NOTES AND NEWS

GALENA REPLACING PENNSYLVANIAN ROOTLET*

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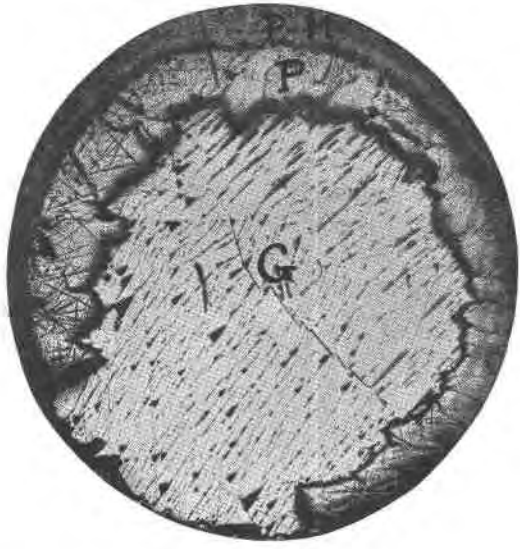
While collecting clays for petrographic examination under the auspices of the Illinois State Geological Survey, the underclay of Coal No. 2 near Dayton, LaSalle County, Illinois, was visited with Mr. J. E. Lamar. Near the center of the NW$\frac{1}{4}$ S32 T34N R4E the writer observed in the underclay a small cylindrical mass of iron sulphide surrounding a core of galena. In outward appearance it is similar to the rods of pyrite or marcasite which are frequently seen replacing plant rootlets in the clays below Illinois coals. This occurrence of galena, however, seems sufficiently unique to merit a brief description.



SULPHIDES REPLACING PENNSYLVANIAN ROOTLET IN ILLINOIS UNDERCLAY. × 10.

P-M. Pyrite and marcasite retaining cell structure and forming a complete circle which is only partially included in the photomicrograph.

P. Pyrite with small areas of calcite near the contact with galena.

G. Galena forming inner core.

The polished surface of this specimen (shown in the accompanying figure) contains four minerals, pyrite, marcasite, galena and

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calcite. The outermost ring is composed mainly of fine grained pyrite and forms a complete circle. Small patches have a paler color and these when examined in polarized reflected light are anisotropic, indicating marcasite rather than pyrite. Cell structure of the rootlet is retained in these sulphides and presumably the outer part was more fibrous and better suited to replacement and preservation than the pulpy interior. Its circular form suggests that replacement of the outer part took place before the rootlet was flattened or crushed. Coarser crystalline pyrite lines the interior almost three-fourths of the way around the circumference which is dotted by two or three small patches of calcite. The galena completely fills the inner core and it may have replaced some of the coarser grained pyrite. It was probably introduced somewhat later than the other minerals for its contact with the pyrite is sharp.

This occurrence records the deposition of galena in north central Illinois in post Lower Pennsylvanian time. The galena was deposited by cold waters, for the adjacent clay minerals have the same optical properties as the areas remote from the galena and are identical to the typical Illinois underclay.

PROCEDURE FOR RESTANDARDIZING CLERICI'S SOLUTION

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In 1929, Dr. Kenneth K. Landes[1] prepared a set of heavy liquids to be used in specific gravity determinations. One year later he rechecked these liquids and found that they did not vary sufficiently to be restandardized. Now, two years after the original preparation, the specific gravities have been found to differ sufficiently from the desired gravities to require restandardization. The change in gravity has in every instance been an increase, due to the evaporation of water from the solutions. In restandardizing the specific gravity set originally prepared by Landes the writer developed a method that not only saves time, but gives results more accurate than are actually required. For practical use no solution should vary in specific gravity more than 0.015 from its intended gravity, that is, it should be between 1.985 and 2.015 for an intended gravity of 2.0. In the following procedure, which was used in restandardizing twenty-two different solutions, the variation

[1] Landes, K. K., Rapid specific gravity determinations with Clerici's solution: *American Mineralogist*, vol. **15**, pp. 159–162, April, 1930.