

radiation and the quantum theory, spectroscopy, the Stark and Zeeman effects, specific heats, the photoelectric effect, the Compton effect, wave and quantum mechanics, and the new statistics; the whole exposition being completed within the compass of 800 small octavo pages.

It is small wonder that the translators, who have executed their task most competently and critically, decided to omit those sections of the Italian edition which deal with Brownian motion, relativity and astrophysics. It might, in fact, have been better had a few more sections, or some of the more elementary topics, been omitted, and the remainder expanded a little; for modern physical theory is full of subtleties, and a highly condensed treatment is apt to leave a delusive feeling of ease of comprehension that vanishes with a little further thought. This apart, the volumes give an interesting and informative account of modern atomistics, developed in such a way as to make a minimum of demand on the reader's mathematical knowledge; moreover, the author has, very wisely, kept close enough to experimental and technological matters to include brief résumés of such topics as television, supersonics and phototelegraphy.

A. F.

Physical Principles of Mechanics and Acoustics.

By Prof. R. W. Pohl. Authorized translation by Winifred M. Deans. Pp. xii + 338. (London, Glasgow and Bombay: Blackie and Son, Ltd., 1932.) 17s. 6d. net.

Two years have elapsed since the English edition of Prof. Pohl's "Physical Principles of Electricity and Magnetism" was published, and many teachers of physics who were charmed with the novelty of his treatment and the ingenuity of his experiments will welcome this new volume on mechanics and acoustics. The numerous diagrams and illustrations at once attract attention. Most of the figures are based on photographs, and several have been made into silhouettes. It is claimed that this simple method of reproduction indicates whether an experiment is suited to a large lecture-room, as it is then important that the outlines should be clear and uninterrupted. Prof. Pohl tells us that in the Göttingen lecture-room that "troublesome obstacle, the large fixed lecture-table, was got rid of years ago". Small handy tables are set up as required. "The apparatus in actual use at any moment can be made to stand out so that it is easily seen by each member of the audience." Special mention ought to be made of the plates illustrating streamline flow in liquids and gases, and of the exceptionally clear photographs of waves on the surface of a liquid and of sound waves in air by the *schlieren* method.

The subjects treated in the text are those familiar in elementary courses on mechanics, but even the experienced teacher will find much to rouse his own interest and in turn that of his students. The human aspects of the subject are not lost sight of, as for example in discussing the

translation and rotation of a man, and the free axes of rotation of human beings and animals. Excellent accounts are given of the motion of liquids and gases, and also of waves and vibrations.

H. S. A.

Numerical Examples in Physics. By Dr. W. N. Bond. Pp. 128. (London: Edward Arnold and Co., 1931.) 4s.

THIS book of some 450 numerical examples in physics, with answers set forth very clearly, covers a remarkably wide range and will be of great use to advanced students of the subject, particularly those reading for a special or honours degree. Nothing like it has hitherto appeared, and the university teacher, who has long felt the want of something parallel to the several excellent books of numerical examples in advanced physical chemistry, will undoubtedly give it a warm welcome.

Dr. Bond is to be congratulated on starting with a section on methods of calculation; and the examples on calibrations, probable error, order of accuracy and curve fitting inculcate the right spirit at the outset. The largest section is naturally on classical electricity where the variety of question is excellent, problems on inductances and ballistic galvanometers and on absolute determination of current and resistance being most instructive. Of particular note is the unique section on atomic physics giving numerical examples on the determination of electronic charge and mass, on Avogadro's number, crystal structure, photoelectrons, the magneton, X-ray scattering, Planck's constant and radioactivity. A few odd questions, not even semi-numerical, have crept into several sections, and might be omitted. Question 132, which deals with special units, has an answer for the mass of the sun of 1.47 kilometres, and question 245 deals with the spectrum produced by a glass prism of refractive index 1.961! But these are mere slips, and there can be nothing but praise for this remarkably comprehensive collection, of the range and quality of which the title gives no indication.

Miscellany

Osiris and the Atom. By J. G. Crowther. Pp. viii + 221 + 4 plates. (London: George Routledge and Sons, Ltd., 1932.) 5s. net.

THIS is a collection of notes and essays of 'popular science' which is actually both popular and on the whole scientific. Mr. Crowther has a chatty, interesting style, the gift of making fairly complex matters readily understood, and a true journalistic instinct for the arresting phrase. The title of the book, "Osiris and the Atom", is an example of the latter; the contest for the soul between the forces of life and death in ancient Egypt is the root idea from which ball games have developed, and the peculiarities of bounding and spinning balls provide useful analogies in the study of atoms. The