

justed to the intense light necessary for photography so long as they are in familiar surroundings. The most difficult problem to surmount was sound. Rats would scurry for cover at the least whirr of a camera or sound of a human voice. By the continuous use of a nonsense sound track at high volume, all extraneous noises were drowned out, and the rats went about their normal activities. Three types of movies were produced: (1) Rats in their native surroundings; (2) sets of houses, etc., were superimposed upon the native surroundings of rats; (3) rats were introduced into prepared sets. In this latter case rats were induced to act by first letting them become familiar with the set and, second, by shooting the scenes when the rats were at the height of their activity cycle.

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## Geode Note

IN 1940 the writer presented a new working hypothesis to account for the formation of geodes, which are found so abundantly in the Warsaw and Keokuk formations. It was suggested that these "geodes were syngenetically deposited on the sea bottom as colloidal masses of hydrated silica" (*Trans. Illinois State Acad. Sci.*, 33, 168 [1940]) and that later, when the colloidal masses were in an environment where moisture was removed from the sediment or sedimentary rock, the loss of water from the gel produced the chalcedony shell that forms the outer layer of the geodes in those formations.

Geological evidence presented at that time has multiplied through the ensuing years to favor this hypothesis. Perhaps the most striking is offered by contact geodes. Not infrequently two geodes are found with a flat plane of contact and with a hollow in each geode. It is difficult to see how such pairs could be formed by any processes involving solution of cavities and subsequent filling, but it is understandable that colloidal masses coming in contact could produce a flat common surface and that each eventually dried and left its own cavity.

In 1944, a second paper (*Trans. Illinois State Acad. Sci.*, 37, 93 [1944]) showed that it was possible experimentally to produce silica gel balls under conditions very distantly approximating natural conditions. These, on being dried, gave shells not unlike the chalcedony shells of geodes.

There have been two questions that have never been satisfactorily answered: (1) By what process could colloidal silica, in such form and at such concentrations as is normally carried into the sea by rivers, become coagulated into stiff enough gels to form geodes, as postulated by this working hypothesis? (2) By what process are the quartz crystals, which line the majority of the geodes in the Warsaw and Keokuk formations, developed?

The first of these questions remains unsolved. However, the same question can be raised in considering

how primary chert could have been deposited in the ocean, and if that question can be settled, the problem of the balls of stiff silica gel could probably be settled also. At present, studies are in progress of conditions that quite closely approximate those found in nature, and that could produce silica gel in sea water, and they may furnish light on the problem of chert and geode formation.

Regarding the formation of the crystals, it was suggested in our original paper that "loss of electrons produces a condition favoring deposition of crystalline quartz." This idea has been completely abandoned. Work by Richard Naken in Germany (A. C. Swinnerton. *Report of Investigation in European Theater*, Signal Corps Engineering Laboratories, Bradley Beach, N. J. [Jan. 1946]), by Buehler and Walker in this country (*Sci. Monthly*, 69, 148 [1949]), and by others has suggested a new line of procedure, which is now being investigated to determine if it is possible to develop quartz crystals on the inside of chalcedony shells similar to geodes, and under conditions that are similar to those found in nature.

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## La Cellule Nerveuse

THE purpose of this note is to draw attention to an excellent, but not well-known, source of information concerning early work in neurocytology. The book referred to is *La Cellule Nerveuse*, by M. G. Marinesco (Vols. 1 and 2, published by O. Doins et Fils, Paris, in 1909). These volumes are Nos. 10 and 11 in a series known as the "Bibliothèque de Physiologie," published under the direction of J. P. Langlois. The edition was probably small, judging from the few copies in medical libraries and the infrequent reference to this classical treatise in current reports of neuroanatomical research.

Volume 1 of *La Cellule Nerveuse* deals exhaustively with the normal neuron. Volume 2 is concerned, in equal detail, with the cytology of experimentally and pathologically altered neurons. The book is not impressive physically, and the illustrations are of only fair quality. However, the text material will be a delight to every student of the nervous system, especially since many of the original sources are now inaccessible because of actual scarcity or language difficulties. A few branches of science are based on such new concepts and techniques that the older literature is of little interest. This is not the case with neuroanatomy. No present-day student in this field can afford to ignore the brilliant and meticulous work done in Europe more than half a century ago. *La Cellule Nerveuse*, together with Cajal's better known *Histologie du Système Nerveux de l'Homme et des Vertébrés*, are major chapters in the neurocytologist's Old Testament.

To learn of the availability of *La Cellule Nerveuse*, a query was directed to 104 member libraries of the