

**XXIX. NOTES ON A POSSIBLE EXPLANATION FOR
THE CIRCULAR WHITE SPOTS FOUND IN THE
RED SHALES OF THE PERMIAN RED BIRDS**

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The common occurrence of almost perfectly circular white spots in the red shales of the Permian has long been a source of discussion among Geologists. Various explanations have been put forward as to the cause of these, all of which have proven more or less unsatisfactory.

From observations made by the writer of an occurrence of these spots along the South Canadian river near Noble, Okla., where vertical sections across a given horizontal circular spot, shows circular outlines also, the conclusion was forced that these

circular spots must be sections of spheroidal bodies. Since analyses have shown that these white spots are margillaceous like the including shales, and since many observers have noted the formation of clay balls, the writer advances the theory that probably the circular white spots are merely the sections of engulfed or imbedded white clay balls included in the surrounding red clay beds while the beds were in the process of formation and that a close similarity in texture of the included and surrounding material has prevented the previous advancement of the explanation given above.