

5. The catalytic action of platinum black is diminished through the addition of small quantities of those poisons which, according to Kastle and Lowenhart, interfere with the catalytic action of lipase, *e. g.*, potassium cyanide, hydrogen cyanide, phenol, mercuric chloride, salicylic acid, silver nitrate, chloroform, sodium fluoride and others.

In all the experiments bacteriological precautions were used to exclude the possible influence of bacteria in these results. Control experiments showed that the above hydrolytic and synthetic action did not occur in the absence of platinum black.

My sincere thanks are due Professor Loeb for his helpful and valuable suggestions in these experiments.

A full report of these experiments will appear in the *American Journal of Physiology*.

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#### THE JACKSON OUTCROPS ON RED RIVER.

THE Jackson stage of the marine Tertiary appears on the Red River in Louisiana at three points, known to the writer from recent inspection. The northernmost outcrop is the well-known long low bluff at Montgomery, which is probably the most extensive and prolific exposure of the stage now existing. The fossils are contained in profusion in a light blue-gray argillaceous marl, the bed being some six feet in thickness and having a very pronounced even dip, through the approximately quarter mile of exposure, of about one foot in fifty along the straight course of the river, which is here nearly due south, until it disappears beneath the surface at low water.

The next exposure occurs about a mile and a half below the Montgomery outcrop, on the estate of Mr. T. W. Kimbrel. These beds, which are also exposed along a line bearing but a few degrees east of south, have so slight a dip that they appear to be practically horizontal to the eye and are composed for the greater part of greenish-black and brick-red clays. This deposit is not so rich in species as the Montgomery bed and is much more

limited in horizontal extent; it bears nearly due south from the Montgomery bed.

The third exposure occurs at the eastern base of the high and very picturesque bluff, more than a mile in length, about three miles below the Kimbrel beds and limiting the estate of Mr. John Young, and is in like manner composed of blackish and red clays; it bears about thirty degrees south of east from the Kimbrel deposits and may be known as the Young's Bluff bed. Both the Kimbrel and Young's Bluff beds are characterized by a profusion of a large *Pinna* and of *Venericardia planicosta*, *Volutilithes* and *Pseudoliva*.

The Kimbrel bed belongs to a horizon noticeably distinct from the Montgomery outcrop and contains immense numbers of an extremely minute *Lucina*, which is without doubt one of the smallest known bivalves. It is suborbicular, generally a little higher than long, slightly inequilateral, with the posterior side more broadly rounded than the anterior, strongly inflated, thick and heavy in substance, with the hinge thick and strong, all the cardinal teeth large, and the lateral teeth also very thick and almost equidistant from the cardinal. The beaks are small and moderately elevated, the lunule long, narrow and rather ill-defined. The ventral edge is crenulate within and the exterior surface marked with feeble close-set lines of growth and generally also three or four deep concentric grooves of arrested growth. The length of the largest valve in an extended series is 1.35 mm., the height 1.4 mm. It may be called *Lucina atoma*, and is brought forward with a name at the present time because of its importance in being the characteristic fossil of the Kimbrel horizon.

It is impossible at present to state the number of feet of strata separating this horizon from the Montgomery, for it is probable that the latter stratum changes its dip shortly after disappearing below low water, but there are several changes in the nature of its fossils that indicate considerable lapse of time. This is shown, for example, in *Venericardia planicosta*, in which the hinge seems to be less developed and the substance of the entire shell thinner, and in *Volutilithes*, where the

columella usually has two folds instead of the three which is the prevailing state at Montgomery. These differences also hold good with the same species as found in the Young's Bluff bed, which must be very nearly synchronous with the Kimbrel bed, but the former is nevertheless sufficiently distinct in horizon to have developed another characteristic species of *Lucina*, occurring there very abundantly. It is also very minute, though a little larger than *atoma* and may be named *perminuta*.

This species is suborbicular, generally a little longer than high, less inflated than *atoma* and much thinner in substance, similarly inequilateral and more broadly rounded behind, with the lunule much deeper and more evident and only slightly more than twice as long as wide. The hinge is much thinner and the lateral teeth are similarly placed, but much weaker. The ventral edge is similarly crenulate and the external surface has much more evident close-set and sublamelliform lines of growth, the deep grooves of arrested development, when present, being generally limited to the ventral portions. The length of the largest valve before me is 1.55 mm., the height 1.45 mm.

It is probable that these two species, together with such forms as *smithi* and *choc-tavensis*, should be considered generically distinct from *Lucina*.

The bed at Montgomery contains myriads of the very small pelecypod *Alveinus minutus*, which may be considered one of its characteristic species when comparing it with the upper horizons, but no example of *Kelliella bœttgeri* Meyer—characteristic of the deposits at Jackson, Miss.—or of the two minute *Lucinæ*, characterizing the overlying Kimbrel and Young's Bluff beds, could be found. In the Kimbrel deposit *Alveinus minutus* becomes extremely rare and one specimen of the *Kelliella* was obtained. Neither could be found in the Young's Bluff outcrop, although this was not so thoroughly examined.

In venturing upon a suggestion of correlation with the beds at Jackson, Miss., it seems proper to consider the Montgomery outcrop as virtually synchronous with the Dry Creek

deposit, and the Kimbrel bed as well above the Moody's Branch beds. The Young's Bluff bed is still higher, but neither seems to have developed any of the purely Red Bluff species, although lithologically they both appear to be somewhat similar to that well-known deposit in Mississippi. As these greenish-black clays are however similar to those which also characterize so much of the Lower Claiborne in Louisiana, very little can be inferred from such resemblances. In fact, lithological characters stand for very little in the strata of the southern Tertiary, except in a few instances and the paleontological are the only ones that can generally be depended upon.

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THE NOMENCLATURE OF THE MONOPHLEBINE COCCIDAE.

WORKING over the Monophlebinae for Wytsman's 'Genera Insectorum,' I find myself able to recognize six genera out of about fifteen which have been proposed. These are *Monophlebus*, *Stigmatococcus*, *Lophococcus*, *Palæococcus*, *Walkeriana* and *Icerya*. At present I am unable to separate *Crypticerya* from *Palæococcus* and the latter is connected by lately discovered forms with *Walkeriana*, so that it becomes difficult to indicate sharp generic limits. These insects are very widely distributed and ancient forms, going back at least to the Tertiary, one species occurring fossil at Florissant.

Mr. Newstead, in describing *Walkeriana pertinax* (P. Z. S., 1900, p. 948), says he at one time 'thought the insect might form the type of a new genus under the name *Aspidoproctus*,' but has decided for the present to leave it in *Walkeriana*. Now this creature forms at least a good section or subgenus for which we need a name. I am taking up *Aspidoproctus*, as of Newstead, but am a little uncertain whether I have the right to do it. I should like to have the opinion of other naturalists, whether a name introduced as cited is to be regarded as published. *Gymnococcus* Douglas was introduced in the same way and is now current.

Some other new sections have been found necessary. *Mimosicerya*, with 9-jointed female