through quantity (enumeration and measure) and causal connection (stages in this latter conception being pointed out), to the completed form of individuality (which is that of unified system).

The chapter on The Nature of Inference requires no special comment, except that the solution offered of the old paradox: How can the mind pass from the known to the unknown? —to the effect that there is no such passage, there being "always a certain amount of identity between the two ends of the process" [p. 326] —is hardly searching. Should not questions of this sort, if taken hold of at all, be handled with a certain thoroughness, even where it is inexpert novices that one has to reckon for? The concluding chapter, likewise, on Rational and Empirical Theories, calls for no discussion, its spirit beining manifest from what has been already related, and its upshot, in the rejection of either attitude in abstraction, sound, notwithstanding that the rationalism described is rather that of Descartes than the profounder doctrine of Kant.

Of this Part as a whole, this much only need be said. So far as it really proceeds, it is excellent and, doubtless, gives the entire book a value immeasurably beyond that of the dry, shallow, old-fashioned manual. And yet a questioning does arise, just how far the practically total avoidance of direct issue with the more fundamental difficulties concerning thought—the refusal to dip even lightly into the deeper waters of philosophy—is an advantage even for beginners, beginners of the sort who are ready to read such a book as this at all? For may it not be doubted if a bright student can fail—and is it not to be hoped that he shall not fail —to be perplexed by a groping perception of problems, a mere definite pointing out of which, or a mere hint towards whose solution, would have been of the greatest help to him, but which here are quite ignored? Surely our fear should be, not of bringing our pupils, when need is, into the labyrinths of metaphysic, but of ourselves not proving clear-sighted guides therein. However, in this point it may be that our judgments must turn on individual notions of how completely logic can and ought to be cut off from metaphysics.

Evidently in this work Professor Creighton has not given us the 'definitive' text-book—if there be any sense in the shallow favorite phrase. His book does not closely approximate its design. What he has produced is this, a book with a good many good things in it. These require a stricter organization; in parts, some supplementation; in other parts (perhaps), a pushing deeper back into philosophy; and, in one section, a considerable correcting. Yet with all these drawbacks—granted a teacher capable of coping with them—Professor Creighton's book is not unsuited, as an introduction, to become a very useful one; rather it undoubtedly *is*, as pointing in a wholly desirable direction, one of the very best on the market.

GEORGE REBEC.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of Geology*, February–March, 1899. The first paper is by Henry S. Washington, and is the third installment of the series relating to 'The Petrographical Province of Essex County, Mass.,' pp. 105–122. Dr. Washington treats of the rocks occurring in dikes, viz: Aplite, quartz-syenite-porphyry, paisanite, sölvsbergite and tinguaite. The series is to be continued. B. Shimek, 'The Distribution of Loess Fossils,' pp. 122–141. The author emphasizes certain important points in the character and distribution of the fossil shells found in the loess, basing his conclusions on facts observed in connection with existing land shells. His observations confirm the Æolian origin of the Western loess. H. W. Turner, 'Granitic Rocks of the Sierra Nevada,' pp. 141–163. This is an important addition to our knowledge of the general petrography of the granitoid rocks of the Sierras. Types embracing true granites, grano-diorites, quartz-monzonites, soda-aplites, quartz-diorite-aplites and pegmatites we described with many analysis. Under the studies for students the development and geological relations of the mammalia are outlined by E. C. Case. Editorials and a valuable summary of 'Current Pre-Cambian Literature,' by C. K. Leith, close the number. The latter contributions are particularly to be commended,

as they afford excellent summaries and temperate and judicial comments.

We are glad to note that owing to its increasing circulation the publishers of *Science Abstracts* (Spon & Chamberlain, New York) have been able to make a reduction in the price. The journal, issued monthly under the direction of the Institution of Electrical Engineers and the Physical Society of London, is performing a very important service for the advancement of science. The first volume contained 1,423 abstracts and thus gives a full survey of the progress of physics and electrical engineering. The advantages both pure and applied science gain by cooperation in the pubcation of this journal are evident on almost every page.

SOCIETIES AND ACADEMIES.

In response to a circular sent out to physicists by a committee representing seven institutions, a meeting was held on Saturday, May 20th, at 10:30 a. m., at Columbia University, New York, for the purpose of organizing a Physical Society. Thirty-eight persons were present, representing seventeen institutions, as follows: Wesleyan University, 2; New York, 2; Yale, 3; Cornell, 5; Columbia, 7; Pennsylvania, 2; Bryn Mawr, 2; Vassar, 2; Princeton, 2; Amherst, 1; Mt. Holyoke, 2; Smith, 1; Harvard, 2; Vermont, 1; Swarthmore, 2; Clark, 1; U. S. Weather Bureau, 1. Letters had been received by the committee from many physicists in all parts of the country, expressing approval of the organization and a willingness to join.

Professor Pupin welcomed the physicists present on behalf of Columbia University, and introduced Professor Cooley, of Vassar, the senior member present, as Chairman of the meeting. Professor Webster was elected Secretary, and addressed the meeting in explanation of the purpose of the call. Reports of communications received by members of the committee were made by the Secretary and by Professors Magie, Nichols and Pupin. On motion of Professor Rosa, it was voted that a Physical Society be organized. On motion of Professor Magie, it was voted that a committee be appointed to draft a constitution for the Society. On motion of Professor Magie, it was voted that the meetings be held in New York, except in special cases. An amendment offered by Professor Nichols was adopted, to the effect that the meeting express the willingness of the Society to establish local sub-sections meeting in other cities when a demand shall arise. After a rather lengthy discussion, an amendment proposed by Professor Pupin was adopted, to the effect that the meeting express the sentiment of the Society to cultivate the closest relations with Section B of the American Association for the Advancement of Science, and to contribute by everything in its power to the success of the Association. Upon motion of Professor Magie, it was voted that a bulletin be published by the Society. Professors Webster, Nichols, Magie, Peirce, Hallock and Pupin were elected as the committee to draft a constitution. The meeting adjourned at 12:30 and partook of lunch kindly provided by representatives of Columbia University.

The session was resumed at 2:20 p. m., and the constitution submitted by the committee was adopted. All the above notes were therein embodied. A list of nominations for officers was reported by the same committee, and the following were unanimously elected: President, Professor H. A. Rowland, of Johns Hopkins; Vice-President, Professor A. A. Michelson, of Chicago; Secretary, Professor Ernest Merritt, of Cornell; Treasurer, Professor Wm. Hallock, of Columbia. Nominations were then made from the floor for members of the Council who, with the officers, are to have the general management of the Society, and the following were elected: Professors A. G. Webster, of Clark; J. S. Ames, of Johns Hopkins; H. S. Carhart, of Michigan; B. O. Peirce, of Harvard; W. F. Magie, of Princeton; E. L. Nichols, of Cornell; M. I. Pupin, of Columbia.

It was voted that the election of new members be made by the Council; that the annual fee be five dollars; that there be no initiation fee, and that four meetings be held annually.

The constitution provides that the name of the Society shall be the American Physical Society, and that its object shall be the advancement and diffusion of the knowledge of physics. A circular will soon be issued containing the text of the complete constitution, which will be