
CURRENT SCIENCE — 50 YEARS AGO

A CRITICISM OF DEGREES*

PROFESSOR R. G. STAPLEDON'S work on all aspects of grassland development is well known, and his recent book *The Land: Now and Tomorrow*, indicates that he sees his problems against the background of a nation's life. In the January issue of *Science Progress* we find a stimulating article from his pen "Agricultural Research and Higher Degrees". The article is well worth consideration by Fellows of university senates, professors teaching post-graduate students, or members of selection boards. While the author deals with agricultural research mainly, his remarks apply to other higher degrees and, in fact, to the degree system.

As an introduction, Prof. Stapledon deals with the nature of agricultural problems and the way they should be solved. One would like to quote this in full, but some short extracts must suffice:

"The amount of high-class and intricate research that must be undertaken with ultra-practical aims in view is probably far greater than is fully realised by either the research workers themselves or by those who administer research funds. This is realised far more fully by the farmer who, as a matter of fact, is always posing difficult conundrums to the scientist—conundrums, because of the soil and of agriculture, so difficult that it is seldom within the competency of a single specialist (the botanist, the chemist or the veterinarian) adequately to answer, or, in the majority of instances, to formulate a line of research most likely to lead to the correct and practical solution".

"The problems of agriculture to a greater extent probably than of any other applied science are of an omnibus nature—in the sense that they are seldom within the province of any one department of science fully to solve".

"Two extraordinarily important facts follow from all this, both of which have a fundamental bearing upon the training of the men who are to become competent research workers in the agricultural field. In the first place, almost more important than the actual solving of problems is the predetermination of the problems which, in fact, it is desirable to solve".

"The truth is the successful agricultural research worker ('successful' as here pre defined) needs to

develop a certain sense and feeling towards his subject; for without that he will never be able properly and in detail to pre-define his problems. As well as the sense and feeling, however, he must have the technical equipment of the best pure scientist in the particular field that he wishes to make his own. More than all this, he must have that state of mind that makes it come natural to him to place all his cards on the table and to work gladly and enthusiastically as a member of a team".

Having thus defined agricultural problems and the conditions of their solution, the author then considers the case of the M.Sc., the Ph.D. and the D.Sc. degrees in their relation to the making of a real research worker in agricultural science. The author points out that the M.Sc. degree can be variously obtained and hence the degree does not imply any particular standard of attainment nor does the holding of the degree necessarily mean that the recipient has undergone any rigorous and supervised training in research. The thesis demanded for the degree may be presented by a young man doing post-graduate work immediately in continuation of his honorary degree and is perhaps most generally presented by men who already hold posts in a teaching or research department. In the latter case, the candidate, if on the staff of a research department or institution, may have been engaged in team-work. The presentation of a thesis under sole authorship is hardly compatible with the highest ideals of the team spirit.

The Ph.D., unlike the M.Sc., is, says Professor Stapledon, intended only for students who pass straight on from graduating to undertake a prescribed piece of research under supervision. The fact that the man who gains this degree is called 'Doctor' and that in the eyes of the uninitiated the profound difference between the D.Sc. and the Ph.D. as a qualification is not known, is a drawback. Moreover, the period allowed for preparation for the Ph.D. is usually two sessions, and Professor Stapledon points out that even if this period were extended to two full years it does not, certainly in the case of grassland science, give enough time for the conduct of a piece of research sufficiently widely based adequately to train a man in the research methods applicable to a subject so wide. The inevitable result is that the only way to deal with a Ph.D. candidate in

* Published in *Curr. Sci.* 1938, Vol. 6, p. 431.

these wide subjects is to put him on to some tiny fragment of a worthwhile problem, or to make over to him a mass of existing material that is being studied by a senior man or by a group of men in the particular department. In the larger out-of-door subjects, therefore, the author says it is practically impossible as matters stand to accept, with a clear conscience, candidates for the Ph.D. He goes on to remark that for a man who seeks only training and is not hampered by the restriction implied in the ultimate preparation of a thesis for a degree, two years is a sufficient time to give excellent training to a man interested in grassland problems. His general findings regarding these three degrees may be noted:—

“The agricultural scientist cannot be separated in treatment from other applied scientists, and the applied scientists cannot in equity be separated from the pure scientists, but it would probably be better for all if higher degrees granted on the thesis basis were completely abolished. The Ph.D. has served no really useful national purpose, and has carried with it innumerable psychological effects which have done neither the young doctors nor the universities any good, and should be abolished root and branch. The M.Sc. is perhaps more innocent, despite the fact that it stands for too wide a range of attainment and qualification, and of research training. Because many of the candidates for the M.Sc. already hold research positions, if this degree is to be retained the submission of papers or thesis of joint authorship should be considered as a merit and be definitely encouraged instead of being disallowed, for ability

to collaborate is one of the outstanding necessities of the modern scientists.

The D.Sc. stands in a different category, because it does not influence a man's training. It may, however, influence a man's attitude towards teamwork and collaboration, and may so influence his attitude over a long run of years, during which time he is himself in a senior and influential position, and therefore, capable of considerable psychological mischief to the man himself, and therefore also of considerable mischief to the spirit that should animate a research institution”.

Whether we agree or not with these final conclusions, there are many of us who would echo the remarks regarding the narrowness of training which must perforce be given for the Ph.D. and the consequent inadequacy of men so trained for a broad outlook on research problems. What can be expected, for example, from a candidate who has devoted two years to nothing but the study of the alimentary system of some unimportant insect? Has he been trained in such a way that as a future Agricultural Entomologist his degree is a hall-mark of real usefulness?

It is always difficult for universities to make reforms within their own borders and yet that is the only place from which university reform can start, and if the clear thinking which ought to be associated with universities is applied to this question of post-graduate degrees and their values, then we ought to see some improvement both in the training given for such titles and in their real value.

ANNOUNCEMENT

INTERNATIONAL SYMPOSIUM ON EUROPE IN SPACE — THE MANNED SPACE SYSTEM

Europe faces a new era of technological, scientific and economic challenges. The symposium brings together and encourages a dialogue between confirmed and potential users, the designers, developers, and operators of the future European Manned Space System, politicians, and decision makers; explores the methods of obtaining the best possible results from manned missions and the intervention of man in orbit, as part of the peaceful exploitation of space in such disciplines as space science, remote sensing, life and material sciences. To achieve this, the symposium will provide information on the characteristics and capacities of the elements of the future European orbital infrastructure; present the

utilization scenarios foreseen for the individual orbital elements, together with the associated operational concepts; foster a fruitful exchange of views on the extent that the peaceful utilization of space can be achieved within the framework of international cooperation; discuss the role of Man in space; encourage the emergence of novel ideas and concepts.

The symposium will be held at the Palais de la Musique et des Congres, Strasbourg, France. Details can be had from N. Longdon, ESA Publications Division ESTEC, Postbus 299, 2200 AG, Noordwijk, The Netherlands.
