OCCASIONAL PUBLICATIONS OF THE
CAMBRIDGE UNIVERSITY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY

THE PHYSICAL ANTHROPOLOGY OF SOUTHERN NIGERIA

IN THIS SERIES

The Archaeology of the Santa Elena Peninsula in South-West Ecuador.
By G. H. S. BUSHNELL

The Prehistoric Cultures of the Horn of Africa.
By J. DESMOND CLARK

Prehistory and Pleistocene Geology in Cyrenaican Libya.
By C. B. M. MCBURNEY and R. W. HEY

The Ancient Inhabitants of Jebel Moya.
By R. MUKHERJEE, C. R. RAO, and J. C. TREVOR

Mycenean Pottery in Italy and Adjacent Areas.
By LORD WILLIAM TAYLOUR

THE PHYSICAL ANTHROPOLOGY OF SOUTHERN NIGERIA

A BIOMETRIC STUDY IN STATISTICAL METHOD

BY THE LATE

P. AMAURY TALBOT

Former Resident, Civil Administration, Southern Nigeria

AND

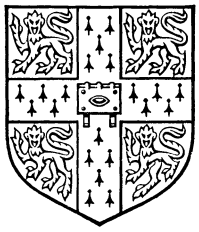
H. MULHALL

Senior Lecturer in Mathematical Statistics,
University of Sydney

WITH A PREFACE BY

J. C. TREVOR

Director, Duckworth Laboratory of Physical Anthropology,
University of Cambridge



CAMBRIDGE
AT THE UNIVERSITY PRESS
1962

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Mexico City

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9781107652026

First published 1962
First paperback edition 2013

A catalogue record for this publication is available from the British Library

ISBN 978-1-107-65202-6 Paperback

PREFACE

Percy Amaury Talbot, D.Sc. (Oxon), who was born in 1877, died in Cheltenham on 28 December 1945. Although he is most familiar to anthropologists from his ethnological writings, much of his time during the thirty years he spent in West Africa (with which his association began in 1904) was occupied in recording the physical features of its indigenous inhabitants. In contrast to his output of books and articles dealing with other aspects of anthropology (Meek, 1947), hardly any of the results of the work he did in this field have been published. As early as 1911 Sir Arthur Keith, his principal mentor in it, included measurements and non-metrical data furnished by Talbot for sixty living Nigerians from the Oban district and five Ekoi crania in a paper on the peoples of the then Belgian Congo and Nigeria (Keith, 1911). In that year and during the 1914–18 war there appeared three very short accounts which he himself wrote of the main bodily characteristics of ninety-one Buduma, Kanembu and Kotoko of the Lake Chad area, twenty Cross River Nkokole, and over two hundred subjects from the central Sudan (Talbot, 1911, 1915, 1916). However, not until after his appointment as Commissioner for the decennial census of 1921 did Talbot embark on a large-scale survey of the population of southern Nigeria from an anthropometric and anthroposcopic standpoint. In all he examined nearly seven thousand persons, representing almost a hundred 'tribes' and lesser ethnic units. This is indeed a formidable achievement for a single observer also burdened with the administrative duties of a Resident or Provincial Commissioner and, as far as I am aware, one exceeded only by Dr W. Krauss, who made almost half the anthropological examinations for the vast project culminating in that monumental volume *The Racial Characters of the Swedish Nation* (Lundborg & Linders, 1926) but, presumably, was not distracted by similar cares of office!

When Talbot retired from the Colonial Service he was faced with the arduous task of reducing statistically the material he had collected and putting it into a form suitable for publication. Having sought advice from Dr G. M. Morant and Miss M. L. Tildesley and acquired 'Clickie', a small lever-operated Brunswiga calculating machine, he set about this with the help of his wife. The Talbots were then living in the south of France, which they left on the capitulation of 1940, depositing the anthropometric data with a friend. After Talbot's

death these were sent to England, unfortunately without the individual observations, which subsequent inquiries have failed to trace. Means and standard deviations, together with typescript notes, maps, and photographs (mainly ethnographical), were nevertheless available, and it was evident that they would provide a most valuable contribution to regional physical anthropology—the 'anthropography' of Emil Schmidt—if their analysis could be completed. Owing to other commitments neither Dr Morant, Miss Tildesley, nor I felt able to assume such a responsibility, of the eventual discharge of which Mrs Talbot, now stricken by partial paralysis, was most anxious to have assurance while she remained alive. The efforts of this loyal and resolute invalid to ensure that what she and her husband regarded as his life-work was not wasted can perhaps be appreciated only by those who, like Miss Tildesley and myself, were in frequent correspondence and personal contact with her.

