with mediocrity. A schooling devised primarily to produce good character, or patriotism, or dynastic loyalty, or class sentiment, or religious orthodoxy may lessen friction in society, but it can not bring genius to bloom. For this the prime essentials are *the communicating of known truths* and *the imparting of method.*

On the whole we have in this work an able marshaling of the knowledge thus far brought to light on the subject of social psychology, and a clear, untechnical, while at the same time often eloquent, discussion of the laws, principles and leading truths of that rather subtle and recondite branch of sociology.

Lester F. Ward

The Solar System: A Study of Recent Observations. By Charles Lane Poor, Professor of Astronomy in Columbia University. New York, G. P. Putnam's Sons.

From the above sub-title we naturally look for something different from the ordinary text-book on astronomy. Nor shall we be disappointed in this respect. The author informs us that the work grew out of a series of lectures, that these were mainly historical and were used to supplement standard text-books and to guide the students in their reading. Though the work includes much which may be found in the ordinary text-book, there is also much not usually to be obtained from such sources. On the other hand, some matters of great interest are hardly touched on in the present work. We mention by way of illustration the minor planets and the subject of eclipses.

The lecture notes seemed to have been followed quite closely. We are informed, for instance, page 235, that the last opposition of Jupiter took place in the latter part of December, 1906, and that the next will fall on the last of January and the first of February, 1908. We also learn that the last favorable eclipse of the sun occurred August 30, 1905, and the next eclipse which can be utilized, will take place October 10, 1912, and will be observable in South America. Precisely what disposition has been made of the eclipse of January 3, 1908, does not appear.

The subject of the solar energy is treated quite fully, with the different theories as to its maintenance, its constancy and results of measurement of the same. We confess, however, to finding ourselves a little disconcerted on learning, page 126, that such measurements are of no vital importance.

Naturally the reader in search of the latest and most interesting information relating to the solar system will turn to the planet Mars. The author acknowledges to having given to this planet more space than the subject really warrants. We find an entire chapter of twenty-four pages entitled "Has Mars Canals?" The leading authorities—Schiaparelli, Lowell, Newcomb, Barnard and many more are quoted at considerable length, with the result that we are finally told that "very little is actually known in regard to the conditions existing on Mars," that many of the problems are psychological and not physical. The seeker after truth, therefore, finds himself at the end of the chapter precisely where he stood at the beginning.

The author gives us an account of the discovery of the seven satellites of Jupiter, beginning with Galileo and ending with Perrine, but the ink is hardly dry on the page before the discovery of an eighth at Greenwich calls for a revision of the chapter, thus illustrating the impossibility of keeping such a work strictly up to date. In this connection let it be noted that the name of satellite IV. is Callisto, not Calypso.

Each planet from Mercury to Neptune is taken up in turn. Many facts of historical interest are given, among which are some old friends not usually found in the text-books, such as the famous Moon Hoax of 1835.

Chapters on comets, on meteors and on the evolution of the system close a very interesting and suggestive volume.

C. L. Doolittle

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SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Experimental Zoology, Vol. V., No. 3 (March, 1908), contains the following papers: "The Physiology of the Nervous System of the Razor-shell Clam (*Ensis directus* Con.)," by Gilman A. Drew. The

experiments indicate that, while the ganglia all have their special functions to perform, the pedal ganglia are under the direct control of the cerebral ganglia and are not capable of originating motor impulses when separated from them. Association fibers between the ganglia are well developed and impulses may finally reach muscular organs by roundabout paths when the usual paths have been destroyed. "The Influence of Grafting on the Polarity of Tubularia," by Florence Peebles. "A Study of the Germ Cells of Certain Diptera, with reference to the Heterochromosomes and the Phenomena of Synapsis," by N. M. Stevens. This article is a study of the germ cells of nine species of Muscidæ and Syrphidæ. The spermatogonia contain an unequal pair of heterochromosomes, and the oogonia a corresponding equal pair. The dimorphism of the spermatozoa and its relation to sex determination are the same as in many of the Coleoptera and Hemiptera. In synapsis there is a side-to-side pairing of homologous maternal and paternal chromosomes, and a similar pairing occurs in the prophase of each spermatogonial and oogonial mitosis, and also in ovarian follicle cells. "Momentary Elevation of Temperature as a Means of Producing Artificial Parthenogenesis in Starfish Eggs and the Conditions of its Action," by Ralph S. Lillie. Momentary warming of unfertilized starfish eggs, *e. g.*, to 35° for 70 seconds, during early maturation, results in membrane formation, cleavage and development to an advanced larval stage. Exposure to *n*/2000 KCN solution during, before and after such warming is highly favorable to parthenogenetic development. Initiation of development can not, therefore, depend on acceleration of oxidative processes. Apparently, processes of some other nature—hydrolytic or reducing—are most immediately concerned in fertilization in these eggs. "The Sex Ratio and Cocooning Habit of an Araneid and the Genesis of Sex Ratio," by Thomas H. Montgomery.

THE *Istituto geografico militare* of Italy, situated at Florence, has published a new edition of a most effective map of Vesuvius in colors, on a scale of 1:25,000 (2 francs), indicating all determinable lava flows, with their dates down to 1906; also a map of Vesuvius in black, scale 1:10,000 in six sheets (4.50 francs complete), and two special maps of the cone of the volcano, 1:10,000, before and after the eruption of 1906 (each one franc). Those who are thinking of ordering the general map of Italy, 1:100,000, will do well to specify the edition "Systema Gliamas," now in course of publication in four colors (1.50 francs a sheet: 27 sheets published; édition on thin paper preferable). W. M. D.

AT the sitting of the Paris Academy of Sciences on June 16 M. Poincaré gave, according to the London *Times*, particulars of a discovery by M. Devaux Charbonnel of a method of photographing the sounds of the human voice with sufficient precision to enable the record to be read. Vowels and consonants are combined with a Blondel oscillograph. The latter, which is extremely sensitive, impresses the sounds upon a photographic plate in the form of curves characteristic of each category. With a little practise it is possible to decipher these characters.

THE COCO BUD-ROT IN CUBA

AN appropriation has been approved by the provisional governor of Cuba, Hon. Chas. E. Magoon, for $14,000 to be expended in the next year for combating the coconut bud-rot in the district of Baracoa.

The bud-rot is the most serious disease of the coconut palm. It occurs in Cuba, Jamaica, Trinidad, British Honduras, British Guiana, and perhaps in India, Ceylon and East Africa. Many years ago it spoiled the business of coconut growing in most parts of Cuba. It usually leaves a few scattered trees and this is the condition now around Havana. Even in the Baracoa district, which is especially adapted to coconuts and which escaped the disease longer than most parts of Cuba, it has existed for probably twenty years, but it has increased gradually and has only become alarming within the last few years. The total production of this district is now