

DR. A. K. MACBETH, reader in chemistry in the department of science at the University of Oxford, has been appointed professor of chemistry in the University of Adelaide, South Australia.

DISCUSSION AND CORRESPONDENCE

THE PERIOD OF GESTATION IN THE MONKEY, *MACACUS RHEBUS*

So far as we know, there is no exact record on the length of the period of gestation in any primate other than man; hence the following report of mating and parturition in *Macacus rhesus* will prove of interest.

For over a year the female in question had been found to menstruate regularly in cycles of 26 days. The successful mating took place from the ninth to the twelfth day after the beginning of the last menstrual period and just before the leucocyte count of the vaginal content had reached zero. This is also about the time at which Corner (1923) and Allen (1927) had found ova in the Fallopian tube of the same species of monkey. For theoretical reasons, therefore, it is almost certain that conception took place within the three-day period when the female was left with the male. A male rhesus was born almost exactly six lunar months after conception.

From the fourteenth to the thirty-seventh day after conception the vaginal content of the prospective mother showed slight admixture of red blood cells. This phenomenon is regarded as the "placental sign," discovered by Long and Evans (1920) in the rat and interpreted as slight leakage from the developing placenta. In the rat the sign is infallible. The finding of a slight bleeding under similar conditions in the monkey arouses the hope that an easily ascertainable sign may be found in the first six weeks of human gestation. After the disappearance of the erythrocytes there followed a period of massive vaginal leucocytosis.

Details concerning the phenomena outlined above will be discussed in a fuller account to appear elsewhere.

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THE FLOODS OF 1927 IN THE MISSISSIPPI BASIN

THE flood of 1927 whether measured by the volume of water carried, the area overflowed or the economic loss produced was the greatest of recorded history in the Mississippi Basin.

A full account is given by H. C. Frankenfield and others in a *Monthly Weather Review Supplement*. The setting for the flood was produced by heavy rains that fell as far back as the second week of August,

1926, over Kansas and Oklahoma and thence eastward to and including the greater part of the Ohio Valley. These rains so thoroughly saturated the soil throughout the middle drainage of the Mississippi that further heavy rains coming in September and October, 1926, caused general and in some cases destructive floods in the drainage above Cairo, Ill. The distribution of the rainfall from August to December, 1926, was such as to keep the main river and its tributaries at relatively high stages in a season when stages are normally low. Superposed on these conditions a record-breaking flood occurred in the Cumberland River late in December, 1926, continuing until early January, 1927, and thus the foundation was laid for a serious spring flood in the Mississippi, conditioned only upon the amount and distribution in time and space of the rains of January to April, both inclusive. It so happened that heavy rains fell in March and April and in such sequence as to produce a catastrophic flood in the lower Mississippi Valley. The rains of the third and fourth week of January, 1927, started a flood wave in the Ohio which continued down-river to New Orleans, reaching that place in 38 days. This was the second of a series of flood waves that passed down the river during the interval January-June, 1927, due to heavy rains in the middle drainage area. After the middle of March heavy rains fell between the mouth of the Des Moines and the mouth of the Ohio and during the last week of the month heavy rains also fell over the Missouri Valley south of Omaha, especially over the Kansas and Osage basins. These and other rains resulted in a crest stage at Cairo, Ill., of 52.8 feet on March 25 and that stage was followed by the maximum crest of 56.4 feet on April 20, and by lesser crests of 44.0 feet on May 19 and 49.7 feet on June 8. The characteristic feature of the 1927 flood was a series of flood waves as indicated by the data just given for Cairo, Ill. Higher stages than those recorded would have been experienced had the levees held.

The report contains an estimated stage that would have been recorded had the levees held all along the line. It also submits and discusses the maximum possible stage on the main river under the most favorable conditions. Space does not permit touching in detail upon these phases of the subject.

The progress of the several flood waves was accurately forecast by the Weather Bureau, at least a week, and, in some cases two weeks, in advance; the unique service, however, was furnished when the necessity arose of forecasting the depth of the wave of crevasse water that passed overland through the Atchafalaya Basin to the Gulf of Mexico. In the absence of a contour map for Louisiana, one had to be constructed, over-night, so to speak, by the New

Orleans Weather Bureau Office. By the aid of this map the Bureau was able to give timely warning of the flooding of parts of the Atchafalaya Basin and towns therein that never before in the 200 years since settlement of the region had been reached by flood waters.

