

GEOLOGY AND SCOUTING — A PREVIEW

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Geology, which means the study of the Earth, is not presented in our schools until the college level (except for a very few high schools where a course in Geology or in Earth Science is taught). This is not as it should be, for geology is all around us. We walk on it every day as we go to school, for the gravel in the road material was discovered by geologists. We ride in (auto) or on (bicycle) products that were discovered by geologists—iron ore for steel in the frame, chromium for plating on bumpers and handlebars. We use the product of geological discovery in writing (graphite in pencils), in carving a model boat (steel blade in the pocket knife), and in locating ourselves on a hike (metals in the compass). Thus we are constantly using the products of geological discoveries, although most of us do not realize it.

But let us go back to August, 1804. You are a scout with the expedition of Lewis and Clark which has been commissioned by President Thomas Jefferson to explore the Missouri River and its principal tributaries that may "offer the most direct . . . communication across this continent." The expedition has just entered what is now South Dakota, at Sioux City.

Your duties as a scout are those of any scout of that day, more than 150 years ago. You are to range ahead of the main body of the expedition, to locate groups of Indians that may be in or near its path. In addition, you are to locate game that either you scouts, or hunters whose job is solely that of meat-provider, may kill for the group's food supply. And one of your most important duties is to locate the route that is most favorable for the expedition to follow, to accomplish its purpose. You are thus a **key member** of the organization.

As you range ahead you notice the character of the deposits along the stream bed—could the group ford the stream at a particular place without getting stuck in quicksand? Where are the rocky bluffs, which would delay the group in its ascent from the stream valley to the upland? Thaddeus Culbertson, for example, in his overland journey of 1850 was unable to cross the Vermillion River at its mouth, but rather was forced to trek 20-25 miles upstream before a crossing for his horse-drawn rig could be located. Where are cascades that would hold up travel by water? Where are waterfalls that would do likewise; or on the credit side of the ledger, would provide power for mills when settlement begins in this new territory? One of the factors that caused the settlement of Sioux Falls, for example, was the available source of water power.

So, you are in a sense a **topographer** and a **geologist**—one who recognizes and can use the differences in the surface features of the earth. You

are a geologist in another sense also, for you search for springs of fresh water for camp sites; doing this, you learn to watch for the contact of two different types of rock—rock through whose pores water will move, resting on another type of rock through which it will not move, thus serving to block the downward percolation. You are thereby applying your knowledge, self-taught, of the rocks.

Fifty years later than Lewis and Clark, in Culbertson's time, the expeditions to South Dakota included men known as geologists, who had been **trained** in the science of geology. They began to collect the now world-famous bones from extinct animals in the Bad Lands.

By the 1870's the geologists were better able than the scouts of 1804 to put the earth and its resources to use; they mapped the different types of rocks, noting which might contain gold, copper, or tin. For example, the Black Hills, where gold which had been discovered by whites as early as 1833, was mapped by geologists with Custer's party of 1874.

In another 20 years (the 1890's) geologists had become particularly concerned with the artesian waters of the State (a great resource that still is very important to our economy in South Dakota), and they had mapped the vast deposits of lignitic coal in the northwestern part of the State.

So you see how, in the span of 100 years, scouts with practical, on-the-spot training (self taught) in geology gave way to men who in addition to desiring the rigors of outdoor living, had studied the science of geology and then could spend the rest of their lives **enjoying** their work.

As a result, because we geologists believe that our most useful science (and also most enjoyable **outdoor** science) should be better known earlier in life, our national geological societies established in 1953 the Geology Merit Badge for Boy Scouts and Explorers. The merit badge pamphlet gives a condensed birds-eye-view of the field of geology. The requirements for the badge show that it is an interesting, educational, and enjoyable one to obtain (Fig. 1). The requirements include:

- 1) Making a collection of minerals, rocks, or fossils; naming and giving a use for each.
- 2) Visiting a mine, quarry, oil field, dam, or the local water-supply plant; explaining how the material originated and how it is used.
- 3) Pointing out geological features on a topographic map of the Scout's home area.
- 4) Preparing a report on the geological features of the Scout's home area, or a Scout-Camp area; describing the soils of one of these areas; or describing the earth materials in the Scout's home or a public building.

