poreal punishment appears to be absolutely unknown, and children are rarely chided or punished in any way. Indeed they seldom deserve it; for, in spite of the freedom which they are allowed, they do not often get into any mischief. . . . The older children take very good care of the smaller ones. . . ." Murdoch here gives many quotations to indicate that his description of the Eskimo way of life in regard to children applies to the whole Eskimo [and Chakchee] world.

I cease quoting Murdoch of 1881–1883, as I did Simpson of 1852–1854, with no precise dating of even one instance of great longevity but with the two students agreeing that some persons looked as if they might be past 60, a very few as if past 70, and one or two as if past 80. This was the nearest to exactness that either thought possible, in view of no one's having counted years, in accordance with native custom.

"Lady McGuire"

But a traveler of three decades later was able to get one approximate dating. Diamond Jenness, eventually anthropologist of the National Museum of Canada but at the time anthropologist of the Canadian Arctic Expedition of 1913–1918, met, on the coast east of Point Barrow, a woman whom he called "Lady McGuire" because, as a young lady, she had been aboard the *Blossom,* in 1852. The charming *Dawn in Alaska* [University of Minnesota Press, 1957] has in its pages several memorable characters, whom Jenness came to know as he sledged back and forth along the coast between Point Barrow and the Canadian boundary during the season 1913–1914; of these, none is more endearing than this octogenarian. Under the title "Lady McGuire," she appears several times, the last time on page 129:

"The old lady was extra gay that evening, and with good reason; for shortly after we arrived one of her granddaughters, whom she had not seen for six months, entered the house unheralded, accompanied by her ten-year-old son. Eskimos seldom display their affection outwardly, although they are as devoted to their family as we are; but . . . not one of them would have criticized this octogenarian grandmother [for her boisterous affection]."

In reply to my letter on his over-80 estimate, Jenness said that Lady McGuire might not have been more than 75 in 1914 but that, to him, she was in the octogenarian category, implying that she might have been past 80. When he and I last saw her, in both instances early in 1914, Lady McGuire seemed, at least to me, as if she might have had many years ahead of her.

Informed Guesses

So, in effect, we have all the informed guessers agreeing with the first of them, Simpson, that in the Barrow region of northern Alaska, extreme longevity was not unknown in pre-white times or in the transition stage of Europeanization that precedes our regular statistics. There is agreement, too, though we do not go into it here, that many of those who have died young since birth certificates became available have been victims of European-introduced diseases, among them measles, venereal afflictions, and tuberculosis.

Reginald A. Daly, Geologist

The philosophy that guided the scientific thinking of the late Reginald A. Daly was based on two cardinal principles: imaginative thinking and the necessity of synthesis. This philosophy is well expressed in the introduction to his first book, *Igneous Rocks and Their Origin,* published in 1914.

He points out that a fertile imagination, coupled with a training in physical principles, is vital to science. Geology, because it involves thinking about the invisible parts of the earth and epochs long since passed, is peculiarly suited to stimulate the regulated imagination. When, 30 years ago, Daly was teaching the elementary course in physical geology at Harvard, he emphasized that geology should develop the student's "imaginative muscle."

Daly did not hesitate to speculate even when sufficient data were not available. When lecturing or writing on his theory that submarine canyons were cut by mud-laden currents at the bottom of the sea, he always disarmed his potential critics in advance by admitting the theory's highly speculative character and by expressing hope that those carrying on the field investigations would examine critically his theory and those of others.

Daly was a strong advocate of synthesis. In his book of 1914 he said that science was "drowning in facts." He expressed the hope that geology might find its superman, who would show us the building behind the scaffolding of myriad isolated facts. Daly himself came as near as anyone to being that superman. His six books testify to his ability to correlate countless observations into coherent genetic syntheses.

Daly's accomplishments in field geology were great. His early work, in the late 1890's and early 1900's, was done chiefly in New England, although he made one trip to Labrador. His most colossal task, which occupied six field seasons, from 1901 to 1907, was an investigation of the geology along the American-Canadian boundary between the Rocky Mountain front in Alberta and the Pacific Ocean—a rugged, inaccessible region. In the three-volume memoir of the Geological Survey of Canada that resulted from this study, he said: "No geologically-trained assistant was employed in any part of the field. The work was, therefore, slow. Each traverse meant a more or less taxing mountain climb through brush or brulé." After additional field seasons in Canada, his work took him to Hawaii, Samoa, Saint Helena, Ascension Island, and South Africa. His last field work was done in the early 1920's, when he was slightly more than 50 years old. Thereafter he was able to devote much of his time to the writing of books and papers, in which he synthesized the data gathered by others.

