inating toil. That 'dead work' which Prof. Leslie so vigorously declared was one of the most essential tasks of the laborers in Science's behalf is here prominently shown. Names which are erroneous in spelling or obsolete, or synonomous, or applied doubtfully, or misapplied, are here recorded, and the student, the lay-reader, the collector, and man of science, can at once determine the status and significance of mineralogical names as currently used. Prof. Chester, in his preface, says: "In this work the endeavor is made to give complete information, as outlined above, concerning all the names that have ever been introduced into the nomenclature of mineralogy. Nearly all published works on this subject have been searched to prepare a complete list of such names, and all available sources of information have been consulted. Many facts have been received in private communications from correspondents at home and abroad, a list of whose names is appended. But a number of blanks still remain, after years of research, and the author greatly desires information on any of the points lacking."

The author gives some general and particular notes on names, as to the attempt of Moh and Dana to introduce binomial methods, and reveals the great difficulty, in some instances, in determining the real origin of a designation. He illustrates this in the case of the well-known mineral *Datolite*. It appeared very early under the spelling *datholite*, which was a corruption of the original name *datolith* of Esmark, from δᾶτέομαι, to divide, in reference to its granular structure, and λιθος, a stone. Werner inserted the h, and this led to its erroneous interpretation as coming from δαθος or turbid, which was succeeded by the criticism that there was no such Greek word, and its origin is from δα-θολλος, meaning very turbid, because it is never found in transparent crystals. The correct derivation was detected by Prof. Dana in 1868. Many other instances give a forcible impression of the care and learning required for a correct diagnosis of the elements of a mineralogical name.

The work is compendious and very useful, but it seems regrettable that Prof. Chester had not written a more extended treatise, by way of introduction, reviewing the stages of change which have finally given us the present series of names. The expressed regret that all mineral names should end in *ite* does not seem warranted. Haüy's names, in so many instances, pleasingly vary, to the ear, this monotonous termination, that we wish there were more judicious exceptions to its almost universal predominance. No mineralogist should be without this dictionary, and to a large public, outside of this specific designation, it will be valuable as a guide to the derivation, proper orthography and meaning of mineralogical names. Its typography seems faultless.

L. P. Gratacap.

Laboratory Experiments in General Chemistry. By Charles R. Sanger. St. Louis, 1896. Published by the Author. Pp. 59.

Experiments in General Chemistry and Notes on Qualitative Analysis. By Charles R. Sanger. St. Louis, 1896. Published by the Author. Pp. 49.

The first of these pamphlets contains directions for 108 laboratory experiments upon the preparation and properties of the elements and compounds. They have been arranged for the use of students who are taking a course of lectures upon descriptive chemistry. The experiments are all well known ones, and the order of management is the one already adopted in laboratory manuals.

The second pamphlet contains directions for 39 of the experiments given in the first pamphlet, and in addition has 28 pages devoted to a description of the methods used in making qualitative analysis of unknown substances. This course has been arranged for medical students. Neither of these laboratory guides differ in any essential feature from the well known laboratory manuals on elementary chemistry and qualitative analysis. E. H. K.

SCIENTIFIC JOURNALS.

JOURNAL OF GEOLOGY, MAY–JUNE, 1896.

Classification of the Marine Trias: By James Perrin Smith. As might be expected the names given to the Triassic beds of the Germanic basin, which was shut off from the open sea, have proved to be of little use as applied to

marine beds of the Trias. Such are known in the Alps, Himalayas, Salt Range of India, Siberia and western North America. Quite recently the Vienna geologists, Drs. Mojsisovics, Waagen and Diener have proposed a classification of the Marine Trias. Four series are recognized, the Scythic, Dinaric, Tirolic and Bajuvaric. These are divided into stages, substages and zones. In the present paper the author attempts to show the relations of American marine strata to those of Europe and Asia on the basis of the above classification. He concludes that the Alps cannot longer be said to furnish the typical region even for marine Trias, but that each region of the earth has some open sea development of a stage lacking elsewhere. Hence studies in faunal geography must be combined with those in phylogeny.

The Geology of the Little Rocky Mountains: By WALTER HARVEY WEED and LOUIS V. PIRSSON. The Little Rocky Mountains of northern Montana are far removed from the Rocky Mt. Cordillera. They are formed by a dome-shaped uplift exposing Archean and Paleozoic rocks in a region of horizontal Cretaceous strata. They represent on a smaller scale the kind of phenomena we have in the Black Hills uplift as described by Russel in a former number of the *Journal*. The nucleal core is of crystalline schists, but the structure has been modified by the intrusion of a great laccolitic mass of granite porphyry. The schists are thought by the authors to be Archean. Above these are shown beds of Cambrian, Silurian, Devonian, Jurassic and Cretaceous. Petrographic study of the prophyry shows it to belong to the alkali granite-syenite series. It is very poor in lime magnesia and iron. The magmas resemble those of the other detached mountain groups of Montana. Ores bearing both gold and silver are found associated with flourite in the altered porphyry. The occurrence of telluride ores is much the same as at Cripple Creek. In most of the ores free gold is found in spongy masses of dark copper color. The Goldbug mine is the only property which shows much development, and this is being prospected now.