Sir John Myres had kindly suggested that the further study of the Talbot material should be carried out in the Duckworth Laboratory under my supervision. In November 1948, therefore, at Mrs Talbot's request, I brought this from the Royal Anthropological Institute in London, where it had been stored, to Cambridge, in the meantime promising her that I should do my best to see that it was prepared for press. Finding somebody competent to undertake the considerable labour that would be involved was still a difficulty to be overcome, but here good fortune unexpectedly stepped in. At the start of the Michaelmas Term of 1949 I learned from the late Dr John Wishart, Director of the Cambridge Statistical Laboratory, that a mathematician newly arrived from Australia would welcome access to a large body of anthropological data in order to investigate certain problems of multivariate analysis. The Talbot samples proved to be ideal for the purpose, and, in short, Dr Mulhall, co-author of the present book, consented not only to use them in connexion with the theoretical question that interested him but also to realize the long-cherished hope of Mrs Talbot that her husband's research would be finished in a proper fashion. Miriam Winifred Florence Talbot ('Bimba') died in Cheltenham on 15 October 1955, and it is gratifying to note that her last years were lightened by the knowledge that the anthropometric survey of southern Nigeria was well on its way to completion and that the immense efforts already expended on it would not after all be in vain. Because of the high cost of setting the great number of tables it contained, I had expressed to her my doubts whether it could be printed without a subsidy. Her immediate response was to make provision in her will ensuring that an adequate sum to assist publication should be the first charge on the estate.

Dr Mulhall, for his part, cheerfully endured the tedium of attending lectures

and classes to acquaint himself with anthropological methods—and their limitations—while analysing the Talbot material. It had occurred to me that a double benefit might be gained if his treatment of this were accompanied by an appraisal, in not-too-abstract terms, of the application of modern statistical procedures to physical anthropology. An experience I feel confident I share with many unmathematically-minded colleagues is that the writers of most texts on statistics, after persuading the reader in their introductory chapters that the subject can be grasped with relative ease, are apt suddenly to don seven-league boots and disappear over the horizon of his comprehension. I believe that, in agreeing to adopt the scheme I proposed, Dr Mulhall has given at least my fellow physical anthropologists an admirable first approximation to *Statistics Without Tears*. A final comment. Mrs Talbot was emphatic that she should not be mentioned by name as a collaborator in the survey, insisting that she had merely acted as her husband's secretary, 'ruled and copied the tables and made tidy copies of his maps'. Despite such characteristic self-effacement, Dr Mulhall and I think that the dedication of *The Physical Anthropology of Southern Nigeria* is no more than a just tribute to a remarkably devoted woman, an opinion in which we feel Dr Talbot would surely concur.

J. C. T.

Emmanuel College
Cambridge

To the Memory of

BIMBA AMAURY TALBOT

CONTENTS

INTRODUCTION

When the late Dr Percy Amaury Talbot published his extensive treatise *The Peoples of Southern Nigeria* (1926), which gave a full account of the history and ethnology of the Southern Provinces and incorporated the results of the 1922 census which he had supervised, he expressed his intention to follow this work with an anthropometric survey of the region. He collected the data at various times during his period as Resident in the Southern Provinces, but most of the measurements were made over a comparatively short time, 1922–3. It is likely that he produced one of the largest bodies of measurements on living subjects ever made by a single observer.

The biometric school of physical anthropologists, founded by Karl Pearson, concentrated its attention primarily on skeletal measurements, in particular those of the skull. This led to an over-emphasis of osteometry and a comparative neglect of somatometry. The two divisions of the subject are, of course, complementary, but there are considerable advantages enjoyed by measurements on living subjects. These have been ably set forth by Professor Sir Ronald Fisher, who has stated (1936, p. 63):

> The durability of skulls has led to their being collected and stored in large numbers, and they possess a real, though slight, advantage over living heads in the accuracy with which they can be measured. This advantage, though it appeals greatly to the precise worker, is very unimportant, since the variations produced by fleshy tissues are small compared with the metrical differences between individuals, with the consequence that the average of any measurement taken on the living, from a sample of fifty or a hundred, has practically the same precision as that of the corresponding measurement of the skulls. It is on the precision of such averages, and not of the individual measurements, that the possibility of detecting significant differences depends. It may be said also that more measurements are possible with a skull than can be taken on a living head; but while the truth of this may be granted, it should be pointed out that no inaccessible measurements are known to afford racial discriminations which are not also revealed by external measurements.
>
> On the other hand the living material has some advantages. The sex is known independently of the measurements. Blood relationships are known; as are nationality, language, religion and social status, all of which greatly affect intermarriage. The heredity of the head measurements has been neglected, curiously when we consider the stress that has been laid on their racial importance. Above all, the student of living measurements can choose his material and be sure of getting enough of it. He is not dependent upon such an

accident as that the cemetery of a community, perhaps not well representative of the racial type of its neighbours, has happened to be excavated with unusual thoroughness.

Perhaps Professor Fisher has overstated the case for somatometry, an attitude which is legitimate enough if he felt that he should counter the unreasonable emphasis placed on craniometry. Skeletal remains are sometimes the only available material, and a comprehensive study of the heredity of head measurements, for example, would necessarily involve cranial measurements if evidence from past generations were to be collected.