Daly was a superb lecturer. He had the ability to present his ideas to an audience in a clear and concise manner. At the end of a lecture in elementary geology his students would often applaud vigorously. His books are similarly clearly written, and he was a master at preparing line drawings.

Daly's fertile imagination led him into many aspects of geology and geophysics. He not only contributed many new ideas but, above all, in focusing attention on countless problems, he stimulated many others to gather data that were essential to the solution of these problems. For the first 25 years of his scientific career he was primarily concerned with igneous rocks. His early field work at Mount Ascutney, Vermont, led him to the problem of the emplacement of igneous rocks and the development of the hypothesis of magmatic stoping. Corollary subjects were the classification and formation of igneous bodies, intrusive and extrusive, as well as the average chemical composition of the various kinds of igneous rocks and their proportions in the crust of the earth. This in turn led him to examine in detail the theory of magmatic differentiation to explain the large variety in igneous rocks. He concluded that beneath the crust there must be a world-encircling liquid basaltic substratum which, when injected into the crust, initiated a whole series of events that produced numerous rock types.

But during this same period he was thinking about several other apparently unrelated problems. Puzzled by the extreme rarity of fossils in Precambian rocks, as many others have been, he suggested that the seas of that time were "limeless." Intrigued by the problem of coral reefs, he developed his glacial control theory, which in recent years has been invoked to explain many other geological phenomena. Very early in his career he worked on such diverse subjects as the physiography of Acadia, the optical properties of amphiboles and pyroxenes, and the postglacial uplift of the coast of Labrador.

Although he had long realized that the cause of deformation of the crust of the earth must be sought in the underlying invisible mantle, his interest in the physical properties of rocks and in geophysics did not begin until the mid-1920's. Convinced that a new approach to the investigation of the interior of the earth was essential, Daly and his colleagues in geology and related sciences, through the munificence of an anonymous donor, succeeded in establishing at Harvard the Committee on Geophysics and Experimental Geology. In the last decades of his life Daly was an enthusiastic leader in planning the program of this committee, constantly suggesting problems that needed solutions, as well as answers to other problems.

Although he occasionally returned to problems connected with igneous rocks, his later papers were more concerned with the earth as a whole, especially its interior. When his *Igneous Rocks and Their Origin* was revised in 1933, the title was changed to *Igneous Rocks and the Depths of the Earth.* Some of his papers dealt with the strength and moduli of elasticity of the earth's outer shells, isostasy, the figure of the earth, and the nature of the interior of the earth. He spoke of the waxing and waning of the Pleistocene ice caps as nature's experiment to help us determine the strength of the earth. But during this period he did not neglect other problems. Twenty years ago he realized that his glacial-control theory, first devised to explain coral reefs, might also have a bearing on the problem of submarine canyons. With the lowering of sea level, muds on the continental shelf would be incorporated in currents flowing down the continental slope; these turbidity currents cut the canyons. In his last paper he returned to the igneous rocks, to combat the heretical idea that most granites are the result of metasomatic replacement rather than products of a crystallizing melt.

His influence extended far beyond the limits of North America. A. L. Hall, in his classic memoir on the "Bushveld Igneous Complex of the Central Transvaal," begins his introduction as follows: "In the history of geological research in South Africa the year 1922 is a landmark, for it saw the visit of the Shaler Memorial Expedition, whose members were Professor R. A. Daly and Professor C. Palache, both from Harvard University. . . ."

Born in Napanee, Ontario, 19 May 1871, Daly received his A.B. degree from the University of Toronto in 1891 and his M.A. and Ph.D. degrees from Harvard in 1893 and 1896, respectively. He spent the two following years studying at Heidelberg and Paris. He taught at Harvard from 1895 to 1896 and from 1898 to 1901. From 1901 to 1907 he was geologist for the Canadian International Boundary Survey. From 1907 to 1912 he was professor of physical geology at Massachusetts Institute of Technology, and from 1912 to 1942, Sturgis Hooper professor of geology at Harvard. Professor Daly died at his home in Cambridge, Massachusetts, on 19 September, after a long illness.

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