

A MICROFOSSIL PROFILE OF CERTAIN PENNSYLVANIAN COALS OF OHIO*

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A study of the plant microfossils of coal involves not only academic but also applied or practical investigations. My purpose in studying the coal seams of Ohio has been: (1) to determine the characteristic microfossils, (2) to describe the new species which occur in abundance, and (3) to construct a plant-microfossil profile or spectrum which could be used in correlation of various coal seams and also possibly in determining the vegetational succession, which in turn may give a clue to the plant constituents of certain coal seams.

The Pennsylvanian system in Ohio is divided into four members, the oldest is the Pottsville, the next the Allegheny, then the Conemaugh, and the youngest is the Monongahela. There are approximately twelve important coal seams in Ohio. Of these coals, I have critically studied and recently published¹ my results on the Pittsburgh No. 8 and the Pomeroy No. 8 "a" coals. In addition to these, I have studied the Sharon No. 1 coal and have examined samples of the Middle Kittanning and Freeport coals. Dr. L. R. Wilson of Coe College has been working on the Mercer coal. Thus it is evident that only a good start has been made on this problem.

In the study of the Pittsburgh and Pomeroy coals, a number of microfossils were observed. Of these, two species seemed to be restricted to the Pittsburgh coal. These were *Laevigato-sporites thiesseii* which was the most abundant microfossil of the seam, and *Punctati-sporites grandiverrucosus*.

The Pomeroy coal seam commonly contained many of the microfossils that were found in the Pittsburgh coal but *Endosporites ornatus* was more abundant. Also two new microfossils—*Triquitrites spinosus* and *Punctati-sporites parvi-*

punctatus—seem to distinguish the Pomeroy seam.

A recent study of the Sharon coal seam has revealed the occurrence of a number of the common microfossils plus the following which appear at present to distinguish this seam: *Triquitrites* sp., possibly *Triquitrites arcuatus* Wilson and Coe 1940; *Granulati-sporites* sp., possibly *Triquitrites deltoides* (Wilson and Coe 1940) Schopf, Wilson and Bentall; *Cirratriradites* sp. Raistrick, working on a number of English coal seams, has illustrated and described microfossils similar in appearance to these. His type D-7 is very similar to *Triquitrites* sp., his type D-4 is very similar to *Granulati-sporites* sp., and his type A-3 is somewhat similar to *Cirratriradites* sp.

Dr. Wilson's studies on the Mercer coal have revealed the occurrence of a number of the usual microfossils plus several others which may distinguish this seam.

It may well be that for a complete correlation of all the coals in Ohio, statistical counts of the various species will have to be employed, similar to those used by the paleoecologist working with pollens of Pleistocene and post-Pleistocene peat deposits. However, it seems clear that plant microfossils will prove a valuable aid in correlation work, and that the construction of microfossil profiles is of considerable importance.

REFERENCES

1. Kosanke, R. M., The characteristic plant microfossils of the Pittsburgh and Pomeroy coals of Ohio: *Am. Midland Nat.*, Vol. 29, No. 1, pp. 119-132, 1943.
2. Schopf, J. M., L. R. Wilson and Ray Bentall. An annotated synopsis of Paleozoic fossil spores—the definition of generic groups: (paper presented before the fifth meeting, Paleobotanical Section, Bot. Soc. Amer., Dallas, 1941).
3. Wilson, L. R. and E. A. Coe. Descriptions of some unassigned plant microfossils from the Des Moines series of Iowa: *Am. Midland Nat.*, Vol. 23, No. 1, pp. 182-186, 1940.

*This study was made while the author was a graduate student in the Botany Department of the University of Cincinnati, Cincinnati, Ohio.