In addition to the Geology Merit Badge, October, 1957 is to be known as Geology Month for Boy Scouts and Explorers. A comprehensive program

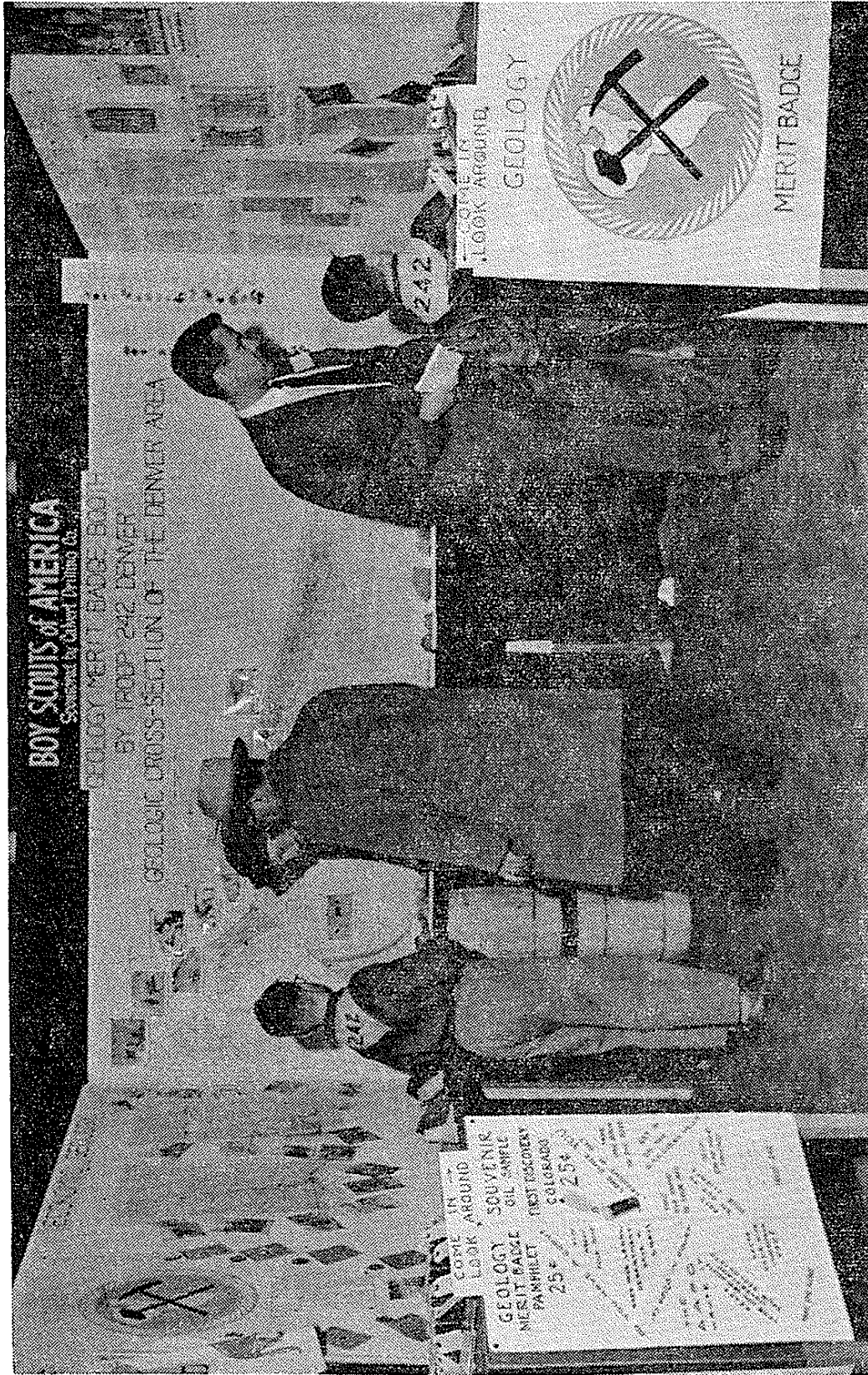


Figure 1. Geology Merit Badge Exhibit by Denver Troop at National Convention of American Association of Petroleum Geologists, February 1956

of making geology available to Scouts has been worked out at the Scout Council level. This program will include field trips led by geologists to mines, quarries, etc.; it will include illustrated talks and discussions with Scout leaders at roundtables as well as with Scouts and Explorers in their regular meetings; it will include abundant program helps for the Scout leaders in their quarterly program manuals; and it will include a Geology kit for each troop. As their Good Turn for the Month the Scout troops will donate their best collections to local high schools and junior highs for their museums and science classes, thus disseminating the information even more widely.

To coordinate the program among the 68,000 Scout troops and Explorer units, we plan to have a geologist assigned to each of the 538 Scout Council offices in the United States. In South Dakota the three Councils are being directed geologically as follows: **Black Hills Council**, Rapid City—Dr. E. L. Tullis, Chairman of the Department of Geological Engineering, School of Mines and Technology; **Pheasant Council**, Huron—Mr. J. R. Jones, District Geologist, Ground Water Branch, U. S. Geological Survey; and **Sioux Council**, Sioux Falls—the writer.

We geologists plan to make the science of geology come alive for the 3½ million Scouts, Explorers, and adult leaders of the United States. It would be extremely desirable if we could present geology in like manner to everyone.