

decapod crustaceans and eventually became an authority on this subject. He contributed much to the taxonomy and zoogeography of the Far Eastern marine decapods (partly in collaboration with Professor J. A. Bierstein), but his most important achievement was to elucidate the natural history of the Kamchatka king crab (*Paralithodes kamtschatica*). Some of his findings, both biological and economical, were used as the basis of a successful crab fishery in the Far Eastern Seas. As well as his work on the crab, Vinogradov investigated the feeding grounds of bottom fishes during the Bering Sea Expedition in 1958-62, when with Dr A. A. Neyman he studied the bottom communities of the flatfish feeding grounds. In the Caspian Sea, Vinogradov investigated possible means of improving the trophic condition of fish involving, for example, the construction of high dams across the rivers and changes of sea level.

Because he was concerned chiefly with commercial fisheries, Vinogradov did a great deal of consulting and organizing work on all kinds of national and international committees. Outside biology his chief interest was philately.

Correspondence

Generalized Degrees

SIR,—The reports by Swann¹ and McCarthy² and the article by Pippard³ have raised the question of generalized degrees.

Whenever industry is discussed, it is rare to find any mention of agriculture and, in respect of generalized degrees, I am tempted to wonder how many people are familiar with the efforts already made in agricultural teaching at university level. I would therefore like to present a picture of the degree courses in agriculture at Reading, not because they are perfect or necessarily better than others, but because they are the outcome of several years of detailed study and because I think that in them we have solved some of the problems which are now being talked about.

Basically, there is a pass course starting with a preliminary year followed by parts I and II, and an honours course which starts with part I and goes on to part II and then part III. Thus each course lasts three years and parts I and II are identical for the two courses.

The advantage of the preliminary year, which consists of botany, chemistry, geology, physics and zoology, with exemptions from any subject which has been passed satisfactorily at A-level, is that it enables us to take students whose A-level subjects are not of the right kind or are not quite up to a certain standard. Thus a student with arts subjects is not debarred from this preliminary year. Another advantage is that, at the beginning of part I, the students who have taken the preliminary year are roughly similar in attainments to those taken into the part I course on the basis of A-level results.

The part I course, like all other "first year" courses at Reading, lasts two terms only, starting in October. The agriculture student studies four principal topics, namely, animals, plants, agricultural systems and economics, plus a course in statistics, and he is examined towards the end of the Easter vacation. Each of the four sections contains a great deal of applied science, but every item in the syllabus has been looked at in its relations to all the others.

Part II starts in the summer term and, being free from examinations in that term, the student has the full summer, autumn and lent terms for study and is practically free in the second summer term of the part II course to prepare for the second examination, which starts about

four weeks after the beginning of term. The four principal subjects studied in part II are crop production, animal production, management and economics and agricultural engineering, using the basic information of part I as a foundation. In all appropriate subjects there is a mixture of theoretical and practical work, the latter taking the form of laboratory and field work or both.

This structure forms the basis of the claim that the course is general and provides that mixture of sciences, applied sciences, economics and management which so many think is desirable. At this stage the pass student ends his course, with a good general knowledge of agriculture and a wide background of other subjects.

The student taking the honours course, and who has exactly the same background, now selects one of the four subjects which have formed the basis of his studies so far. Thus in part III he studies in greater depth the one "subject", although all specialists still study a group of subjects common to all options, namely, comparative agriculture, food and communications (use of library, etc.).

Students who take these courses are strongly motivated towards, and also have practical experience in, agriculture. Further, now that the course is so closely integrated, graduates are considered suitable not only for the obvious posts in agriculture and branches of agricultural technology but also for posts in market research and management consultancy and as management trainees in business organizations.

In addition to the courses specifically mentioned, Reading has highly specialized honours courses in agricultural botany, agricultural economics, physiology and biochemistry of farm animals and soil science; thus the faculty has a large staff of specialists who also teach their own discipline to the students of agriculture.

Planning these courses took several years of detailed discussion and brought together staff from all departments. This cooperation continues in boards of studies, each covering one of the four groups of subjects, and regular meetings of the chairmen of these boards also keep the whole degree under review and prevent unbalanced developments by one or other of the boards.

I do not wish to suggest that teachers in other subjects in other universities have not done similar things, but I felt it worthwhile to indicate that we think we have made some contribution which could be of help to those dealing with other subjects, and who are thinking of more generalized and more integrated degrees.

Yours faithfully,

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¹ *Rep. Working Group on Manpower for Scientific Growth*, Cmd. 3760 (HMSO, 1968).

² McCarthy, M. C., *Science Policy Study No. 3* (HMSO, 1968).

³ Pippard, A. B., *Nature*, **219**, 1307 (1968).

University News

Professor L. Cranby, University College of South Wales, Cardiff, has been appointed to the Sir Jesse Boot chair of organic chemistry in the **University of Nottingham**.

Dr A. H. Jarrett, Queen's University, Belfast, has been appointed director of the **Boyden Observatory** near Bloemfontein and professor of astronomy at the **University of the Orange Free State**.

Dr A. J. Willis, Bristol, has been appointed to the chair of botany in the **University of Sheffield**.

Mr J. Merriman, Post Office Telecommunications Headquarters, has been appointed as visiting professor in the Department of Electronic Science and Telecommunications in the **University of Strathclyde**.