A. J. HENRY

DIVISIONS OF THE DECORAH FORMATION

IN studying the stratigraphy and paleontology of the Ordovician Decorah formation in northeastern Iowa, it has been found advisable to divide the formation into three members, here named and defined. The lowest of the three, the Spechts Ferry member, has as its type locality the ravine southwest of the C. M. and St. P. railroad station of Spechts Ferry, Dubuque County, Iowa, at which place the eight and one half feet of shales and interbedded limestones form a lithologic unit lying above the "Platteville" limestone; the "Platteville" of Iowa does not include the uppermost beds of the typical Platteville of southwestern Wisconsin. The Spechts Ferry member includes the "glass rock" and overlying shales at the top of the typical Platteville. The member is of latest Black River (Watertown) age.

The middle member of the Decorah formation, here named the Guttenberg, consists of about fifteen and one half feet of brownish, fine-textured limestone at its type section in the bluff of the Mississippi River just northwest of the town of Guttenberg, Clayton County, Iowa; northward from this locality this limestone grades into shale. In northwestern Illinois the Guttenberg is the "oil rock" member at the base of the Galena formation.

In the N. W. $\frac{1}{4}$ of sec. 35, T. 96 N., R. 4 W., the Guttenberg limestone is overlain by sixteen feet of calcareous shale and argillaceous limestone that constitute the type section of the top member of the Decorah, here named the Ion member. The type locality is about a mile southwest of the hamlet of Ion, Allamakee County, Iowa. The Ion beds become more argillaceous to the northward, more calcareous to the southeastward.

The limestones of the two upper members of the Decorah have been irregularly dolomitized in the southeast part of their Iowa outcrop. The Guttenberg and Ion members are of basal Trenton (Rockland) age.

The Decorah formation thus consists of three members, in descending order, the Ion, Guttenberg and Spechts Ferry members, the type localities of which have been designated.

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A DAYLIGHT METEOR

I READ with interest the two notes that appeared in *SCIENCE*, entitled "A Daylight Meteor," the one of William L. Bryant which appeared in the issue of July 22, 1927, and that of Frederick H. Getman of October 14, 1927. These recall a daylight meteor which I saw in May, 1890.

I was working in a gravel pit at Maxwell, near Des Moines, Iowa, when my attention was drawn to a streak of bright red which dashed from 15 degrees west of the zenith toward the northeast, like a streak of lightning out of a clear sky, for there was not a cloud in sight. I called other workers' attention to it, all concluding that it alighted six or eight miles about north of us—when the papers the next day gave an account of its falling 400 miles distant, in northern Minnesota. The papers also stated that it exploded just before reaching the ground, and that the concussion caused by same broke out all the window lights in several small settlements in the vicinity of where it fell.

This meteor left a trail of smoke (and dust?) behind it which drifted about in the sky all the rest of the afternoon, not having settled at dark that night. This streak of smoke first appeared in a straight line along the line the meteor had fallen, then became wavy, showing different currents of air acting upon it.

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INTERFERENCE?

WHILE on a large forest fire on the Columbia National Forest in Washington, August, 1927, an unusual optical phenomenon was observed shortly after noon one day. The sky was clear save for the smoke column from the fire. This column was very compact, so much so that the upper protuberances had the appearance of burnished metal and the disc of the sun was not discernible through the smoke. The angle of the sun with respect to the observer was slightly below the top of the smoke column. On the N or NNW side of the top of the column there was a broad band of black. This band did not quite touch the smoke column, there was a narrow ribbon of blue sky visible in between, but it extended outward for several hundred feet, assuming that it was a mile or more and a quarter distant. The band did not appear to be a shadow, there could have been nothing behind it but blue sky yet it seemed as opaque as a strip of black cloth hung in the sky. It is unfortunate that a camera was not available as it probably would have photographed with good definition.