cerned. Despite the fact that many geologists have successfully entered the field of geophysics, exploration geologists have not as a group assumed the responsibility for correlating their work with the work of geophysicists and assumed their full share of the direction of the exploratory program. Although this paper deals primarily with seismic prospecting, the same direction, cooperation, and integration is necessary in any geophysical program employing any technique. The fundamental problem is the interpretation of physical observations in terms of earth science.

The thesis of this paper is that the primary responsibility in exploration is geological, and responsibility of the geophysical department or contractor is limited to three essentials:

1. To furnish the most modern and sensitive instruments and auxiliary equipment available to perform the specific task.
2. To furnish skilled, efficient and experienced personnel to operate and maintain the instruments and equipment.
3. To furnish skilled and experienced technical and supervisory personnel to assist in planning, make necessary computations, preliminary interpretations and with the geologists make an integrated interpretation. The final interpretation on which decisions for action are based must be a matter of joint responsibility.

All other responsibility must be assumed by the geologist. It is, therefore, mandatory that he have a thorough understanding of the principles, problems, procedure and limitations of seismic exploration. It is not advocated that the geologist invade the field of the geophysicist, but if he is to use the results intelligently he must thoroughly understand their source and inherent strength and weakness. The need for this understanding is becoming more necessary as we are forced to prospect more marginal areas, areas where data are difficult to secure and interpret, and for prospects where the results are near the limit of accuracy. The easy areas and "fat" structures have been thoroughly prospected. To insure success in a seismic exploration program there is a certain procedure which must be followed. This procedure can logically be divided into five stages: preparation, briefing, execution, integration and review.

21. RÉSUMÉ OF DEVELOPMENT OF FOREST CITY BASIN OF NORTHEAST KANSAS, by Ralph W. Ruwwe, Stanolind Oil and Gas Company, Wichita, Kansas.

The Forest City basin of northeast Kansas received widespread attention with the discovery of the Davis Ranch pool in Wabaunsee County this year. Nearly 750,000 acres were leased as a result of this discovery. Development of the pool and wildcat activity are reviewed. The major structural features are shown, and the stratigraphy in the basin is discussed. Approximately 20 surface parties, several seismograph crews, and core drills were at work in the basin this past summer. Surface formations, their limits, and the methods of exploration used in the basin are discussed.

22. STRATIGRAPHIC AND STRUCTURAL HISTORY OF SHOLEM ALECHEM OIL FIELD, SOUTHERN OKLAHOMA, by H. R. Billingsley, Atlantic Refining Company, Shawnee, Oklahoma.

Although southern Oklahoma geology has received considerable study, little is actually known regarding subsurface details of local geologic structures such as the Sholem Alechem structure. This oil field was discovered in December, 1923, on a northwest-southeast trending anticlincal fold in the trough of the Anadarko-Ardmore geosyncline. It extends from Carter County into Stephens County.

Prior to August, 1947, Sholem Alechem was classed as a minor southern Oklahoma oil field. However, the discovery and subsequent development of the deeper Springer sandstone production has increased the total yearly output of the field from 706,853 barrels in 1947 to 4,989,845 barrels in 1948, thus ranking Sholem Alechem as second only to the Velma pool among Oklahoma's biggest and most active producers.

Rocks below the Pennsylvanian sequence of Springer shales have not been penetrated by the drill in this field; therefore, no evidence of the lower Wichita orogeny was found. It is believed, however, that deposition continued uninterrupted from Mississippian until after Springer time.

Thickening northeastward, the Springer sandstones show no indication of thinning on structure, thus suggesting that the anticlinal fold was not present in Springer time. The folding of the Sholem Alechem structure is believed to have been initiated by the post-Morrowan main Wichita orogeny, with the post-Springer pre-Deese unconformity caused by this movement, being partly equivalent to the widespread post-Mississippian pre-Deese unconformity of northern Oklahoma.

Emergent conditions are indicated by the absence of Dornick Hills rocks over the structure, with Deese sediments of a mixed lithologic character being deposited on the Springer.

A minor emergence at the close of Deese deposition, before the initiation of Hoxbar sedimentation is indicated by the disconformity below the County Line limestone. This limestone implies a restricted reef facies of local limestone deposition because it is well developed on the structurally high areas. Thrusting and compression from the south, suggested by the steeper dips on the north flank, occurred during the Arbuckle uplift of late Pennsylvanian time causing the final folding of the Sholem Alechem and other local structures.