Schistosity and Slaty Cleavage: By GEORGE F. BECKER. The idea developed in the paper is that the deformation of a solid, homogeneous, viscous, isotropic, not infinitely brittle mass will develop structures in it on not less than one surface, nor on more than four surfaces simultaneously. These structure surfaces will in general stand at acute angles to the direction of the pressure to which they are due, and the flattening of the strain ellipsoids will not be normal to the pressure save in a limiting case. The common theory of slaty cleavage is well known.

The author presents evidence that solid flow does produce cleavage which is parallel to the lines of relative tangential motion or gliding and that this need not be accompanied by rupture, however microscopic. He thinks that no closer approach to slaty cleavage can be gotten by flattening of the particles even in a weak matrix than is gotten in natural sandstones, for in these there is approximate parallelism of the grains of quartz and mica scales with the bedding.

Deformation of Rocks, III.: By C. R. VAN HISE. In this paper schistosity and cleavage are discussed mainly. After defining the terms and referring to the literature of the subject the author lays down and supports the following propositions. (1) Rock cleavage is due to the arrangement of mineral particles with their long axes or readiest cleavage in a common direction and that this is caused by parallel development of new minerals, by flattening and parallel rotation of old and new mineral particles and by flattening and parallel rotation of random original particles. (2) The secondary structure of a rock deformed by plastic flow develops in the plane normal to the greatest pressure and is true cleavage. (3) In heterogeneous rocks having cleavage, in a soft layer the cleavage more nearly accords with bedding than it does in a hard layer. (4) Upon opposite sides of an anticline cleavage usually diverges downward, while on opposite sides of a syncline it usually converges downward. (5) In regions of overturned monoclinal folds the cleavage may be rotated in the same direction throughout, and hence be monoclinal. (6) Fissility developed in the shearing planes is usually secondary to cleavage developed in the normal planes.

Large Scale Maps as Geographical Illustrations: By W. M. Davis. The value of maps in geographic study has long been recognized, but it has not always been so well stated as in the present paper. Prof. Davis maintains that their study endows the observer with a power that could not even be gained by field work without their aid, except by spending a long time on the ground, and that work based on good maps is as truly scientific as Loomis's famous studies. He proceeds to describe a number of foreign maps which are better than the average American maps, and have proved to be of especial help in his own teaching. He also gives information where these maps can be bought, the price and the results of experience as to the best way to display and use them. D. P. N.

THE MONIST.—JULY.

In an article on *Terminology*, Prof. Rudolf Eucken, of Jena, broadly sketches the characteristic biographical features and vicisitudes of scientific and philosophical terms, giving concrete examples in enforcement of his views, and pointing out the immense advantages to be derived from the systematic prosecution of this study. In his plan of a colossal and exhaustive thesaurus of scientific and philosophical terms he characterizes the realization of the same as a task eminently worthy of American scholarship, wealth and enterprise.

Prof. Fr. Jodl, recently called to a chair of philosophy in Vienna, critically examines, in his article on *Causality*, the views of David Hume, which he regards as having dominated all modern inquiry on this subject, including Kant and the Kantians and the majority of professional scientists. He then discovers the origin of the notion of causality in our feeling of personal effort and of our personal action upon the external world, and considers it to have found its rigorous justification in the modern view of the transformation of energy and matter. His article contains much psychological analysis.

The second part of the series on *Science and Faith* is by Dr. Paul Topinard, entitled *Introduction to Man as a Member of Society.* Dr. Topinard discusses his subject under two heads: (I.) Preliminary Biological Data; and (II.) The Animal Family; which are to be followed by another article on Animal Societies. He follows here the origin and course of development of the solidarity of the organism and of its representative ego, as also the origin and development, in all its aspects, of the *animal family*, which he regards as the outward terminal phase of the process of the reproduction of the species—a result which has been shaped to this end by the exigencies of evolution. The rise of the social instincts is also considered in this paper, which is exhaustive and contains the results of new inquiries by Topinard.

The *Holiness of Instinct*, the title of the leading article, by Dr. Woods Hutchinson, is a plea for the reinstatement of our natural instincts as unerring criteria of conduct, and also a literary apotheosis of the beauty of life.

The article by the editor, Dr. Paul Carus, on *The Problem of Good and Evil*, opposes the idea of a merely subjective existence of evil, which he regards as a positive, objective aspect of life, and concludes with a discussion of the God idea and with a sketch of the significance of the devil in history.

The number concludes with the usual Literary Correspondence. Among the Book Reviews are critical notices of Ostwald's pamphlet on *Scientific Materialism*, Helmholtz's *Researches in Mathematics and Mechanics*, Grassman's *Ausdehnungslehre*, and Henry Clarke Warren's *Buddhism.*

NEW BOOKS.

U. S. Geological Survey; Fifteenth Annual Report, 1893–94. J. W. Powell. Pp. xiv+755. *Sixteenth Annual Report,* Part II. Papers of an Economic Character, Pp. 598, Part III. Mineral Resources of the United States Metallic Products, Pp. 646, Part IV. Mineral Resources of the United States, Non-Metallic Products, Pp. 735. Charles D. Walcott. Washington, Government Printing Office. 1895.

The Scenery of Switzerland. Sir John Lubbock. New York and London, The Macmillan Co. Pp. xxix+371. $1.50.

Home and School Atlas. Alex. Everett Frye. Boston and London, Ginn & Co. 1896. Plates X. Pp. 48.