

Secondly, the rock mass must uniformly magnetized as dissimilar internal magnetization would also tend to reduce the net magnetic effect.

The third limitation is more or less inferred from the definiteness of the observed anomalies. It consists simply of assuming that the basement magnetic units are bounded by vertical sides and that their upper surfaces are approximately coincident with the basement's surface.

So the nebulous mass of Figure 1 can be translated into a geologic entity, the intrabasement unit of Figure 2.

Figure 2 also shows the increased magnetic intensity over an intrabasement rock unit, the primary source of anomalies observed on magnetic maps. Their existence has been known throughout the years of magnetic prospecting, and they are in no sense a discovery of the airborne magnetometer. The anomalies are actually of sufficient amplitude and area to have been mapped rather accurately by earlier magnetic instruments, most of which measured the vertical magnetic intensity to an accuracy of five gamma with careful surveying practices.

In theory, the airborne magnetometer, which measures total intensity, can yield no more information than the ground instruments. If even the same locations were read with the land-type instrument and the airborne magnetometer, the only advantage would be an increase in accuracy as the probable error of an aeromagnetic value can easily be less than two gamma. The fact that total intensity is measured instead of vertical intensity is of no import. The one can be computed from the other and vice versa. True enough, the aeromagnetic data can be obtained at several higher levels. This is likewise of no import. Higher levels can be computed from lower levels to as great an accuracy as they can be flown and at much less cost, too. So no new information is provided by an aeromagnetic survey that essentially repeats a ground survey.

There is this distinction, however. The airborne magnetometer is able to obtain so much more data so much more rapidly and accurately that it is really an entirely new tool of exploration. The great increase in data is primarily the result of the continuous recording of the magnetic field by the airborne magnetometer, one of the few