

properties of water will follow, after which the effects of heat can with advantage be taken up, and so prepare the way for the final stage of the preliminary course—namely, the study of the air, more particularly in relation to the part it plays in the combustion of food and fuel. But throughout the course constant work with the balance must take a prominent part. The balance inculcates thrift and morality generally, and weighing should be so constantly resorted to that it becomes an absolute habit. If Rudyard Kipling could but be persuaded to write a song with the refrain "Weigh, weigh, weigh," which could be hummed by girls during their lessons in practical work in science, as well as sung on State occasions, he would be doing education a great service.

Prof. Tilden, F.R.S., opened a discussion and referred to the neglect of book-keeping in household management, and directed attention to the fact that a sound education must take notice of other subjects than science.

PSYCHOLOGY AND SCIENCE TEACHING.

Sir Henry Roscoe, F.R.S., took the chair at the concluding meeting, at which Prof. Earl Barnes gave an address on nature teaching for young children, and Principal Lloyd Morgan, F.R.S., lectured on psychology and science teaching. Prof. Morgan said a lecturer in psychology had been defined thus by a pupil—"He tells us what every one knows in language which nobody can understand," but he hoped to avoid the dangers mentioned in the definition. It is easier to indicate what is not education than to give a satisfactory account of what it is: "when one fellow talks about what he doesn't understand to other fellows who don't understand him, that's *not* education." The teacher ignorant of psychology is somewhat of a quack, the honest and earnest instructor must have some practical knowledge of mental processes. In fact, all science teachers ought to take a course in psychology as part of their recognised curriculum in training for their life-work. But such work in psychology should have an experimental basis; the professor and his students must participate in an investigation together. Prof. Morgan then described, with a series of practical demonstrations, the research he was assisting his own students to carry out. In all such practical work it is borne in mind that the first stage in a normal course of mental sequence is that of observation presenting facts which demand explanation; the second that of discovery; and the third that of testing and applying the principles. A discussion followed in which the chairman and Dr. Gladstone took part.

A collection of home-made apparatus for science teaching in schools was on view during the days of the conference, and the chemical, physical and mechanical laboratories of the Polytechnic were open for inspection.

A. T. SIMMONS.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The Sedgwick prize in geology has been awarded to Mr. F. R. C. Reed, M.A., of Trinity College.

At Peterhouse the following entrance scholarships in Natural Science have been awarded: Blackie, Tonbridge School, 50*l.*; King, City of London School, 40*l.*

THE University of Cincinnati was re-organised in the latter part of last year, and an account of the changes, with photographs and short biographical sketches of the Faculty as now constituted, is given in *Chic.* The most distinctive change is the introduction of the elective system, which permits the student to follow the course of study which best suits his needs for the profession or business he intends to follow after leaving the University. A college of commerce and administration is in contemplation, which will have for its object practical instruction in methods of business in conformity with modern demands. The endowment fund of the University, through the bequests of a number of generous benefactors, amounts to the substantial sum of 3,357,308 dollars, or more than 700,000*l.* The president of the University is Dr. H. Ayres, formerly professor of biology in the University of Missouri.

Literature remarks.—The close of the term for the Christmas vacation has shown the interest of the American millionaire in the advancement of learning. Mr. J. D. Rockefeller gives 300,000*l.* to the University of Chicago and 3000*l.* to the Vermont Academy. Wellesley College, Mass., receives 20,000*l.*

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from various donors, and Ripon College, Wisconsin, comes into possession of a handsome building for scientific study, the gift of Mr. O. H. Ingram. The Universities have, on the whole, done well by the millionaires. Here is a summary of the largest endowments and their givers:—

Chicago University	...	J. D. Rockefeller	...	\$9,133,874	...	£1,902,848
Gerard College	...	Stephen Gerard	...	7,000,000	...	1,458,333
Pratt Institute	...	Charles Pratt	...	3,600,000	...	750,000
Johns Hopkins Univ.	...	Johns Hopkins	...	3,000,000	...	625,000
Drexel Institute	...	A. J. Drexel	...	3,000,000	...	625,000
L. Stanford University	...	Leland Stanford, jun.	...	2,500,000	...	520,833
Cornell University	...	Ezra Cornell	...	1,500,000	...	312,500
Vanderbilt University	...	The Vanderbilts	...	1,100,000	...	229,166
Columbia University	...	Seth Low	...	1,000,000	...	208,333

But there are millionaires outside of America, and the list may at any rate be taken as an example *pour encourager les autres.*

SCIENTIFIC SERIALS.

American Journal of Science, January.—The stereographic projection and its possibilities, from a graphical standpoint, by S. L. Penfield. Two stereographic protractors devised by the author are described, and detailed instructions given for their use. These protractors are especially adapted to crystallographic problems, but this branch of the subject is postponed for special consideration in a further communication.—On the mode of occurrence of topaz near Ouro Preto, Brazil, by Orville A. Derby. The yellow Brazilian topaz of the Ouro Preto district was stated by Eschwege to occur in association with talcose or chlorite schist, and this was confirmed to some extent by Mawe, Spix and Martius. This view was contested by Gorceix, who found that the unctuous schists of this region are essentially micaceous. The results of the author's researches in this district show that the occurrence of the topaz here does not differ so materially from the other known ones as has hitherto been supposed. The mineral does not occur in an essentially magnesian rock, nor is its matrix of presumably sedimentary rather than of eruptive origin.—A chemical study of the glaucophane schists, by Henry S. Washington. Analyses of glaucophanes from Syria, Oregon, Croatia, Anglesey, California, Japan and Piedmont, sixteen analyses in all. The glaucophane schists are found to belong to two classes. The larger one is basic, and consists chiefly of glaucophane and epidote, and scarcely differs in chemical composition from the amphibolites and eclogites. A smaller, but widely spread group, is acid in composition, and these are composed largely of quartz and glaucophane.—On the nature of the metallic veins of the Farmington meteorite, by O. C. Farrington. The question of the origin of the metallic veins in a meteorite is of interest as throwing light on the origin, terrestrial or pre-terrestrial, of the meteorite. Preston's views on the veins in the Farmington meteorite are discussed and shown to be improbable.—*Ergenia bulbosa*, by Theo. Holm. An examination of the question as to whether the globular underground part of this plant is a true tuber or a tuberous root. After some trouble, specimens of the plant were obtained in the seedling stage, and the bulb was found to be a tuberous root.—New species of *Merycochærus*, in Montana, by Earl Douglass. This species, described as *M. altiramus*, found in the Madison Lake beds of the Loup Fork epoch, is represented by a right mandibular ramus which only lacks the posterior border and some other small fragments. The paper is illustrated by five diagrams of the dentition, accompanied by careful measurements.

Bulletin of the American Mathematical Society, December, 1900.—Prof. F. N. Cole gives an account of, with abstracts of the papers read at, the October meeting of the Society. As these papers will be printed *in extenso* in the *Bulletin*, or in the *Transactions*, we omit the consideration of them here. Prof. M. Bôcher devotes a page to a note on linear dependence of functions of one variable. Report on the groups of an infinite order, by Dr. G. A. Miller, was read before Section A of the American Society for the Advancement of Science, which met at New York in June last. This is a useful *résumé* of recent work done upon the theory of groups, with copious references to original memoirs. Two reviews follow, viz., of Ewing's "The Strength of Materials," by Dr. C. Chree, and of the "Anwendung der Differential- und Integralrechnung auf Geometrie" of Dr. G. Scheffers (Bd. i. "Einführung in die Theorie der Curven in der Ebene und im Raum"), by Prof. J. M. Page. Notes and new publications close the number.