

late T. J. Oleson wrote, this observation is "a broken reed, for there is no agreement as to what *eyktarstaðr* and *dagmalastaðr* mean".

For Tornøe the Skraelings are "Indians", as they have to be with his geographical identifications. Yet the saga descriptions strongly suggest that at least some were Eskimo. Broad faces, low stature and the beard of one described in *Eriks Saga Rauda* collectively seem more Eskimo than Indian. Skin boats are the exception among Indians, but normal among Eskimo. Paddles likened to staves "waved with a noise just like threshing and . . . waved with the sun" still more strongly recall the Eskimo double paddle. Then there were the Skraelings, killed by Karlsefne's men, who "had receptacles in which was beasts' marrow mixed with blood"; Stefánsson identified these as Eskimo for whom caribou marrow suffused with blood is a delicacy.

Stefánsson's verdict supports Jones's opinion that Newfoundland was the site of Vinland; so does other evidence, noted by Jones but omitted by Tornøe. This is found in the maps of Sigurdur Stefánsson and Hans Poulson Resen. The sources from which these maps were drawn are unknown but both show "Promontorium Winlandiae" where Northern Newfoundland should be.

An objection to Newfoundland, noted by Tornøe, is, of course, that grapes do not grow there. But with the grapes is associated wheat; and wheat is an impossibility. Men who could mistake an American grass for wheat might well mistake some other plant for the vine. Ernest Rouleau's checklist of Newfoundland's flora includes a plant which, with its five-pointed leaf, its climbing habit and its clustered fruit, could be so mistaken, namely, Virginia Creeper. Allow the confusion of grape and creeper to be possible, and this objection to Newfoundland as Vinland disappears.

Further points made by Tornøe hardly strengthen his conclusions. They concern the lump of anthracite excavated at Sandnes, Greenland, in 1930 which

he describes as "of the same type which exists in Rhode Island", and the stone arrowhead, also found at Sandnes, which he boldly suggests might be the very one which killed Thorvald. But, according to Jones, the anthracite, "once believed to have come from New England, is now thought to be of European origin"; if so, it is better evidence of the illicit trade of Bristol merchants with Greenland, which can be inferred from Anglo-Danish treaties, than of Norsemen in Rhode Island. And if the Sandnes arrow were indeed the one which killed Thorvald it would cripple Tornøe's thesis, for it is of a quartzite, unknown indeed in Greenland, but indistinguishable from the quartzite of Labrador and it matches specimens excavated by Jørgen Meldgaard at an early Indian campsite beside Northwest River in Labrador.

Convincing or not, Mr. Tornøe's book is still interesting. The questions he tackles can hardly be answered satisfactorily from the literary evidence now available. He may not be found wrong when archaeologists give us the final answer, as we hope they will some day.

GEOGRAPHICAL AND SEXUAL VARIATION IN THE LONG-TAILED JAEGER STERCORARIUS LONGICAUDUS VIEILLOT. By T. H. MANNING. *Biological Papers of the University of Alaska*, No. 7. 1964. Paper, 9 x 6 inches, iii + 16 pages, 3 figures, 3 tables. \$0.50.

Those of us who have followed Tom Manning's copious writings on arctic birds and mammals through the years were not surprised when he tackled the geographical and sexual variation in the Long-tailed Jaeger (*Stercorarius longicaudus*) Vieillot. The taxonomy of this species especially bothered him for a long time. Finally, he took positive steps to do something about it. The opportunity to study the problem came while he was engaged with other work under a Guggenheim Fellowship, which enabled him to examine bird collections

abroad as well as in Canada and the United States.

The Long-tailed Jaeger generally has been considered a monotypic species despite pioneer studies by Bernt Løppenthin, who attempted to divide the species into races as early as 1932. Løppenthin later expressed his belief that the pale race, *Stercorarius longicaudus pallescens*, bred across eastern Siberia, Alaska, Canada, and Greenland, and that the nominate race *longicaudus* bred across northern Eurasia, except in eastern Siberia and possibly Spitsbergen. Several outstanding ornithologists have been more or less in agreement with the division which, nevertheless, was not recognized by other authorities, including the American Ornithologists' Union as late as 1957.

Manning compared 474 Nearctic specimens, including 265 males and 209 females, with 64 Palearctic specimens of both sexes about equally represented. Considering the difficulty in securing correctly sexed Long-tailed Jaegers that breed nearly circumboreally in remote areas, the sample is not unduly small. Indeed, it probably is the largest sample studied to date. Plumage colours of the Palearctic and Nearctic birds were compared. Seven grades of colour types were employed in the comparison, which was carefully analyzed statistically. Manning found that 87% of the sample were separable on the degree of pigmentation of the underparts. According to this interpretation, the species is divisible into the two races recognized earlier by Løppenthin.