Talbot had subjected his data to a certain amount of statistical analysis and, with the assistance of his wife, was preparing the material for publication, but he died when the work was at a comparatively early stage. The outbreak of hostilities prevented any further progress towards publication and it was not until reasonably normal conditions once more prevailed that, as a result of the strenuous efforts of Miriam Talbot to obtain professional help to complete her husband's work, she submitted the material to Dr J. C. Trevor, Director of the Duckworth Laboratory of Physical Anthropology and University Lecturer in Anthropology at Cambridge. At the time Dr Trevor, single-handed, was fully occupied with the post-war rehabilitation of research and teaching in his subject. Moreover he was further engaged in completing a report on prehistoric skeletal remains from Jebel Moya in the Sudan (Mukherjee, Rao & Trevor, 1955), a task for which he had assumed the responsibility at the request of the Trustees of the late Sir Henry Wellcome, F.R.S. He therefore sought advice on the treatment of Talbot's data from Dr John Wishart, Director of the Cambridge Statistical Laboratory and University Reader in Statistics.

When, in 1949, I arrived from Australia to spend some time on statistical work at Cambridge, Dr Wishart proposed that I should undertake the analysis of these data with a view to collaborating in their eventual publication. Dr Trevor, for his part, suggested the advisability of a complete revision of the Talbot material according to more detailed statistical procedures than had so far been applied to it. In particular he was anxious that use should be made of the methods developed by the Calcutta school, under the leadership of Professor P. C. Mahalanobis, F.R.S., at the Indian Institute of Statistics. A close scrutiny of the notes and calculations that Dr and Mrs Talbot had already made showed the need for this, and it seemed desirable to combine the actual analysis with a broader study of the application of statistics to physical anthropology. The initial work was completed in 1952, and three years later Miriam Talbot died, leaving in her will directions for its publication in such manner as her Trustees might think fit. In short, they have approved the publication of a book incorporating an outline of quantitative methods in physical anthropology, so that con-

siderable space is devoted to a description of the statistical procedures applied to the Talbot material.

In performing such a task, I have had in mind the needs of physical anthropologists who wish to study statistics beyond the point of substitution in formulae. There now exist excellent books on statistical method and on the mathematical theory of statistics, but readers whose interests lie primarily in the field of anthropology find them rather formidable. It is my hope that, by first meeting statistical techniques in an exclusively anthropological setting, students of physical anthropology may approach the more comprehensive works of Yule & Kendall (1950), Fisher (1958), or Rao (1952) with less trepidation than they do at present. Obviously, formal mathematical proofs would have been out of place, but I have nevertheless tried to do more than reproduce what Professor M. G. Kendall once described as the 'cookery book' type of statistical manual.

Throughout the original analysis of the Talbot data, I received constant encouragement and helpful criticism from the late Dr John Wishart, whose untimely death in 1956 was mourned throughout the statistical world. To Dr J. C. Trevor my debt is indeed great. With infinite patience he introduced me to the techniques of anthropometry, and his assistance in all the anthropological aspects of the work has been of inestimable value to me. Mr G. I. Jones, Lecturer in Anthropology in the University of Cambridge, kindly made available a large set of his own measurements of living subjects from certain regions of southern Nigeria for comparative purposes, and these have been extensively used in the chapters on method. In the light of his first-hand knowledge of the region he also generously undertook the revision of the whole of chapter 1.

It is inevitable that I owe much to the standard works on statistics to which reference is made in the text. My thanks are due to Professor C. E. Weatherburn and the Cambridge University Press for permission to reproduce Table 4.3 from his *A First Course in Mathematical Statistics* and to Professor M. G. Kendall and Messrs Charles Griffin and Co. for permission to reproduce Table 5.1 from Kendall's *Advanced Theory of Statistics* and Table 6.2 from Yule & Kendall's *Introduction to the Theory of Statistics*.

Finally I should like to pay a tribute to Dr Talbot's industry and enthusiasm in accumulating what can only be described as a monumental body of anthropometric data. The following extract from his notes should be recorded here:

The genesis of this study is due to the great encouragement received from Sir Arthur Keith; the biometric methods employed in working it out, almost entirely due to the kind instruction of Miss Miriam Tildesley—it would be impossible for me to express adequately my

deep gratitude for the trouble she took in enlightening a very non-mathematical pupil. Dr G. M. Morant also gave very courteous and efficient assistance on several points.

Most of all, however, do I owe to the devoted and unremitting labour of my wife, for many years until, partly owing to this cause, her health broke down.

My further thanks are due to Dr J. C. Trevor for considerable help with the proof-reading. I should like also to record my appreciation of the work of the staff of the Cambridge University Press, who have shown their customary patience and skill in preparing the manuscript.

H. M.

University of Sydney

PUBLISHER'S NOTE

While this book was in proof a series of important events altered much of the political geography of West Africa. Nigeria itself became an autonomous Federation within the Commonwealth, soon to be joined by part of the United Nations Trust Territory known as the British Cameroons, the remaining portion of which acceeded to the Cameroon Republic, formerly the French Cameroons. At the same time other neighbouring African countries were about to win, or had already won, their independence. That the results of such far-reaching changes appear neither in the text of the present work nor in the maps that accompany it should not be taken as an affront to the *amour propre* of the new nations of the continent. Their historians, above all, will appreciate the wisdom of keeping as close as possible to the temporal context of the scientific task that the late Dr Talbot set himself to accomplish, however inept some of the terminology then used may now seem to the layman.