

XXXIII A. THE PENNSYLVANIAN OF OKLAHOMA AND ITS PROBLEMS.

**Roy A. Wilson, Department of Geology, University of Oklahoma.
Abstract**

The Pennsylvanian deposits of Oklahoma offer many interesting problems of stratigraphy which are of especial importance because of the large amounts of commercial oil obtained from this thick system of rocks.

Since the Pennsylvanian strata were laid down at the beginning of a critical time in the evolution of the continent when lands were rising and the great Paleozoic epicontinental seas retreating preparatory to the Appalachian-Ouachita-Arbuckle revolution, it is to be expected that these formations will show much variation in character, both vertically and horizontally. In the problems of correlation which are of especial significance to oil geologists, the above fact must be kept in mind. Formations of the same age will show markedly different characteristics, even in areas that are relatively close to each other. Hence correlations based on lithologic features alone must be used with extreme caution. The geographic environment at the time of deposition is a factor which should prove of much aid, insofar as can be deciphered, in tying together sections which are so lithologically different.

The fact that Pennsylvanian faunas which have index value may have appeared earlier in some localities and persisted longer in other localities, due to the local and rapid physical changes of this critical period, suggests that paleontological evidence must be carefully weighed. Index forms may not have the same value everywhere.

The contact of the Pennsylvanian with the underlying Mississippian in Oklahoma is a matter of considerable difference of opinion. Geologists are too prone to draw sharp lines of demarcation where abrupt transitions do not exist. Transitional formations are fairly common and such formations belong between, and not in the related systems of rocks. The same problem holds true for the Pennsylvanian-Permian contact.

XXXIII B. PROBLEMS OF STRATIGRAPHY IN OKLAHOMA.

**Roy A. Wilson, Department of Geology, University of Oklahoma.
Abstract**

The State of Oklahoma contains an unusually complete section of geologic formations ranging from very ancient Archean granites to Recent deposits. These formations show a marked variation in development over the State as to thickness, character of deposits, and local absence of given stratigraphic units.

In the light of the above, the following facts hold true. The unusually complete section, especially as developed in the Ouachita-Arbuckle uplift, has led to the establishing of type sections in Oklahoma to which geologists working in surrounding regions are trying to correlate the formations developed in their special areas of investigation. The importance of accurate and detailed knowledge of these type sections is therefore necessary. Much remains to be done in these type section areas, and it is strongly urged that geologists interested in detailed studies of stratigraphic sections turn their attention to the mountainous areas of Oklahoma where the Paleozoic group especially, is so well developed.

Another problem of immediate importance is the relation of the pre-Cambrian land surface (exemplified in the granite ridges) to the overlying sedimentary deposits. This relationship as it is worked out will be of especial value in furthering the development of commercial oil fields.

More accurate and logical correlation of the formations as developed over the State and especially in those areas where oil fields are existant, is necessary. While much detailed information is at hand relative to restricted localities, yet when it comes to tying up these sections over broader areas, there is much confusion due to differences of opinion and variation in methods of correlation. The next step in this problem is to take all the accumulated evidence, insofar as it is available, and establish a generalized correlation based upon the accurate information thus obtained. In doing this the broader features of depositional history must be given emphasis.

One of the most interesting and most puzzling problems in Oklahoma stratigraphy is that of the Permian red beds. What is the cause of the color, why is the transition into the underlying Pennsylvanian at different horizons in different areas, why is the

upper Pennsylvanian red in some localities and the basal Permian non-red in localities, what is the source of the red beds? Many a Doctor's theses is awaiting the stratigrapher in this problem.

In all these problems let us take the true scientific attitude. Consider all the evidence and especially that which is contradictory. To emphasize supporting evidence and relegate contradictory evidence to the background is human but highly unscientific. Dogmatic views and opinionated scientists have checked the development of our knowledge of Oklahoma stratigraphy very materially