In tests with about one hundred young from manganese-free mothers only one animal was reared by stock females which had just delivered litters, whereas exchanging young of stock mothers does not result in lack of maternal solicitude. It appears that the normal mother detects something wrong with the young of manganese-free mothers and abandons them. This happens even when the young of manganese-free mothers are wrapped in cotton with normal stock litters of new-born for an hour or more for the purpose of putting the odor of each kind of young on the other before placing them with the stock mothers. Histological studies are being made of the mammary tissue at different stages of gestation, to determine whether there is any development preparatory to milk secretion. The addition to the manganese-free diet of as little as five thousandth of one per cent. of manganese results in preventing the behavior of the female rats toward their young. With this addition they care for their young normally and have almost no infant mortality. Male rats kept on a manganese-free diet show no abnormality other than testicular degeneration. This degeneration is well under way by the hundredth day on the diet. The atrophy then rapidly proceeds until only vestiges remain and complete sterility results. The histological changes at different stages of degeneration of the testes will be described later. There is little or no tendency to obesity in these males. The testicular atrophy and the failure of females to suckle young suggest failure of some hormone production in the hypophysis. There is a clinical literature on male sterility developing in middle life, which is referred to hypophyseal deficiency. There is likewise recognized by endocrinologists a stimulating effect on milk secretion caused by the administration of certain hypophyseal extracts. Observations thus far made seem best explained on the theory that manganese is in some manner related to hormone formation by the hypophysis. The problem is being studied in detail.

New methods for locating genes in particular chromosomes: ALBERT F. BLAKESLEE. The usual method of locating genes is by linkage between two or more genes in disomic inheritance. The newer methods developed in Datura include the following: (1) All the 12 primary (2n + 1) types when heterozygous for a given gene throw disomic ratios in their offspring except the type whose extra chromosome carries the locus for this gene. This latter primary throws trisomic ratios. By trisomic ratios from (2n + 2/2) secondary types, from (2n + 1) tertiary types with a compound chromosome extra, and from extra fragment types, genes may be located in particular parts of chromosomes. (2) Compensating types, in which parts of two chromosomes compensate to form the equivalent in genic content of a whole chromosome, if heterozygous for a gene with its locus in the compensated chromosome will breed true for this gene among its 2n offspring, except for crossing over. Double compensating types are known which compensate for two different chromosomes. (3) Types with a translocated fragment, which enables the plants affected to be recognized by external characters, if heterozygous for a gene with its locus in the chromosome to which the fragment is translocated, will breed true for this gene among its 2n offspring, except for crossing over. (4) Prime types (types with chromosomes modified by segmental interchange) if they induce a definite proportion of aborted pollen in the heterozygous condition may be used to locate genes by ratios of individuals in the offspring with good to those with characteristic percentages of aborted pollen. This method locates the gene in one of two chromosomes if the prime type has two chromosomes modified. (5) If a plant heterozygous for a gene which causes abortion of one half the pollen grains but which does not affect the vitality of the egg cells is rendered heterozygous for a non-lethal gene, all the offspring from the male back-cross will be homozygous for the gene, except for crossing over. In the usual method of locating genes by linkage, the crossing-over values are determined by the interaction of two genes with loci in the some chromosome. By the methods 1, 2, 3 and 4, here given, the crossing over of a given gene can be determined without regard to the behavior of a second gene.

A new travertine-forming organism: MARSHALL A. HOWE. The geological importance of certain aquatic plants known in a general way as the algae has received increasing recognition during the past twenty-five years. Not only have certain so-called "coral" reefs been found to have been built up by lime-secreting plants rather than by lime-secreting animals, but many fresh-water deposits of lime, both recent and fossil, have been found to be due chiefly to the peculiar activity of minute plants belonging to the group known as the blue-green algae. The speaker described in particular a very minute lime-precipitating organism of bacterial dimensions that is responsible for the formation of concentrically layered pebbles and sometimes more extensive deposits of limestone that occur in "hard-water" streams of Pennsylvania and West Virginia. This organism, geologically important, is believed to be new to science.

(To be continued)

BOOKS RECEIVED

BLANCHARD, W. O., and S. S. VISHER. *Economic Geography of Europe.* Pp. ix + 507. 331 figures. McGraw-Hill. $3.50.

CHAMOT, ÉMILE M., and CLYDE W. MASON. *Handbook of Chemical Microscopy.* Volume II, Chemical Methods and Inorganic Qualitative Analysis. Pp. ix + 411. 181 figures. Wiley, $4.50.

HACKH, INGO W. D. *Structure Symbols of Organic Compounds.* Pp. viii + 139. 29 plates. Blakiston.

MEIER, W. H. D., and LOIS. *Essentials of Biology.* Pp. vii + 529. 332 figures. Ginn. $1.68.

MILLER, EDWIN C. *Plant Physiology.* Pp. xxiv + 900. 38 figures. McGraw-Hill. $7.00.

SIMONSEN, J. L. *The Terpenes.* Volume I, The Simpler Acyclic and Monocyclic Terpenes and their Derivatives. Pp. xv + 420. Cambridge University Press, Macmillan. $8.50.

SMALLWOOD, JULIAN C., and FREDERIC W. KEATOR. *Mechanical Laboratory Methods.* Fourth edition. Pp. xii + 386. 121 figures. Van Nostrand. $3.50.

STRECKER, EDWARD A., and FRANKLIN G. EBAUGH. *Practical Clinical Psychiatry for Students and Practitioners.* Third edition, revised. Pp. xvii + 553. 47 illustrations. Blakiston.