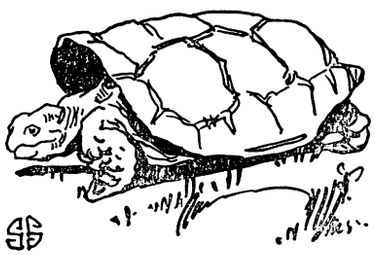
Nature Ramblings

By Frank Thone



Galapagos Tortoises

ABOUT a hundred years ago a young naturalist scrambled around among the rocks on the shores of the Galapagos islands, south of Panama and west of Ecuador. He was having the time of his life, for almost every animal and plant he saw was a species new to him. Reflecting on the possible why and wherefore of this island life being so different from that of the nearby mainland, he was hit right between the eyes with a big idea.

Not being a precipitate young man, Charles Darwin went home and incubated this big idea for forty years before he let it loose in print, to startle the world and revolutionize biology and philosophy.

One of the first things that the young Darwin must have seen on the Galapagos islands were their turtles. He must have seen them very soon, for they are among the biggest things in sight there. The old ones—and nobody knows how old they are—get to have a shell diameter of half a dozen feet, and can carry full-grown men on their backs apparently without effort. They are really monumental reptiles.

There were giant tortoises practically without end when Darwin visited the islands. But there are relatively few of them now. Ecuador has never bothered itself about the conservation of wild life on these offshore possessions, and the ranks of the tortoises have been mercilessly decimated by reckless hunters and by whalers that wanted a big mess of turtle soup for their crews.

So the best chance that the Galapagos tortoises have is in emigration. A few zealous zoöphiles have carried off quite a number of them alive, and they now crawl their indifferent tortoisian ways in the reptile houses of some of the larger zoological parks, where they may be seen by the curious.

The Discoveries of Byrd—*Continued*

Quite apart from the discovery of *new* lands, we may therefore reasonably hope for an accurate reconnaissance by Byrd of a belt of country over 1,000 miles long and perhaps 200 miles wide. Such a piece of charting has never been accomplished by any previous Antarctic Expedition.

Let us now consider the scientific problems which Byrd's expedition has helped to solve. As regards continental structure, the most important result has already been referred to. It seems probable that the low-lying Ross Ice Shelf continues far to the southeast of the limits assigned to it by Amundsen. It is as if Americans had not yet crossed the States, and were in doubt whether there were a low-level route to San Francisco—or whether a rugged topography confronted them. The Ross Ice Shelf is probably an enormous sheet of floating ice, reaching to the foot of the giant scarp of the mountain ranges. This scarp (shown in the diagram) towers to 15,000 feet in places, and represents the edge of a block of the earth's crust. This block or "horst" has been thrust up many thousand feet above sea level. It seems likely that Marie Byrd Land is another horst, in which case the gulf covered by the Ross Ice Shelf is probably an area of subsidence of the nature of a "graben." The Charles Bob Range seems to be an extension to the east of the great horst, while the low-lying area seen by Byrd and later by Gould, seems to be an extension of the (ice-covered) depression or graben. Thus, there may be a belt of low-lying land or even of frozen sea the whole way between the Ross Sea and the Weddell Sea on the opposite side of the continent. This is a theory advanced by the writer and others, but apparently demolished by the discovery of Amundsen's "Carmen Land" in 1912.

It is not possible yet to discuss adequately the other scientific results of the Expedition. Some of us feared that Byrd would rely entirely on air surveys, but the surface surveys of Dr. Gould and others show that Byrd realizes the limitations as well as the immense advantages of the airplane in the Antarctic. In a journey to the Rockefeller Range—in which Gould's airplane was destroyed in a blizzard—the rocks were found to consist of granites and similar materials. These are stated to be like those of the Alexandria Range and presumably like those of the basement rocks of the great mountains across the Ross Ice Barrier. It is an interesting fact, which I discuss in my recent book "Antarctic Adventure and Research," that the rocks on the Graham Land side of Antarctica (near South America) belong to one group (the Pacific type) while those of the Ross Sea belong to the other group (the Atlantic type). These two types contain different minerals which are also associated differently. If now the Rockefeller rocks contain felspathoids they will agree with the other rocks of the Ross Sea area. If they are unusually rich in quartz they will be more akin to the Pacific type. In the latter case we have some evidence for a structural connection between Byrd's region and Graham Land (and also with South America).

In his survey of the rocks at the lower end of the Liv Glacier, Gould has discovered carbonaceous shales which approach coal in composition. Coal has been found at the head of the Beardmore Glacier in 1908 and 1912, but Gould's discovery extends this potential Antarctic coal field possibly 150 miles to the east. It has been suggested that one of the world's largest coal fields occurs either in this great horst, or to the west of it under the Ice Plateau. Its present economic value is doubtful—but scientifically the presence of coal so near the Pole is of the greatest interest. It is not generally known that the present climatic zones of the world did not exist throughout most of the geological record. This record tells us something of the world's history during some 500 million years. Through all that long period the world for the most part enjoyed much more uniform climatic conditions than those which characterize it today. It seems likely that fairly temperate climates extended right to the Poles. So that the presence of valuable coal in Spitsbergen in latitude 78° north is interesting but not unexpected. There is no need to invoke a tropical climate to produce a coal vegetation—though clearly conditions near the Liv Glacier must have been very different some 150 million years ago (when coal vegetation was growing) than they are now. Indeed the most surprising result of the fairly complete geological record from Antarctica is that nowhere do we find any evidence of a Great Ice Age, such as that which today (*Turn to next page*)