The Palearctic race *longicaudus* very likely breeds from Norway east to the Lena River in Siberia, and the Nearctic race *pallescens* from the Indigirka River in Siberia to northeast Greenland. A zone of intergradation occurs where the two races meet in Siberia, but apparently intergrades do not occur along the Atlantic boundary. Manning suggests that the races were long separated in eastern North America by Pleistocene glaciation. Although *pallescens* spread eastward over North America behind the retreating glacier, the nominate race

failed to establish itself there: a most interesting concept. Manning further suggests that some Nearctic birds now migrate south over the Atlantic, but that more specimens are needed from along the migration routes to settle the point. The same may be said of Palearctic birds with respect to Pacific migration routes.

Less satisfactory is the status of the Long-tailed Jaeger on Spitsbergen in the western Palearctic. Scant evidence suggests that the race that occasionally breeds there is *pallescens*. On the other hand, according to Manning, it is *longicaudus* that migrates through Iceland. Apparently, it is not known which race breeds there on occasion, if ever.

Manning analyzed body measurements of the many Long-tailed Jaeger specimens and concluded that the wings and bills of males were shorter than those of females in the Nearctic population at least. He concluded that the wings and bills of jaegers from northeastern parts of the Nearctic were shorter than those of the species from localities farther south, or southwest. He found no significant differences in wing and bill lengths between the races *longicaudus* and *pallescens*, however.

Since colour of the underparts is the main basis for racial separation, the problem is compounded when it is realized that a colour difference exists with respect to sexes, males on the average being somewhat paler below than females. Manning wisely recognized this long ago. In an earlier paper he pointed out the fallacy of attempting to separate jaegers without first being certain of the sexes. The present paper clearly states that the colour difference between sexes is small in comparison to the colour difference between races.

Though academically interesting, the dimorphism is of little practical value in sexing live individuals. Bird banders, for example, are still handicapped for lack of foolproof means of separating the sexes.

The principal value of Manning's paper would appear to be the careful analysis afforded a none-too-popular

hypothesis. The paper is a fresh interpretation that not only recommends but demands recognition of *pallescens*. Until a better argument is presented, most of us will have to accept *pallescens* as a valid race.

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ICE ISLAND. Polar Science and the Arctic Research Laboratory. By TIM WEEKS and RAMONA MAHER. New York: The John Day Company, 1965. 8¼ x 5½ inches. 220 pages, 57 illustrations including two maps, one table, index. \$4.95.

The most recent popular accounts — two only — of a U.S. ice drifting station were produced twelve years ago, just at the beginning of the continuing effort that saw the establishment of the scientific station of Fletcher's Ice Island, T3, and that resulted in the successful occupation of four more Arctic Ocean research stations. Authors Weeks and Maher have brought the eventful story up to date in *Ice Island*, a well-illustrated and generally satisfactory book for the person with little or no previous knowledge of these stations. The reader familiar with the Arctic Ocean and with the progress of scientific work in that area will not find much that is new, although he will learn some interesting details of the establishment and support of the ARLIS stations.

In a relatively few pages the authors rapidly survey the exploration of the Arctic Ocean, the establishment of various ice floe stations, the discovery and occupation of ice islands, and the life and work there. This broad approach is generally successful and quite adequate for an introductory work, and the very few slight misinterpretations that may arise as a result in the reader's mind are hardly serious and will not lead him far astray.

There are brief accounts of the drift of the *Fram*, of *North Pole I*, and of the *Sedov*, and mention of other relevant early approaches and thrusts into the Arctic Ocean. There is a good useful summary of the various events

connected with the discovery of the various "T" ice islands and of the first landing by Fletcher, Brinegar and Rodahl on T3, and the authors have included an informative though short account of the glacial history of northern Ellesmere Island which produced the ice shelf and the ice islands.

Most of the book is devoted to ARLIS II. Here is outlined a good deal of the problems of locating and establishing drifting stations; the question of a suitable, safe site, the race against the summer melt to set up a camp, the inescapable slush of summer, and the forced relocation of the buildings as the summer sun eats deeper into the station foundations. The authors gently touch on the personnel problems that arise from these conditions, and they include mention of the inherent and sometimes severe difficulties of carrying out research from such stations, whether on ice floes or islands. Here too they capture something of the fascination of the ice islands — that indefinable aspect that is so attractive. Two of ARLIS II's people have in fact spent more than three years on the ocean.

It is in the description of ARLIS II that the work of Max Brewer, Director of the Arctic Research Laboratory at Pt. Barrow, shines. The use of inexpensive materials to prefab small, portable, expendable huts that can easily be transported and set up, and the highly successful use of light aircraft, Cessna 180s, in establishing and supplying the stations, even in the depths of winter, and in supporting the scientific work as far as the Pole itself, are results of Brewer's direction and are points that the authors do well to emphasize. Here, however, by recording only the role of American pilots of light aircraft in the Arctic, they do an unintended disservice to those Canadian pilots who in the mid 1950's pioneered the use of the even smaller Supercubs for scientific exploration of the arctic archipelago.

There is a supplementary chapter on the laboratory at Pt. Barrow and the work that goes on there, and an entertaining chapter on the wandering bears