in which not all time is spent in practical work, but where some collateral reading is required. Any student specializing in physics ought to be acquainted with the contents of the book.

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Societies and Academies

Society for Experimental Biology and Medicine

Twenty-second Meeting

The twenty-second meeting of the Society for Experimental Biology and Medicine was held at the Rockefeller Institute for Medical Research, on Wednesday evening, April 17. The president, Simon Flexner, was in the chair.

Members present—Auer, Beebe, Burton-Opitz, Calkins, Carrel, Emerson, Ewing, Field, Flexner, Gibson, Gies, Hatcher, Kast, Levene, Loeb (L.), Meltzer, Morgan, Noguchi, Richards, Salant, Shaffer, Teague, Torrey, Wadsworth, Wallace, Wolf, Wood.

Members elected—R. R. Bensley, William T. Councilman, Ludwig Kast, Waldemar Koch, W. J. MacNeal, F. P. Mall, T. Brailsford Robertson, Oscar Teague, Richard Weil.

Abstracts of the Communications[2]

Wounds of the Pregnant Uterus: Leo Loeb.

Experiments were carried out on twenty-six guinea-pigs at different stages of pregnancy. Wounds were made in various directions in the uterus, or part of the wall of the uterus was inverted so that the mucous membrane was turned outside. It was found that at a certain stage of pregnancy, namely, from the fourth to the sixth day, nodules of decidual tissue were formed at places where the continuity of the uterus had been interrupted or where the mucous membrane had been inverted. Serial sections of these nodules showed that they consisted of typical decidual tissue, which did not include a developing ovum. Between the third and fourth weeks after impregnation, such nodules became necrotic.

These experiments were also of interest in seeming to show that under ordinary conditions it is not possible to produce an abdominal pregnancy in the guinea-pig by various injuries of the uterus.

The Effect of Light on the Staining of Cells: Leo Loeb.

In solutions of dyes (neutral red, eosin, methylene blue, methyl violet and others), cells (eggs of Asterias) are stained differently, according to whether the cells and solutions are exposed to the light or kept in the dark.

The difference in the staining of cells in the light and dark is caused by at least two different effects of the light. (*a*) The light causes primary changes in the cells, and the difference in the staining of cells in the light and in the dark is caused by those primary changes which the light produces in the cells. This applies to staining with eosin, neutral red, and with certain mixtures of eosin and methylene blue, and eosin and neutral red. (*b*) The light changes primarily the staining

[2] The abstracts presented in this account of the proceedings have been greatly condensed from abstracts prepared by the authors themselves. The latter abstracts of the communications may be found in Number 5 of Volume IV. of the society's proceedings, which may be obtained from the secretary.