

found that other provinces have suffered on approximately the same scale. No part of the country seems to have escaped, although the visitation was lightest in Bengal, and even the dry and bracing Himalayan tracts are reported to have been severely attacked. The population of the Punjab and the Punjab native states is about 24,000,000, and of the whole of India about 315,000,000. If the influenza death-rate proves as heavy throughout India as in the Punjab, this would give a total death-roll of over 3,000,000. It is planned to establish a Medical Research Institute in Bombay on the lines of the Rockefeller Institute to which large donations have already been promised.

THE library of the Rothamstead Experimental Station in England has received a check for £300 from the Carnegie Trust, for the purchase of important reference books. This is the second gift made by the Carnegie trustees to the library, a check for a like amount having been given two years ago. The object is to afford agricultural students and experts using the library the opportunity of consulting the most recent and most important treatises on agriculture and allied sciences. Two valuable gifts have also been received from Captain the Hon. Rupert Guinness. The library is fortunate in possessing an unusually good collection of early printed books on agriculture of the fifteenth and sixteenth and seventeenth centuries; to these Captain Guinness has now added perfect and beautiful copies of the first and second printed books on the subject—namely, the volume on agriculture by Crescentius, printed in 1471 at Augsburg, and Jensen's edition of the Latin agricultural writers, printed at Venice in 1472.

UNIVERSITY AND EDUCATIONAL NEWS

AN anonymous donor has agreed to pay over to the corporation treasurer of Vassar College dollar for dollar up to \$150,000 provided a like amount was paid or pledged by the alumni not later than February 28, 1919.

PACIFIC COLLEGE at Newberg, Oregon, has received an addition of \$15,000 to its endowment fund from the estate of Mary E. Mann.

THE faculty of medicine of Western University, London, Ont., is planning the erection of a new medical college building at an estimated cost of \$100,000.

MEDICAL colleges have been organized in the military zone in France to be attended by military men and to teach military medicine. One of these colleges will be near Rheims where there are already 3,000 beds and 70 students. The curriculum comprises surgery, medicine, histology and medical physics.

THE school of chemistry of the University of Pittsburgh announces the following additions to its staff: Dr. Alexander Lowy, assistant professor of organic chemistry; Mr. Leon E. Jenks, assistant professor of analytical chemistry; Mr. Blaine B. Westcott, instructor in organic chemistry.

ASSISTANT PROFESSOR LEE IRVING KNIGHT, of the department of botany at the University of Chicago, has been appointed plant physiologist in the division of plant pathology at the Minnesota experiment station.

PROFESSOR HILTON IRA JONES has been elected head of the department of chemistry at the Oklahoma Agricultural and Mechanical College to succeed Dr. L. Chas. Raiford, who becomes associate professor of organic chemistry in the University of Iowa. Dr. Jones was formerly head of the department of chemistry at Dakota Wesleyan University, Mitchell, South Dakota.

DISCUSSION AND CORRESPONDENCE

TWO NEW INSTANCES OF POLYEMBRYONY AMONG THE ENCYRTIDÆ

DR. RAFFAELLE SARRA has recently published at Portici, Italy, two important papers, author's extras of which have just reached Washington. They are from the *Bulletin* of the Laboratory of General and Agricultural Zoology of the Superior School of Agriculture at Portici, Vols. X., and XII., and are entitled "Osservazioni Biologiche sull' *Anarsia lineatella* Z. dannosa al frutto del mandarlo" and

"La Variegana (*Olethreutes variegana* Hb) ed I Suoi Parassiti." The observations to which especial attention should be called in this connection are likely to be unnoticed by students of polyembryony, and this especial note is therefore written.

One of the parasites of *Anarsia lineatella* is *Encyrtus variicornis* Nees, a species not known to the present writer, but which was retained in the genus *Encyrtus* by Gustav Mayr in his monograph of the European Encyrtidæ. The only previous record of its rearing seems to have been by Nees, from a cell of *Eumenes coarctata*, and it now appears from the observations of Sarra that it is altogether likely that Nees's specimen came not from the larva of the *Eumenes* but from some lepidopterous larva stored in the cell.

Sarra finds that the female parasite lays eggs in the egg of the *Anarsia*; that the parasite egg gives origin to a number of larvæ which live within the larva of the *Anarsia* after it has hatched, in just the same way as do the other related larvæ as studied by Marchal and Silvestri.

The second case is that of an unnamed species of *Copidosoma* reared from the larva of *Olethreutes variegana*. Here too, the parasite eggs are laid in the eggs of the *Olethreutes* and develop in its larvæ, 68 females and 80 males being reared from a single host larva.

These observations are of interest not only as adding two species to the list of polyembryonic forms, but, since *Encyrtus variicornis* has not previously been associated with the *Copidosoma* and *Leptomastix* group of Encyrtidæ, another genus is added to the list.

L. O. HOWARD

FOUNDATIONS OF MECHANICS

IN a communication to SCIENCE of October 4, I used the term "doctrinal function" in the sense of a consistent body of postulates and theorems containing one or more undefined elements, but considered apart from any of the various interpretations that could be placed on the undefined elements. The introduction of this useful term "doctrinal func-

tion" was erroneously attributed to Bertrand Russell. It should have been attributed to Professor C. J. Keyser¹ who is the originator.

With reference to the criticisms by Professor Franklin and MacNutt, in SCIENCE of November 8, of my communication of October 4, I do not merge "identification" and "measurement," in the paper mentioned, but state that I think the distinction between them valueless in the context referred to. So far as the relation between mass and force is concerned, I was merely following Messrs. Franklin and MacNutt's words: "We prefer to define mass *quantitatively* (italics mine) in terms of the operation of weighing by a balance scale." Nothing other than a quantitative definition would be of value in the equation $f/a = m$.

The fundamentally defining quantities need not be the same as those kept by the Bureau of Standards. Temperature—the real temperature—is defined by Carnot engines, but they do not keep Carnot engines in the Washington bureau. Chemical affinity as measured with the help of a Weston standard cell is another example of the same thing. The verification comes from the totality of physical experience. "An experiment," says Duhem,² can never condemn (or validate) an isolated hypothesis but only a doctrine (*ensemble théorique*.)"

Of course, there are other kinds of physics besides force physics, and it would be erroneous to say that any of the discussions exhausted all there is in the ideas of force, mass, etc.

PAUL J. FOX

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TROPICAL ENERVATION

THE opinion is widespread, in northern climes, that a continuously warm climate, unbroken by sharp periodic changes, is enervat-

¹ See Keyser, "Human Worth of Rigorous Thinking," p. 254, and "Doctrinal Functions," *Jour. of Philos., Psychol. and Sci. Methods*, Vol. XV., p. 262.

² "La Théorie physique," Paris, 1906.