the year's record of improved discovery rate is encouraging, and implies that we may reasonably expect discoveries to continue with perhaps an occasional one of major proportion.

The problem of diminishing rate of supply is briefly examined.

35. ROBERT L. BATES, New Mexico School of Mines, Socorro, New Mexico
*Occurrence and Origin of Permian Evaporites*

The deposits of Permian salt, anhydrite, and potash which occur in the southwestern Mid-Continent region are of considerable importance from both the economic and the scientific viewpoints. Although their presence has been known and their substance mined for years, there is no available comprehensive account of their occurrence and origin. It has been decided that a section of the Permian Volume be given over to a discussion of problems coming under the above title. This note is a report of progress on the preparation of the section on evaporites.

Procedure to date has been as follows. All pertinent articles on the subject at hand have been read and summarized by the writer of this note; these summaries have been assmbled and synthesized; and a number of copies of the assembled summaries have been made. It is now hoped that all geologists interested in this subject will procure copies of the digested abstracts, read them with care, and then let the present writer have their ideas, opinions, suggestions, hypotheses, theories, recommendations, and criticism in general. The purpose of all this will be, first, to summarize accurately the occurrence of Permian saline residues, and second, to test the published theories and hypotheses of evaporite formation against the facts as they are known by qualified workers in the field. If the theories now in existence explain everything satisfactorily, it will be worth while to know that; if not, then an attempt will be made to evolve something more generally applicable. The ultimate report will be the result of cooperation on the part of many geologists interested in evaporites. It is hoped that the report can be completed in a few months.

36. M. L. THOMPSON, New Mexico School of Mines, Socorro, New Mexico
C. E. NEEDHAM, New Mexico School of Mines, Socorro, New Mexico
*The Pennsylvania-Permian Contact in New Mexico*

The Pennsylvanian-Permian contact in New Mexico has generally been recorded as being between the marine Pennsylvanian "Magdalena formation" and the non-marine Permian Abo formation. Evidence is presented in this discussion to show that two unconformities of large magnitudes, with intervening marine deposits, are present between the Pennsylvanian "Magdalena formation" and the Permian Abo formation in many areas of New Mexico. One of these unconformities is at the base of the Abo formation and the other occurs lower in the section. Furthermore, evidence is presented to show that the lower of these two unconformities marks a contact between fusulinid-bearing marine Pennsylvanian and fusulinid-bearing marine Permian sediments. In extreme northern New Mexico, the Pennsylvanian-Permian contact seems to be between marine Des Moines Pennsylvanian sediments and non-marine Permian redbeds.

37. C. E. NEEDHAM, New Mexico School of Mines, Socorro, New Mexico
R. L. BATES, New Mexico School of Mines, Socorro, New Mexico
*Permian of Central and Northern New Mexico*

Formations in ascending order above an unnamed basal Wolfcamp formation are the Abo, Yeso, Glorieta, and San Andres. Relations across the state are shown by three cross sections.

The Abo consists of red and brown thin-bedded shales and medium-bedded sandstones, with arkoses; it shows ripple marks, mud cracks, salt casts, cross-bedding, tracks and remains of vertebrates, and plant impressions; it is non-marine. The thickness is about 650 feet near Socorro and increases to 900 or 1,000 feet near Alamogordo.

The Yeso consists of gypsum, pink and light-colored silts and sands, and limestones. Limestone increases from less than 6 per cent in the Zuni Mountains to more than 25 per cent in the Sacramento Mountains. Some of the members can be traced for scores of miles. The formation is mainly marine in origin. The thickness is about 620 feet at the type locality near Socorro and increases to more than 1,100 feet near Alamogordo.

The Glorieta is a clean light-colored heavy-bedded medium-grained resistant sandstone 135 feet thick at Rowe on Glorieta Mesa. It is about 70 feet thick east of Socorro