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978-1-107-65611-6 - The Aims and Methods of Medical Science:

An Inaugural Lecture

John A. Ryle

Excerpt

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THE AIMS AND METHODS OF MEDICAL SCIENCE

It is not an easy moment nor an unembarrassed mood that brings me here—a stranger almost in the University of Cambridge, although the strangeness is already mitigated by much friendliness and welcome—to deliver my inaugural lecture. I have none of the advantages which my predecessors enjoyed in the shape of early training in this school or other bonds and associations with the University. Of the high traditions of your medical faculty I have, in common with the rest of my profession, had ample and frequent testimony, but your systems and your customs and the atmosphere of your life I have yet to learn.

The mood and the moment are lacking in ease not only because I am a newcomer, but also because I must inevitably make comparisons in the matter of endowments between myself and those who have gone before me. These have been men of a scholarly distinction to which I cannot lay claim and of a professional seniority, which time alone can add to

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me. They have set a high standard that must needs implant humility in any successor. I am, however, so much indebted, in one way and another, to my three immediate predecessors, and two of them have given me such generous exhortation and counsel, that I take courage and inspiration from them and face the future with an eager determination to give, as they did, all that I can of service to Cambridge medicine. For the gifts and prospects which Cambridge offers me I shall hope that London and the school of Guy's may, through my endeavours, make just return.

Sir Clifford Allbutt I did not know personally, but to his literary culture, to his writings on arterial disease and angina pectoris in particular, and to his historical and educational essays I have long been in debt. Sir Humphry Rolleston, from the moment when I first met him in the examination hall to the present day, has shown me frequent kindnesses. Many of his erudite contributions to the science and art of medicine I have admired and treasured. His biography of Clifford Allbutt, a parting gift from my friend and

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colleague Dr Arthur Hurst, and his history of the Cambridge Medical School, have been my companions in recent weeks. From Sir Walter Langdon Brown's writings I have also drawn frequent benefits. He and I have had some of our happiest associations in connection with a small club, consisting of a group of London physicians, which meets informally at the end of laborious days to discuss the problems of clinical medicine and clinical education in their broadest sense, always with refreshment and sometimes with inspiration to the minds of its members. He too has shown me constant kindness on the eve of my present appointment.

*The Scope and present Shortcomings of
Medical Science*

I have chosen to discuss, in a very general way, the aims and methods of Medical Science, and to indulge both in criticism and a forecast. It seemed to me a suitable moment for such a survey, for I am leaving one field of activity, or rather of many activities, for duties of a new kind and more directly and whole-heartedly

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concerned (although much of my time has already been devoted to teaching and study) with the advancement of medical learning. The aims of medical science may be briefly and broadly stated. They are to increase and perfect our knowledge (with a view to its control) of disease in man, and equally our knowledge of man in disease, by every legitimate means of science and art at our disposal. In furtherance of this aim the study of healthy structure and function play a leading part. Close clinical observation and accurate recording of the living phenomena of disease; the evaluation of environmental and hereditary factors; morbid anatomy and histology; the study of the chemical and bacterial agents of disease and of immunity; psychology; biochemistry; radiology; pharmacology; dietetics; and the experimental production of disease in animals, provide the principal methods whereby the solution of our problems is sought. Observation and experiment are, or should be, equal partners in our scheme.

Within the profession only those few have lost sight of the aims of medical science who

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have made a trade of their art, or who, through some combination of mental peculiarity and faulty education, indulge in cranks or succumb to the fixed idea, basing their actions upon methods which have no true relationship with what is generally understood by scientific method. We must admit, however, that even among the vast body of honest workers who have the proper aims in view (and I refer here both to practitioners and laboratory men) there remains too great a proportion whose standards of accuracy, whose use of evidence and whose critical faculties are defective, whose judgment is continually crippled, rather than gradually amended, by the inherent difficulties of their subject and the exacting conditions of their lives. The objects of their task are more or less apparent to them, but their use of the tools which they bring to it is clumsy or the tools themselves are inappropriate.

