the employ of the Sinclair Oil and Refining Corporation as geologist, has returned to the university this year, but retains his connection with the Sinclair companies.

Mr. L. A. Rumsey, former instructor in organic chemistry at Iowa State College, has been appointed head of the department of chemistry at Denison University, Granville, Ohio.

Dr. R. K. Strong, of the University of Chicago, has been appointed as professor of industrial chemistry at the Oregon Agricultural College.

DISCUSSION AND CORRESPONDENCE

RHYTHMIC PRECIPITATION

The abstract of Dr. H. N. Holmes's paper, read before the Kansas City meeting of the American Chemical Society, April 12, 1917, which appears in Science, November 2, 1917, calls for some discussion. He proposes a "new" theory to account for rhythmic precipitation bands. I have recently given a short account of some of the earlier work in the subject in a paper in the *American Journal of Science* for January, 1917, from which it is clear that the theory is comparatively old, having been suggested twenty years ago by Ostwald senior, and established six years later by Morse and Pierce.[1] Later workers have agreed with these pioneers, and recently I have shown that the rates of diffusion of the reagents have to be taken into account in explaining rhythmic precipitation, and that under certain conditions bands which become successively closer, or equally spaced bands, may be produced. Morse and Pierce also showed, fourteen years ago, that a gel is not essential to the formation of precipitates in separated bands, having obtained them in aqueous solutions. It is of interest and importance that Dr. Holmes has obtained them in loosely packed flowers of sulphur.

It might be asked what Dr. Holmes means by "crystalline banding of mercuric iodide." Is it possible that "banding of crystalline mercuric iodide" is meant? Again, it is difficult to understand what is meant by "a thickness of a few cubic centimeters," thickness usually being measured in one dimension, not in three dimensions.

I would take exception to the statement: "The color arrangement of agate is an excellent example of the phenomenon." It may possibly be an example of the phenomenon. I have not studied agates in sufficient detail to discuss the subject at this time, but such cursory examinations of agates as I have made have been sufficient to indicate that the offhand acceptation of agates as examples of rhythmic banding by precipitation within a medium of gelatinous silica is inadvisable. There are very few agates which are not susceptible of other explanation. Liesegang, in his "Geologische Diffusionen," after discussing agates as products of rhythmic precipitation within gelatinous silica, is careful to point out that he does not propose to apply this explanation universally.

It is unnecessary to state that the description of Dr. Holmes's experiments with silicic acid gels will be awaited with interest. From the partial account given in his abstract the experiments would appear to be along similar lines to those of Hatschek, and Hatschek and Simon.

J. Stansfield
Geological Department,
McGill University

[1] Morse, H. W., and Pierce, G. W., *Zeitschr. phys. chem.*, Vol. XLV., 1903, p. 589, or *Physical Review*, Vol. XVII., No. 3, September, 1903, p. 129.

GRAVITATIONAL REPULSION AND THE COMET

The results presented by the writer in a paper recently published by the Academy of Science of St. Louis[1] may be of assistance in explaining the behavior of the comæ and tails of comets. Twenty years ago Newcomb gave the following description in Johnson's Universal Cyclopædia.

> When a bright comet is carefully examined with a powerful telescope, a bow will sometimes be seen, partially bent around the nucleus on the side towards the sun. If watched from night to night, this bow will be found to expand from the nucleus, become diffused and finally lose itself in the nebulosity of the coma. . . . These bows seem to be

[1] *Trans.*, Vol. XXVIII., No. 5, November 8, 1917.

formed of hemispherical envelopes of vapor, which rise from the nucleus itself, dissolve themselves in the coma, and are gradually repelled from the sun so as to form the material of the tail.

The turning point in the motion of these dust particles which are repelled towards the sun may be thus defined. The gravitational repulsion of the nucleus, the gravitational attraction (or repulsion) of the sun, and the repulsion due to the pressure of light-waves, are balanced against each other. These dust particles are gradually dispersed into space. The radiation of negative corpuscles from the sun, superposed upon the other causes above mentioned, seems to furnish a full explanation of the phenomena of the comet.

FRANCIS E. NIPHER

BARITE IN GEORGIA

IN the Friday, December 21, 1917, issue of SCIENCE, on page 611, under the title of "Chemical industries of the United States," you quote from the annual report of Franklin K. Lane, Secretary of the Interior,

> Before the war 40,000 tons of barite were imported from Germany for the manufacture of lithopone. Now five companies are producing this article from deposits in Tennessee, Kentucky, Virginia and Missouri.

This quotation is incorrect in that over 50 per cent. of the barite produced in the United States comes from deposits near Cartersville, Georgia. There are three companies in the Cartersville district that have produced over 20,000 tons apiece during 1917, while the total output from this dictrict could be conservatively estimated at 75,000 tons during 1917. You do not mention that any barite at all is mined in Georgia, and I feel that this should be brought to the attention of the public, as it is an injustice to this mining district, as they are the largest producers of this mineral in the United States.

WILBUR A. NELSON

CARTERSVILLE, GA.

MANGANESE IN ALBERTA

MY attention has been directed to an article in SCIENCE, January 4, 1918, page 20, describing a large deposit of manganese occurring in the Cypress Hills, Alberta. Permit me to say, through the medium of your valuable magazine, that the Geological Survey has no information regarding a deposit of the nature described. During the summer of 1917 an examination was made by a member of the staff of the Geological Survey of a deposit of low-grade manganese in the Cypress Hills about 55 miles from Maple Creek and 15 miles from Govenlock station on the Canadian Pacific railway. Three samples gave on analysis 8.24, 18.45 and 17.59 per cent. of managanse. A shipment of 500 pounds of the material was tested in the Ore Dressing and Metallurgical Laboratories of the Mines Branch and the conclusion was reached that it is of too low a grade to be worked economically under present conditions.

WILLIAM MCINNES,
Directing Geologist

SCIENTIFIC BOOKS

Studies on the Variation, Distribution, and Evolution of the Genus Partula. The Species Inhabiting Tahiti. By H. E. CRAMPTON. *Carnegie Institution of Washington.* 1916.

This work has an interest for the student of evolution in any group, quite apart from its special interest to the conchologist. Such variable non-mobile land shells scattered widely among oceanic islands offer a field in many aspects most favorable for compilation of statistics bearing on speciation. Also, a very large series of material has been studied and adequately described and figured.

Evolutionary writers frequently attempt to balance an imposing structure of hypothesis on a few inadequate facts. The paper under discussion seems to have gone to the other extreme in laying the *Partula* variation almost entirely to the innate tendency to vary. The statement that "the originative influence of the 'environment' seems to be little or nothing" (p. 12) is perhaps justifiable, but that "isolation proves to be a 'condition' and not a 'factor' in differentiation of forms belonging to this genus" is weakened when we