THE AUTHOR

SIR RONALD A. FISHER has achieved a formidable reputation amongst statisticians for his pioneer work in this field during the past forty years. His particular achievement has been in the development of statistical methods appropriate to biological research. During his brilliant career in academic and research work many honours have come to him: he has been awarded the Royal, Guy, Darwin and Copley Medals of the Royal Society of which he is a Fellow; he is a Foreign Associate of the United States National Academy of Science, a Foreign Member of the Royal Swedish and Royal Danish Academies of Sciences, and a Foreign Member of the American Philosophical Society; he holds degrees from the Universities of Ames, Chicago, Harvard, Calcutta and Glasgow; he is a Fellow of Gonville and Caius College, Cambridge, and a former Arthur Balfour Professor of Genetics in the University of Cambridge; he has also been Galton Professor of Eugenics in University College, London.

It is appropriate that Sir Ronald Fisher should have written this pamphlet because to his scientific reputation he has added a reputation for frank and outspoken contributions to many statistical debates. This pamphlet is a fair-minded assessment of the value of the statistical evidence relating to the incidence of lung cancer in smokers.

PREFACE

Scientists in many fields have felt the need for canons of valid inference, and these have been becoming available in what are, properly, experimental sciences, by the rapid development of interest and teaching in "The Design of Experiments".

Unfortunately, it has become obvious that many teaching departments, with mathematical but without scientific qualifications, have plunged into the task of teaching this new discipline, in spite of harbouring gravely confused notions of the logic of scientific research.

If, indeed, the statistical; departments engaged in university teaching, were performing their appropriate task, of clarifying and confirming, in the future research workers who come within their influence, an understanding of the art of examining observational data, the fallacious conclusions drawn, *from a simple association*, about the danger of cigarettes, could scarcely have been made the basis of a terrifying propaganda.

For this reason I have thought that the fallacies must be attacked at both of two distinct levels; as an experimental scientist, and as a mathematical statistician. The lecture on *The Nature of Probability* was to a non-mathematical audience, on the general question of the validity of inferences from facts available on lung cancer.

As the subject has developed during the last year or so, it has seemed important to reprint these letters and addresses strictly in order of their date.

RONALD A. FISHER

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