

an account of the general theory of regular transformations of series, including the Toeplitz-Schur theorem on necessary and sufficient conditions for regularity, Knopp's theorem on positive transformations, and a discussion of the extension of the theory to integral transformations of functions of a real variable.

The main part of the book is then devoted to a full account of most of the standard methods of summation and the Abelian and Tauberian theorems associated with them. It includes proofs of the classical Tauberian theorems of Hardy and Littlewood for Cesàro and Abel summation, with a sketch or the original proof of the latter by the repeated differentiation technique, as well as the later and simpler proof of Karamata. The basic ideas in these earlier works are discussed in more detail in their application to the Hardy-Littlewood theorem for Borel summation with the $O(n^{\frac{1}{2}})$ type of Tauberian condition.

The book also contains a large amount of material on the less-familiar summation methods. In particular, there is a very attractive introduction to the theory of Hausdorff methods, including Euler's, and an account of the elegant formal relationship between the latter and Borel summation.

The part of the book given to Wiener's methods is short, but it is enough to provide an account of the general Tauberian theorem in a form which makes its application to all the standard methods seem natural and straightforward. The power and generality of the method is illustrated by its use in the 'one-sided' form of the Borel-Tauberian theorem.

Among the many other topics discussed are the Euler-Maclaurin summation formula, the multiplication of series and the Fourier kernels of summation matrices; and there are many illuminating comments and suggestions in the notes at the end of each chapter.

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BIRDS OF GREENLAND

Grønlands Fugle (The Birds of Greenland)

Part I. Text by Finn Salomonsen; plates by Gitz-Johansen. Pp. 158+17 plates. (København: Ejnar Munksgaard, 1950.) 60 Danish kr.; 66s.

MR. GITZ-JOHANSEN, a well-known Danish artist who has specialized in Greenland subjects while travelling in that country, made a number of pictures of the birds. He decided to publish these paintings and asked Dr. Finn Salomonsen to write an appropriate text. They are not the usual kind of illustrations one is accustomed to in a faunal work, and doubtless will not please the critical eyes of some ornithologists. It must, however, be remembered that Mr. Gitz-Johansen does not pretend to be a bird artist but has painted the birds as they appear to him. The birds of Greenland have always been of special interest to ornithologists in the British Isles, since many pass through these islands on migration, while others spend the winter here.

The earliest account of Greenland birds appeared in a book by H. Egede in 1741. The author founded a missionary colony at Godthab, where he lived during 1721-36, and refers in his book to twenty-five well-known species. Most of the work on the avifauna of Greenland has been done by Danes, but ornithologists in Great Britain, too, have made many notable contributions.

The explorers in search of the North-west Passage made collections of birds while their ships were being worked up the Davis Straits between the ice and the coast of Greenland. It was on such an occasion that Sir Edward Sabine, who accompanied Parry on his first voyage in 1819, obtained specimens of the small gull that now bears his name; and two years later Mr. Ross, afterwards Sir James Clark Ross, shot two examples on the Melville Peninsula of the rare rosy-coloured gull, which Richardson named after him. At a much later date, Prof. Newton prepared for Sir George Nares's expedition in 1875 in the *Alert* a useful summary of Greenland birds that were known up to 1875. By far the most important publication, however, is H. Winge's "Grønland Fugle", published in 1898, and for long the standard work although now out of date. Dr. Salomonsen's new account is therefore very welcome, more especially since it is in Danish and English in parallel columns, and we shall look forward to the completion of the work.

The author has paid several visits to Greenland to study birds in the field, and in Denmark he has had the large collections in Copenhagen at his disposal. Part I includes the divers, petrels, ducks and their allies, and the cormorant. Of the two divers, the red-throated is very common, and Dr. Salomonsen in one night saw a hundred in the air at one time making for the sea to feed. The major portion of this part deals with the geese and ducks, about which Dr. Salomonsen has much to tell. According to the ringing-returns, the Greenland race of the white-fronted goose is confined in winter to the British Isles. The Greenlanders apparently do not shoot many of the old birds; but they catch many goslings and sell them in the settlements for fattening for Christmas. No doubt foxes and eagles also take a considerable toll. Among the ducks the Greenland race of the common mallard is of special interest. It differs in colour from European examples; but more important is the fact that it is resident in these northern climes.

In the autumn the birds leave their inland nesting-haunts for the sea, selecting places where the currents are strong and the ice seldom forms. There they collect together in flocks and feed in the littoral zone on crustaceans and molluscs. Should the weather become very severe and ice is formed, areas of seaweed are exposed as the tides fall, and there the birds can find a feeding ground. The form of the eider-duck found in Greenland is smaller than the bird in Great Britain and the Continent. It is the most important duck in the economy of the Greenlanders, who formerly shot birds for food at all times of the year, collected vast numbers of eggs for winter use, and made coats and bed-covers of plucked skins. These last were exported to Denmark, as many as 1,300 in a year, and as it takes a hundred skins to make one bed-cover, the drain on the numbers of eider-ducks was enormous. Fortunately the Government in 1938 issued orders restricting the slaughter of birds and collection of eggs, and in addition the exportation of skins was prohibited. All this has had a very beneficial effect.

The king-eider, a brighter-coloured bird than the ordinary species, has in the male a bright-coloured knot on the front of the head. It is not uncommon in the northern areas. Dr. Salomonsen mentions a curious habit of the Greenlanders who, when shooting one of these ducks, at once bite off the knob and eat it raw—considering it quite a tit-bit.

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