ordinary, but outdone a little later, when we learn that the modern movement 'back to Kant' was one of religious compromise! On the other hand, Mr. Robertson has some excellent things. His view of the English deistic movement, as against Mr. Leslie Stephen, is thoroughly sound; similarly his summary of the defects of 'higher criticism' (407) is full of point; while here and there we meet with illuminating remarks, such as that it is 'the tendency of every warlike period to develop emotional rather than reflective life' (409); and that 'the abstention of later specialists from all direct application of their knowledge to religious and ethical issues is simply the condition of their economic existence as members of university staffs' (408). As one looks around upon professorial philosophy, is not this all too true?

Taking the author at his own word, and remembering the limits distinctly laid down in the preface, the book is an excellent one, and it ought to find its way into many hands. It will startle the smug obscurantist, and will afford the free man—who is much more common than Mr. Robertson thinks—many cues to follow up in further reflection. If the author would put his eighteenth century rationalism behind his back, he might produce a definitive history, not of free thought—for all *thinking* is free by the nature of the case—but of man's gradual rise to a more fully reasonable explanation of himself and his environment.

R. M. Wenley.

University of Michigan.

SCIENTIFIC JOURNALS AND ARTICLES.

The *American Journal of Science* for July contains the following articles:

Velocity of Electric Waves in Air; by G. V. Maclean.

Spiral Fulgurite from Wisconsin; by W. H. Hobbs.

Chemical Composition of Parasite and a new occurrence of it in Ravalli Co., Montana; by S. L. Penfield and C. H. Warren.

Estimation of Iron in the Ferric State by Reduction with Sodium Thiosulphate and Titration with Iodine; by J. T. Norton, Jr.

Mouth of Grand River; by E. H. Mudge.

Electrical Measurements; by H. A. Rowland and T. D. Penniman.

Reflection of Hertzian Waves at the Ends of Parallel Wires; by Lee DeForest.

In a thesis entitled 'An Experimental Study of the Corrosion of Iron under various Conditions' accepted for the degree of Bachelor of Science in Electrical Engineering, in the University of Wisconsin, Mr. Carl Hambuechen shows that whether an iron surface which has been subjected to corrosive influences has a uniform corrosion, local pittings or corrosion along definite lines or curves is dependent upon the physical and chemical character of the iron. The conclusion is drawn that a study of such corroded surfaces, which may be produced quickly by electrolytic means, may give considerable insight into the properties of iron. The main part of the thesis deals with an investigation of the energy expended when iron is subjected to strain, part of the energy being expended in heating the iron, but the greater part being stored in the metal and manifesting itself in an increased tendency to corrosion and a higher electromotive force of contact between the iron and an electrolyte. Measurement of this increase of electromotive force while the iron was subjected to increasing stresses showed that a curve giving relation between stress and electromotive force is obtainable; this curve being similar to the stress-strain diagram, and each curve showing clearly the point of elastic limit. The fact that a metal under stress has a greater chemical activity will afford an explanation of many peculiar cases of corrosion, such, for example, as the peculiar appearance of hardened steel which has been subjected to electrolytic corrosion.

In an article on Russian Museums, Mr. F. A. Bather thus discusses the question as to whether or not museums should send out collections for study: "The occasional loss of a specimen is nothing as compared with the increased value of a properly worked-out collection. If a museum is unable for any reason to send out collections to specialists, then it must have a large and properly paid staff. It is the business of a museum to encourage culture and to be a headquarters of intellectual activity in its various departments. A slight experience serves to show that the museums which prosper

are those which enter into the most cordial relations with a large body of students.''

IN the June number of the *Journal* of the Boston Society of Medical Sciences Dr. James H. Wright has a paper on the application of color screens to photomicography, in which he shows that by a proper use of filtering light media the clearness and accuracy of photomicrographs may be greatly enhanced.

SOCIETIES AND ACADEMIES.

GEOLOGICAL CONFERENCE AND STUDENTS' CLUB OF HARVARD UNIVERSITY.

Students' Geological Club, May 2, 1899.—Mr. A. W. Grabau gave a *résumé* of the paleontology of the Boston basin.

Geological Conference, May 9, 1889.—Under the title 'Tertiary Granitic Intrusives of the Yellowstone Park,' Dr. T. A. Jaggaer, Jr., reviewed Mr. Arnold Hague's paper on 'The Tertiary Volcanoes of the Absaroka Range' (SCIENCE, IX., pp. 425–442).

Students' Geological Club, May 16, 1899.—At a special meeting of the Club, Mr. L. LaForge exhibited his collection of Chemung fossils.

Geological Conference, May 23, 1899.—Three papers were presented at this final meeting of the year. Mr. A. W. Grabau discussed 'Some Modern Stratigraphic Problems' from a paleontological point of view. He emphasized the importance in paleontological work of the division of marine organisms into Plankton, Nekton, Benthos, Meroplankton and Pseudoplankton, and held that extensive deposits of planktonic organisms enclosed by beds of shallow water origin indicate a period when the land stood at baselevel. Benthonic animals are important as facies fossils, and the benthonic mode of living exerts a great influence in the development of local faunas. Repopulation of a district by a benthonic fauna which has occupied it at an earlier date—through the medium of meroplanktonic larvæ, as demonstrated by Walther—was illustrated by examples drawn from the Hamilton of western New York. Graptolites and Ammonoids, as pseudoplanktonic organisms, are important as index fossils.

Among local or provincial faunas acceleration was considered to be one of the foremost means of differentiating species. Thus, the Fusidæ of the Paris basin appear to have developed independently from those of the Hampshire basin of England. In each area a complete, distinct, phylogenetic series has been discovered. These, although parallel, present specific differences throughout; while certain individuals suggest occasional migrations of species from one basin to the other.

In considering the operation of barriers upon migration the case of the genus *Fulgur* was cited. This gastropod has inhabited the Atlantic coast between Cape Cod and the Gulf of Mexico since Miocene time, its northward and southward migration being prevented by climatic causes, due largely to topographic conditions. That their young are not carried to other similarly characterized shores appears to be due to the fact that the veliger stage is passed in the egg capsule, so that in this gastropod the planktonic larva does not exist.

Mr. H. T. Burr gave 'Results of Recent Studies of the Geology of the Boston Basin,' and Mr. L. LaForge spoke on 'The Relation of Dikes, Joints and Faults in Somerville, Mass.'

J. M. BOUTWELL,
Recording Secretary.

DISCUSSION AND CORRESPONDENCE.

BODY BLIGHT OF PEAR TREES.

IN the spring of 1898 when preliminary studies with* apple canker were begun at this station a few inoculations were made in the limbs of a large pear tree with cultures of *Sphæropsis*, taken from cankered apple limbs. The fungus grew readily at all points of inoculation and produced dead sunken areas of the outer bark, similar to those that are so common on the trunks and larger limbs of pear trees. These definitely outlined and sunken areas of dead bark, commonly known as body blight, have long been thought to be due to the action of the pear blight bacillus. However, it may be pointed out that body blight is preëminently a disease of the outer bark, while with pear blight the reverse is true since the cambium layer is first attacked.

*SCIENCE, Vol. VIII., pp. 595 and 836.