Lastly, there comes a well-illustrated section on milk products and the methods of working them up for market. So important is cleanliness in working that several pictures are given of modern cow-sheds built on the best possible principles; in one, indeed, the cowman is shown cleansing the cow with a special vacuum cleaner! This section will probably prove most interesting to English readers, as it gives fairly full outlines of the German factory methods.

A few misprints are inevitable, but how did this wonderful piece of Greek on p. 12 pass the proof-reader "kohlenhydrate (von λγδορ hydor=griechisch wasser)"? E. J. R.

Theoretical Mechanics. By P. F. Smith and W. R. Longley. (Ginn.) Price 10s. 6d.

UNTIL the student has acquired a certain manipulative dexterity, it is impossible to preserve a proper continuity of thought in the development of the application of infinitesimal theory of mechanics or any other applied science. The authors are therefore justified in assuming that the reader comes to this subject equipped with a thorough working knowledge of the methods of the calculus. In the opening chapter a good account is given of the means for obtaining centres of gravity and moments of inertia of plane and solid figures; no mention is made, however, of the application of orthogonal projection to the theory of the centroid. Chapters ii.–iv. deal with the principles of rectilinear and curvilinear motion in a most attractive fashion; as an example, the motion typified by $x=a\cos kt$ is considered, the equation $d^2x/dt^2=-k^2x$ is deduced, and the properties of harmonic motion are then obtained in a simple fashion; a similar treatment is applied to damped vibrations. This is followed by an exposition of work, energy, and impulse. Chapters vi.–ix. discuss the motion of a particle under constant forces, central forces, in a harmonic field, and against a resisting medium. The volume closes with a brief account of the equations of rigid dynamics and the principles of equilibrium of a coplanar system of forces with special reference to the catenary.

The examples, which are very numerous, are mainly numerical and practical, and so chosen as to require a minimum of analytical power. This feature renders the book eminently suitable for the senior divisions of secondary schools, where the true understanding of the ideas of mechanics is the chief object. It is to be regretted that practically no English text-book has treated the subject on these lines, a fact which is due mainly to the action of the universities in excluding the simpler applications of particle and rigid dynamics from their entrance scholarship examinations. We hope that the time is not far distant when this restriction will be removed.

The Anatomy of the Honey Bee. By R. E. Snodgrass. (U.S. Department of Agriculture, Bureau of Entomology, Technical Series, No. 18.) Pp. 162. (Washington: 1910.)

IN this modest pamphlet the author has given to entomologists an original, trustworthy, and excellently illustrated account of the structure of the honey bee, and another instance has been furnished of the scientific thoroughness that characterises the publications of the United States Department of Agriculture. Many volumes have been written on the honey bee, yet no surprise can be felt that Mr. Snodgrass has been able to add new points to our knowledge and to correct errors in the work of his predecessors. A feature of value to the serious student is the general survey of the external structure of a typical insect which the author has wisely given as an introduction to his account of the highly specialised modifications to be found in the bee. He expresses scepticism as to certain positive statements that have been made on controverted details of physiology and reproduction; for example, "concerning the origin of the royal jelly or of any of the larval food paste . . . we do not know anything about it." There is a present-day tendency unduly to disparage the results obtained by former workers, and such a statement will strike many readers as extreme. Mr. Snodgrass's scepticism as to the parthenogenetic nature of "drone" eggs seems also unwarranted after the support which Weismann's researches, published ten years ago, afford to the generally accepted view. G. H. C.

Practical Physiological Chemistry: a Book designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk. Third edition, revised and enlarged. Pp. xviii+440. (London: J. and A. Churchill, 1910.) Price 16s. net

BOTH the first and second editions of Prof. Hawk's volume have been reviewed in these columns; the former in our issue of July 18, 1907 (vol. lxxvi., p. 268), and the latter in that of July 15, 1909 (vol. lxxxi., p. 67). The present edition has been brought up to date by the insertion of various additions and corrections, as well as by the inclusion of a number of qualitative tests and quantitative methods.

LETTERS TO THE EDITOR.

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Simulium Flies and Pellagra.

IN reference to Mr. Shelford's letter in NATURE of November 10, in which he directs attention to the difficulties in controlling and eradicating the flies of the genus Simulium, known generally as sand flies and black flies, it may be of interest to direct attention to certain experiments carried out in New Hampshire by Dr. C. M. Weed and Prof. E. Dwight Sanderson and their assistants in the control of these insects. The southern buffalo gnat, *Simulium pecuarum*, Riley, which attacks and kills many animals, such as horses, cattle, mules, sheep, poultry, dogs, &c., is well known. In certain parts of the United States, but especially in Canada, "black flies," generally *S. hirtipes*, Fries, and *S. venustum*, Say, make life far more intolerable than mosquitoes, and they are specially annoying when they occur in such resorts as the White Mountains.

In 1903 Dr. Weed and his assistant, Mr. A. F. Conradi, showed that the Simulium larvæ, although they live on the stones in running water, could be killed by the application of Phinotas oil. The destruction was so complete that the flies were practically eradicated in the locality in which the experiments were carried out (see "Experiments in Destroying Black Flies," Bull. No. 112 New Hampshire Agric. Exp. Sta., 1904). A floating oil such as kerosene is manifestly useless for the destruction of larvæ having such habits as Simulium, and the efficacy of Phinotas oil is due to the fact that it has the property of sinking to the bottom in water, thus destroying the larvæ which are stationary on the stones. Further experiments have been carried on more recently in the White Mountains by Prof. E. Dwight Sanderson, and he also found that Phinotas oil applied to the running streams was effectual in the destruction of the Simulium larvæ (see "Controlling the Black Fly in the White Mountains," E. D. Sanderson, *Journal Economic Entomology*, vol. iii., p. 27, 1910). There still remains, however, much experimental work to be done with regard to the effect of the oil upon the fish, the details of the life-histories of the species of Simulium, and the practical methods to be used in applying the oil.

If Dr. Sanbon's results are confirmed, and the Simulium