

SELECTION FOR SECONDARY EDUCATION

BY
WILLIAM McCLELLAND

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FOREWORD

THE present publication represents the final Report of the Scottish Committee, or Delegation, in the International Examination Inquiry initiated by the Carnegie Corporation of America, the Carnegie Foundation and the International Institute of Teachers College, Columbia University, and financed jointly by the Carnegie Corporation and the Carnegie Foundation. It also represents the completion of the tasks undertaken in 1931 at the Eastbourne Conference by the Scottish Delegation. This, the fourth of our major investigations, had not defined itself very clearly until just before the second Conference, held at Folkestone in 1935, where the plans were submitted for criticism and for approval. The third Conference, at Dinard in 1938, saw the investigation so far advanced that Professor McClelland was able to give a detailed account of what had been completed and what still remained to be done. Now, four years later, he is able to present to the Committee and to the public the full results. It will, I think, be generally agreed that this has been the most important and the most onerous of all the investigations sponsored by the Committee; it consequently seems incumbent on me as Convener to express our indebtedness to Professor McClelland, who has throughout borne on his own shoulders practically the whole burden. The measure of that indebtedness can be assessed by the reader of this work.

At the Eastbourne Conference the Chairman, Dr Paul Monroe, stressed the sociological implications of examinations, and pointed out that these implications constitute the most general aspect of the whole series of investigations undertaken by the various national delegations. The enormous sociological significance of the present investigation has been indicated by Professor McClelland, and any elaboration is superfluous. It is worth noting, however, that the Mental Survey investigations of 1932 and 1935-37 might be said to represent the first stage in a great educational and sociological study, of which the present investigation represents the second stage, and that a third stage remains to be undertaken—a mental and educational survey of the population of our secondary and technical schools, our universities and central institutions, as

well as our adult education classes. This third stage has already been envisaged by the Scottish Council for Research in Education, but financial considerations preclude for the time being the possibility of undertaking an investigation so complex, so difficult and so costly.

Although the International Examination Inquiry as initiated and financed by the International Institute of Teachers College has now terminated, at least so far as the Scottish Delegation is concerned, we are still faced with this great task, and with the study of other problems concerned with examinations. The hope may be expressed that, when the present difficult days are past, it will again be possible to secure international collaboration in this work. At the closing session of the Dinard Conference in 1938, on the motion of the Convener of the Scottish Delegation, it was unanimously agreed that an international committee for the study of examinations be appointed, and that it consist in the first instance of the chairmen of the existing committees. Subsequently Professor Godfrey H. Thomson consented to act as secretary to such a committee. Unfortunately the unsettled state of the Continent, and then the War, made it impossible to carry the organisation of the committee beyond the skeleton stage. When peace returns, it may not be too much to expect that this committee will begin to function, and continue the work so successfully prosecuted for seven years under the ægis of the International Institute, and the inspiring leadership of Dr Paul Monroe.

It only remains to express once more in the name of the Scottish International Examinations Inquiry Committee and the Scottish Council for Research in Education their sense of the deep debt they owe—and Scottish education owes—to the International Institute of Teachers College for the continued encouragement they have received, and for the very substantial financial assistance without which the investigation could not have been undertaken and published.

JAMES DREVER,
Convener.

PREFACE

THIS work is a scientific study of certain problems of selection and guidance that arise at the first big sifting of the material in an educational system; and, as such, it is not directly concerned with many of the deeper issues of educational and examination policy. We set out to find answers to a number of definite questions in which administrators are interested, but we offer no opinion as to whether, in a sound educational system, the questions would arise in these particular forms, or would, indeed, arise at all.

Our thanks are due to the Convener and Members of the Dundee Education Committee not merely for their ready and generous response to our application for facilities to conduct the experiment, but also for the encouraging interest which they have taken in its progress. To their Director of Education, Mr John R. Cameron, M.A., we have been indebted for the preparation of the examination papers and for constant guidance and help in all our difficulties. Dr A. E. Kidd, M.B., C.M., D.P.H., former Chief Medical Officer for Schools, and his staff undertook the heavy task of furnishing us with health gradings and medical reports for the complete group of over 3,000 pupils; and Dr Kidd also prepared the classification of schools on the basis of social class. We have also to record our appreciation of the co-operation of the head teachers and staffs of the City schools, to whom we are deeply grateful for the friendly and helpful way in which they met our heavy demands upon their time and patience.

Lengthy as the Report is, it is only to those with actual experience of similar research that it will convey a full realisation of the labour involved. The determination of a single correlation coefficient, when the numbers are large, is a long and laborious operation; and, to ensure accuracy, all our calculations were done twice, by different teams. With this duplication the number of direct correlation calculations in the main Inquiry was over 3,000: the testing programme involved the correction of over 20,000 scripts.

To embark upon such an undertaking without a large full-time staff implied a belief, which events have proved to be well-founded, that we could safely count upon the help of our students and of

our colleagues in the City schools. The Inquiry was, in fact, an adventure in large scale co-operative research carried out by voluntary part-time assistants; and a brief description of the organisation may be of interest to other investigators.

