There are other features of the specimens that will be described and illustrated in a larger paper on Malaysian basket work in preparation. I wish now to call attention to a new variety of textile and to inquire concerning the existence of other examples.

O. T. MASON

U. S. NATIONAL MUSEUM,
January 30, 1908

NOTE ON THE "LAFAYETTE BEDS" OF LOUISIANA

SOME very interesting facts are being brought to light in southern Louisiana by the large number of oil-wells put down since the date of the famous Lucas gusher in 1901.

In undisturbed beds near the coast we find the Quaternary molluscan fauna extending down to about 2,000 feet. The drill samples show sands, clays and gravels, the latter of typical Lafayette type to at least 1,500 feet. Oyster reefs are encountered more or less frequently, showing a sinking of several hundred feet in comparatively late times. In the Texas Galveston well, and in the regions where underlying beds have been brought up near the surface, as in the Jennings oil field, the first pre-Quaternary fauna is *Miocene* in appearance, not Pliocene. It has been customary to regard the Lafayette as approximately Pliocene. But our well records seem to indicate that the seaward continuation of the gravels in the central portion of Louisiana as well as in those states to the east and west are rather Quaternary than Pliocene, and that the whole embayment region, perhaps, was above sea-level in Pliocene times and was being eroded instead of being below sea level and receiving hundreds of feet of coarse littoral sediment. It would seem then, that Hilgard's views as to the contemporaneousness and interrelationship of the coarse "Orange sands" in the south and the ice sheets in the north may prove correct in spite of the fact that certain "Lafayette" gravels are said to lie beneath glacial till farther north.

G. D. HARRIS

SPECIAL ARTICLES

THE PENETRATING RADIATION

IN the present article three distinct methods will be given to show that the penetrating radiation which produces part of the ionization in closed vessels is not due to γ rays from radium in the ground itself. It seems quite probable that the penetrating radiation must be due to radioactive products in the air and it is quite probable that the origin of these products is in the ground as Elster and Geitel's theory indicates.

The first method is based upon the radium content of the various rocks as analyzed by Strutt and Eve. The highest value for the radium content of sedimentary rocks was found to be $2.92(10)^{-12}$ grams of radium per gram of rock. The mean value found by Strutt for sedimentary rocks was $1.1(10)^{-12}$ grams and by Eve $.8(10)^{-12}$ grams. The value of the radium content varies greatly with the locality, but for surface soils which are subjected to all the various kinds of weather changes the radium content is probably smaller than that found above. For instance, Strutt found a radium content for chalk at the bottom of a cliff to be $.39(10)^{-12}$ grams and at the top of the same cliff $.12(10)^{-12}$ grams.

$.9(10)^{-12}$ grams per gram of rock will probably be in general a maximum value for surface rocks. This quantity will be called Q.

Eve (*Phil. Mag.*, Sept., 1906) has determined K, the number of ions produced per c.c. by the γ rays in air from one gram of radium bromide supposed concentrated at a point and at a distance of 1 cm. The number of ions produced per c.c. at a point near the surface by a semi-spherical shell of ground of radius r and thickness dr is

$$\frac{2nrdr\delta KQ}{r \times .6} \varepsilon^{-\lambda r},$$

where δ is the density (about 2.7) and λ is the coefficient of absorption for the ground (say .09). The factor .6 comes in since K is given for radium bromide and Q for pure radium; K is $3.1(10)^9$. The total number of ions produced per c.c. per second by the ground would be

$$\int_0^\infty \frac{2nr\delta KQdr}{.6r} \varepsilon^{-\lambda r}.$$

This value comes out about .8 ion per c.c. per second as a probable maximum amount.