third; Yale leads in Asia, with Columbia and Harvard following in the order named; Columbia leads in Africa and Pennsylvania in Australasia. Of the European countries Great Britain furnishes the largest delegation, while the largest number of Asiatic students hail from Japan.

Much has been said and written lately about the decrease in the number of western students in attendance at eastern institutions, but the accompanying figures show that all of the eastern universities enumerated still have a considerable following in the west and south. It is a following that is, in most cases, actually increasing each year, although, of course, not at the same rapid rate at which most of the western universities are growing in number of students. The accuracy of the figures is somewhat marred by the fact that a tendency exists on the part of students who are not residents of the place in which their university is located, to register this place as their permanent residence. This tendency is encountered especially at institutions located in large cities, but the general results are not affected thereby.

The table illustrates in striking manner the truly national character of the leading eastern universities and of several of the western institutions, and it is to be hoped that they will retain this characteristic in the coming years, since it is undeniably an important factor in the ever spreading unification of the various sections of the country.

Rudolf Tombo, Jr.
Columbia University.

SCIENTIFIC BOOKS.

Traité de Biologie. Par Félix Le Dantec, chargé du cours d'Embryologie générale à la Sorbonne. Paris, Alcan. 1903. Pp. 553.

This book, which is the condensation and completion of the numerous studies in biological theory (and in several other subjects) that have come from the productive pen of M. Le Dantec during the past ten years, is one of the most ambitious and elaborate of the recent attempts to synthetize the general results of biological research. As such, it will be of interest to both the philosopher and the naturalist. M. Le Dantec covers the whole ground and something more, adding a lengthy appendix in which the 'biological foundations' of psychology and sociology are set forth. The psychological chapter is chiefly remarkable for the author's entire innocence of any suspicion that mental phenomena have any peculiarities or complexities of their own. Thus, consciousness is once for all disposed of by this definition: 'Consciousness is the property which our body has of being informed at each moment of its structure at that moment' (*la propriété d'être au courant de sa structure actuelle*); the obvious objection that this definition takes no account of the facts that we know very little of our structure and that consciousness chiefly is representative of 'objects,' is summarily met, *en passant,* by observing that 'this property suffices to bring it about that we are secondarily aware of what goes on about us, as a result of the effect upon our structure of those external events that make an impression upon our sense-organs.' Here all that requires explanation, and correlation with physiological phenomena, is cheerfully taken for granted at the start. This 'property' which is consciousness, moreover, is not confined to our bodies, but—though never aught but an epiphenomenon, functionless in evolution—extends down to the simplest material structure; the argument to which the grounds for the mind-stuff theory reduce themselves, for M. Le Dantec, may be commended to the logician as a classic example of the fallacy of division: "Since our consciousness is so intimately connected with our structure, and since we are formed of chemical substances—carbon, hydrogen, *etc.*—we ought to conclude that these chemical substances contain in themselves the elements of our consciousness, and that, just as our body is built up of atoms, our consciousness is built up out of the elements of consciousness connected with each atom." It is really depressing to find men learned in one science still reasoning like babes and sucklings in another—and convinced, withal, that they alone know

anything about the matter. The sociological chapter is inconclusive; nothing very specific seems to be built upon the 'biological foundations,' in this case, except the doctrine—which one had supposed extinct these many years—that we should bring up our children by 'teaching them exclusively truths that are beyond dispute, such as those of mathematics, geography, anatomy.'

When, however, he sticks to his last, M. Le Dantec has much that is not only significant, but also closely reasoned, to say, and the book can not be neglected by any who are interested in the larger problems of general biology. The work is characterized by an unusually careful attention to the question of biological method—to the determination of the nature and limits of 'explanation' in this science—and should be of use in increasing, so to say, the methodological self-consciousness of naturalists. No one, doubtless, was ever more resolute than M. Le Dantec to banish confusion and equivocation from biological language, to define at the outset the peculiar 'biologist's fallacies' and, above all, to avoid the naturalist's besetting temptation, the use—especially in dealing with such processes as cell-division and maturation—of vaguely teleological phraseology. As the chief sinner in this and other matters of method, Weismann is pursued throughout the book with somewhat excessive ferocity; 'the meeting-place of all the errors possible in biology,' is one of the characterizations of Weismann's system. The main purpose of the book, however, is 'to describe the known part of the phenomena of life in physico-chemical terms,' and to 'show that life is no more essentially different from other natural phenomena than are the properties of benzine essentially different from those of alcohol.' This, however, does not mean that the author proposes to bring vital phenomena under the already known laws of chemistry or physics. He regards the power of assimilation as the primary and only essential characteristic of living matter; and assimilation, though a chemical reaction, is, upon the author's own showing, an entirely unique and even somewhat paradoxical chemical reaction. Beginning with a proposed formulation of the nature of this primary process, M. Le Dantec attempts to correlate with this in a connected manner—and in that sense, to explain—the laws of the other vital phenomena, offering, by the way, many observations that are of value apart from their connection with the main argument. The book, which is copiously illustrated with good diagrams, makes abundant use of recent biological investigations, and is full of ingenious hypotheses that are illuminating and suggestive, even where the reader feels that the author has not constantly discriminated between 'possible hypothesis' and 'only possible hypothesis.' To go into full details of the discussion lies neither within the competency of the present reviewer nor within the limits of reasonable length.

ARTHUR O. LOVEJOY.

SCIENTIFIC JOURNALS AND ARTICLES.

THE first article in the August number of the *American Geologist* is a biographical sketch with portrait of Professor Albert A. Wright by Professor George F. Wright. Professor W. O. Crosby contributes the second installment of his article on the 'Genetic and Structural Relations of the Igneous Rocks of the Lower Neponset Valley, Massachusetts.' The longest paper and the one of greatest general geological interest is by Drs. J. W. Beede and E. H. Sellards on the 'Stratigraphy of the Eastern Outcrop of the Kansas Permian.' The writers accept the Wreford limestone as the base of the Kansas Permian and they have traced and mapped this limestone from southern Nebraska nearly across Kansas. Its outcrop is shown on a map, while another plate gives a characteristic view of the 'Flint Hills Escarpment' in Kansas, which is composed in part of lower Permian formations. In conclusion the writers state 'that the strata of the lower Permian are remarkably persistent and uniform when the great extent of outcrop is considered.' President Charles R. Keyes contributes a paper on 'The Fundamental Complex beyond the Southern End of the Rocky Mountains.'