My two partners in the general conduct of the Inquiry were Miss Margaret Young, M.A., B.Ed., Lecturer in Experimental Education in Dundee Training College, and Douglas M. McIntosh, M.A., B.Sc., B.Ed., Ph.D., Assistant Director of Education for the County of Fife. Miss Young's special responsibilities included charge of the testing, preparation of circulars of instructions, training teams of testers and correctors, etc. She is the writer of Chapter I, in which she gives an account of these matters. Dr McIntosh, who has written Chapter II, undertook such tasks as the standardisation of the tests, organisation of the correlation calculations, training teams of computers, and so on. Yet neither a list of special duties nor the occasional references in the Report can give an adequate appreciation of what the Inquiry owes to these two principal assistants. Each envisaged the research as a whole and helped with practically every aspect of it.

So also did Miss Muriel Mitchell, M.A., who, before her appointment to the administrative staff of the College, had charge of the rapidly mounting mass of documents in the room set aside for the Inquiry. Since 1936 she has given voluntary help of the utmost value and has been much in request as a consultant to whom student assistants went singly or in groups for advice in their statistical difficulties.

The correction of the tests and the correlation calculations were carried out by a veritable army of helpers, over 600 in all, in whose ranks were members of the College staff, head teachers and teachers of the City schools, and students of the Training College. Most of them had to be trained for the work, and this training was given in the first place by Miss Young and Dr McIntosh. Later, certain of the more skilled workers acted as group leaders and trained new teams. Two of these group leaders, Alex. S. Robertson, M.A., and James C. Kidd, M.A., B.A., gave particularly valuable help with the more difficult calculations and many special problems.

The teams of correctors and computers fell roughly into two types, the 'permanent' and the 'occasional.' Into the former came a most faithful group who worked from 6 to 9 p.m. on one or two evenings a week for several sessions. In the latter we had groups of students who worked in forenoons during vacations;

others who worked in free periods during the College session; others who worked individually at home, coming up to the evening meetings periodically to discuss difficulties.

Finally, about fifty graduate students undertook studies of special aspects. Each year, after a talk on the aims and progress of the Inquiry, a list of problems was submitted from which interested students could make their choice. There was no lack of volunteers for these investigations, many of the results of which will be found in the Report.

It may not be out of place to say a word as to the part played by the Inquiry in the life of the Training College. The students' help was invaluable, and our gratitude to them is not diminished by the belief that the benefits were mutual. For many of them simple statistics forms part of the course of training, and the calculations which they carried out in connection with the Inquiry merely replaced class-room exercises which would have had less reality and interest. Moreover, while all types of student participated, they were not asked to work in a blind mechanical manner. Before setting to work they understood the plan of the research and the way in which their particular calculation fitted into the whole. Whenever possible we let them know the results which their group had obtained, and discussed their significance. In short, the Inquiry was a central research interest for the whole College for six years. Its general headquarters, the Inquiry room, was a meeting-place for students from all sections who were co-operating in the work. It had a real research atmosphere, and no one could associate with the students in it without a feeling that the project was an enriching influence in the life of the College.

Of the many colleagues who helped us we are specially indebted to Mr B. Babington Smith, M.A., of the Psychology Department of the University of St Andrews, with whom we had many fruitful discussions on statistical problems, and to the following members of the staff of the Dundee Training College: Mr Andrew Nairn, Principal Lecturer in Art, who prepared the diagrams; Mr Robert B. Martin, Chief Clerk, who acted as Treasurer; Miss Dorothy Mess, and other members of the administrative staff whose help included the typing and duplicating of circulars, etc.; and Mr George Caithness, janitor, who helped us in ways too numerous to specify.

Throughout the Inquiry, from the original formulation of the plan to the final preparation of the Report, we had the benefit of

the expert advice of the Research Council's Director, Dr R. R. Rusk. The extent of our indebtedness to him will be best appreciated by those who have carried out researches for the Council.

Finally, a reference may be made to the Report itself. It is primarily a research report; and the ways of educational research have become very technical: yet we have tried to present it in such a way that the results will not be rendered inaccessible to the practical administrator through being expressed in the unintelligible mathematical jargon that would be more pleasing to the expert. We have kept the mathematics as far in the background as possible, and we believe that the lay reader, whose statistical attainments are limited to a knowledge of the meaning of the terms 'standard deviation' and 'correlation coefficient,' will be able to follow the text. He should simply ignore the footnotes. These are for those who are interested in the techniques; but to avoid possible disappointment, it should be mentioned that most of our methods and formulæ had to be devised *ad hoc*, and that the references often give merely the starting-point from which it will be possible to retrace our mathematical steps.

We have tried to throw a little light on some of the dark places of the selection problem: but by the time the reader has finished the Report he will realise that the torch has been a heavy one to carry—and we now willingly hand it on to others.

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