The results of our recent studies in this disease divide themselves into three parts:

(1) We have located a family of hemophiliacs in southern Illinois. Their family records have been traced back 125 years, through six generations. There have been sixteen bleeders in this family, seven of whom are living.

(2) Taking into consideration that only males have the disease, while it is transmitted through the unaffected female, one is forced to the conclusion that if the female can transmit the disease she must potentially have the disease. Then there must be something in the female mechanism which holds the disease in abeyance. The greatest difference between males and females is the sex organs. Working from this hypothesis we treated two high-grade hemophiliacs with ovarian extract, and performed an ovarian transplant on one of them. (The idea of the ovarian transplant was suggested by Dr. H. B. Thomas and he performed the operation.) The boy who received ovarian extract alone has been symptom free for eleven months. The boy who had the ovarian transplant was completely well for five and one half months or until the transplant was absorbed. We concluded from this experiment that in these two patients with hemophilia the introduction of the female sex hormone rendered them symptom free for eleven and five and one half months, respectively. These boys had scarcely ever been free from hemorrhage for a month at a time prior to the institution of this treatment.

(3) In our study of the blood we attempted to find the cause of the prolongation of the clotting time. We found the blood platelets to be very resistant to hypo and hypertonic salt solution. When the resistance of the blood platelets was overcome mechanically the blood clotted in normal time.

We are continuing our study of hemophilia as our experiments are far from complete.

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GLAUCONITE IN FOSSIL FORAMINIFERAL SHELLS

THIS brief communication has two purposes: (1) to add two more cases from the United States of glauconite occurring in fossil shells of foraminifera; (2) to question the following statement of Twenhofel: "Although there may be some connection between foraminiferal shells and modern glauconites, it is difficult to find any evidence therefor in those of the geologic section."[1]

(1) The writer has been occupied in studying the sediments of the Calvert formation (Miocene) in Maryland. In the field, these sediments show a predominantly light to dark olive-green color. They overlie, unconformably, the highly glauconitic Eocene sands. A laboratory study has revealed the surprising absence of glauconite, except as follows. In Zone 13 (Miocene volume, Maryland Geological Survey), three miles below Chesapeake Beach pier, Calvert County, and at an elevation of 38½ to 45 feet, there occur a number of foraminifera which have in their interiors glauconite. This substance is, in this case, a shiny, dark olive-green; in texture it resembles very fine fish-roe, the individual spheres being quite distinct. The enclosing sediment is a dull, earthy olive-green; no grains of glauconite were seen outside the shells.

In material from the Oligocene Vicksburg group of Mississippi (Brown's Cave, Leaf River), there are numerous foraminiferal shells bearing glauconite in their interiors. Here the color is a somewhat dark peagreen; grains of glauconite are numerous in the enclosing sediment.

(2) In the standard American literature on glauconite, the writer has seen but one specific reference to the occurrence of that substance in fossil foraminiferal shells, and that one is by R. M. Bagg, Jr.[2] In that work no distinction is made between glauconite grains which might have been washed into the shells subsequently and glauconite which obviously formed in the shell itself.

Some material from the Eocene of Chaumont, Paris Basin, furnished me together with that from the Oligocence of Mississippi by Dr. R. E. L. Collins, of Johns Hopkins, shows conclusively that the glauconite now found in the shells had its origin there. Several foraminifera were broken in mounting, and sections of the interior exposed. In all cases the glauconite exactly fits, as a unit, the chamber in which it is found; no sign of finer texture can be seen, in all cases the "unit" of glauconite completely fills the chamber and conforms to all its irregularities. In some cases only several of the innermost chambers are filled and the outer ones show no sign of ever having contained glauconite. It seems impossible to explain such relations by appeal to subsequent filling.

Twenhofel's statement, then, as quoted above, seems unwarranted, since in the Miocene example first described the evidence seems strongly to favor an origin of glauconite in the fossil shells and in the Eocene material from the Paris Basin no doubt can remain that such an origin must be postulated.

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[1] William H. Twenhofel, "Treatise on Sedimentation," p. 340, Baltimore, 1926.

[2] R. M. Bagg, Jr., *Bull.* 88, U. S. Geol. Surv., 1898, p. 13.