director of the Virginia Truck Experiment Station at Norfolk. He will take up his new work on July 1.

DR. J. BROOKES KNIGHT, lecturer and curator of paleozoic invertebrates in the department of geology of Princeton University, has been appointed research associate in paleontology at the Smithsonian Institution. He will work at the U. S. National Museum beginning on July 1.

DR. DAVID F. SMITH, director of research of Johnson and Johnson, New Brunswick, N. J., has been elected a member of the board of directors of the company.

DISCUSSION

HEPATIC "INACTIVATION" OF ESTROGENS

LIPSCHÜTZ *et al.*[1] recently presented data purporting to indicate "that the liver is able to inactivate great quantities of estriol and equilinin." This conclusion was reached on the basis of the relatively poor "fibrous tumoral effect" of these agents when implanted in the spleen of guinea pigs as compared with subcutaneous implantation.

We[2,3] have shown that large amounts of endogenous and exogenous estrogen are excreted in the bile of dogs and human subjects; the rapid disappearance of exogenous estrogen from the systemic circulation and urine is due to this mechanism and not to its rapid destruction or inactivation by the liver. When a 15 mg pellet of alpha-estradiol was implanted in the spleen of a bile-fistula dog, estrogen was excreted in the bile in large amounts for at least 23 days, although no estrogenic activity could be demonstrated in the urine at any time during this period.[3] This is conclusive evidence that with splenic implantation the absence of any type of effect dependent upon the presence of estrogen in the systemic circulation can not be interpreted as indicating its rapid destruction by the liver.

There can be no doubt that the liver is capable of inactivating estrogens *in vitro*, but that it does so rapidly *in vivo* is highly questionable. The results of all experiments on which this hypothesis is based prove only that the normal liver prevents estrogens from entering the systemic circulation in effective concentration. This could be accomplished by biliary excretion and subsequent enterohepatic circulation (as is the case with bile acids) as well as by rapid destruction in the liver. The latter hypothesis not only lacks incontrovertible proof but is indeed directly contradicted by our findings.

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[1] A. Lipschütz, C. Becker, R. F. Mello and A. Riesco, SCIENCE, 101: 410, 1945.

[2] A. Cantarow, A. E. Rakoff, K. E. Paschkis, L. P. Hansen and A. A. Walkling, *Endocrinology*, 31: 515, 1942.

[3] A. Cantarow, A. E. Rakoff, K. E. Paschkis, L. P. Hansen and A. A. Walkling, *Proc. Soc. Exp. Biol. and Med.*, 52: 256, 1943.

A POSSIBLE CASE OF FICTITIOUS CONTINENTAL DRIFT

ONE point has apparently been overlooked in connection with early determinations of longitude cited as observational evidence in connection with the Wegener hypothesis of continental drift.[1] These earlier longitudes were determined from occultations of stars by the moon. The point is not the relatively low degree of accuracy attainable by this method; that point is conceded by all. The point is that longitudes determined from occultations are essentially different in character from longitudes determined by the observation of local times and the exchange of telegraphic or radio time signals.

An ordinary difference of longitude obtained from the exchange of time signals necessarily depends on the directions of the plumb lines at the two points involved. Ultimately we get back to the plumb line at Greenwich. The plumb line at either point may be deflected from what may be conceived as its normal direction. The deflection is due to the visible irregularities in the conformation of the earth's surface and to the invisible irregularities in the densities of the surrounding portions of the earth's crust.

On the other hand, if we examine the underlying equations used to determine longitudes from occultations, we shall find that the longitudes—and the latitudes also—implied in these equations depend not at all upon the direction of the plumb line but depend solely upon position with respect to the center and axis of the earth. They are latitudes and longitudes such as the geodesist would very much like to know, latitudes and longitudes freed from the effect of the irregular deflections of the plumb line. These latitudes and longitudes might be appropriately termed "ideal geodetic" latitudes and longitudes.

Why this should be so is easily seen. It is convenient to follow the course of an occultation or of a solar eclipse by thinking of the apparent sweep of the moon's shadow across the face of the earth as

[1] A. Wegener. Die Entstehung der Kontinente und Ozeane. 4th ed., 1929, Chap. 3; C. R. Longwell, SCIENCE, 100: 403–404, 1944.