To what primary errors are these shortcomings due? Firstly, we have not been strict enough in our selection of men, whether by elimination of unsuitable students at an early

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stage in their career, or by direction of energies into proper channels after qualification. Secondly, our systems of education and examination—although reforms are pending—have become too complicated and unwieldy, our instruction too uncorrelated and departmental, too insistent on the acquisition of knowledge without provision for its proper distribution and assimilation. Thirdly, we have allowed the cult of specialism, both in clinical and laboratory work, and in the training for these, to spread unchecked and have lost sight of the need for a central controlling philosophy to hold the reins of the restive younger sciences.

With the first two errors I am not here concerned, but, as few days go by in my professional life in which I do not behold faulty judgments due to lack of vision or to that inaccurate focussing of vision which is the outcome of too much specialism, I shall ask leave to consider the third in closer detail.

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The Defects of Specialism

In all that I say please believe that I am not condemning specialism as such, for good specialism is essential to all scientific progress. I condemn only excessive, premature and mis-directed specialisms for the subversive influences which they have had upon medical thought and action and education. There is an element of truth in the facetious dictum which describes the specialist as one “who knows more and more about less and less”, but my present attitude is better expressed by a phrase of Hughlings Jackson, who said: “There is no harm in studying a special subject; the harm is in doing any kind of work with a narrow aim and a narrow mind.” He was himself pleading for better integration in the sciences as a counterpart to increasing specialisation.

We should also remind ourselves that, while specialism in medicine can often deliver new truths or refinements of old truths, it can rarely of itself, in the complex human problems which confront us, give anything approaching the whole truth about a patient or his disease.

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Now a teacher of general medicine and a consultant in general medicine has peculiar opportunities of observing errors which result from the causes which I seek to define. He rubs shoulders continually with students, practitioners, clinical specialists and scientists and, last but not least, with patients of all degrees, and acquires in the process some familiarity with the needs and problems of them all. He may, perhaps, fall himself into the “specialism” of being “too general” in his opinions, but his functions are essentially judicial and he is continually in the position of having to balance the opinions and evidence of others. The science and art of medicine are more constantly complementary in his particular work than in the work of the general practitioner, the surgical or medical specialist or the whole-time professor. Philosophy, psychology and scientific thought make common cause in his daily affairs, although he separately professes none of them.

I should be the last to pretend to infallibility of judgment in matters clinical, but, mingled with countless examples of good and wise

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industry, my practice has brought all too frequently before me instances of operations unnecessarily undertaken or advised, of treatments injudiciously selected and forecasts unfairly given, not because of the inherent difficulties of medicine which tax us all, but simply because the nature and meaning of common symptoms have been insufficiently appreciated; because new machines and tests have been allowed to usurp the function of eye, or ear, or hand, or native wit; because the psychology of a patient has been misread or neglected in the previous estimates; or because he or she has never been viewed as a “whole” man or woman, and the disease never studied as a “whole” disease. All too commonly the puzzled practitioner has been persuaded into unwise diagnosis or action by a laboratory or radiological opinion unjustified because it has been given without reference to or knowledge of the general situation, which includes both organism and environment, part and whole. In an earlier generation deficiencies in the matter of precise tests and scientific detail were often compensated for by close observa-

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tion and the applications of a sane logic. The educations of to-day leave little room for the training of reason. They pile up evidence but neglect instruction in its use. This tendency to inco-ordinate action is still growing and can be corrected only by a return to first principles.

General Smuts, in his philosophical discourse entitled “Holism and Evolution”, has critically considered this tendency to continued sub-division of knowledge in Science and the disadvantages which have accrued and continue to accrue therefrom. Other sciences besides Medicine have suffered from the abandonment of what Bacon called universality or *philosophia prima*. Writing on this theme in *The Advancement of Learning* he says: “Another error . . . is the over early and peremptory reduction of knowledge into arts and methods; from which time commonly sciences receive small or no augmentation. But as young men, when they knit and shape perfectly, do seldom grow to a further stature; so knowledge, while it is in aphorisms and observations, it is in growth; but when it once is comprehended in exact methods, it may per-