

magnetic units are bounded by vertical sides. This problem has been investigated along with the other assumptions by the empirical test of calculating from the magnetic anomalies the depths to the basement's surface where they actually are known. These investigations have altogether supported the assumption of vertical sides. Preliminary results of such tests were the basis of the first publication on this method of interpretation, Geological Society of America Memoir No. 47, 1951.

The fourth or lowermost curve of Figure 3 is derived from a thin sheet of magnetic or basement material which is located on the basement's surface as shown on top of the basement block. This sheet has the top and bottom layers of the disturbing mass in close proximity, thereby decreasing the amplitude of the anomaly to a maximum of 21 gamma. Moreover, the depth indices are also significantly decreased substantially. This type of anomaly is called the suprabasement anomaly and is applicable to sheets with thicknesses up to approximately 20 percent of the depth at burial. The sheet shown in Figure 3 is actually 10 percent of the depth to burial. This second category of anomalies has an obviously useful role in magnetic prospecting for it represents relief of the basement's surface. Sufficient data are accumulated from actual surveys over known surfaces to demonstrate that these anomalies do exist and that their representation by a thin sheet is a valid one.

The two fundamental types of magnetic anomalies have been developed at this point and are called "intrabasement" and "suprabasement" according to their geneses. An interpretation starts with the intrabasement anomalies which afford computations of the depth to the basement's surface. Two internal methods are available with which to evaluate the results of the depth computations. First, the estimates made from various measurements on one anomaly must agree among themselves. Second, the depth which is finally assigned to that anomaly must conform to the regional basement configuration which is being developed by the depth computations from all of the intrabasement anomalies. Naturally, the degree of conformity is arbitrary. The regional structure of the basement's surface is that which the interpreter is assigning to the area.

After the intrabasement anomalies have been examined for depths, anomalies remain which are too small or too sharp