

figure and letter symbols in place of orthodox nomenclature, at least within the species, are suggestive.

Training in taxonomy is now receiving more serious attention. The best approach is to teach the student to teach himself the practice of taxonomy, and to guide him to an understanding of the fundamental principles of classification. This double approach must be unified: principles become dogmas unless constantly applied to, and tested by, facts; merely to collect facts is to make bricks without building. Teaching in systematics must be mainly by practice, and the newer methods and outlooks considered in this address should be given prominence.

The potentialities of plant taxonomy are very great. Without classification no research is possible. Systematics is linked with all other branches of biology. Taxonomists desire to make their classifications more and more useful to all biologists. They work to serve and ask only for such recognition as they fairly deserve.

QUALITY IN AGRICULTURE

THE main theme of Prof. H. D. Kay's presidential address to Section M (Agriculture) is that the maintenance of a tolerable standard of living in Great Britain in the future will depend to an increasingly large extent on the quantity and quality of food that can be obtained from the limited home acreage. Though there is an appreciable area of poorer marginal land which, using modern methods of reclamation, could be brought into cultivation (though at considerable expense), it is clear that much more food per acre must be produced from the better land now being farmed. The average quality of British farming is far from poor; but there is still a considerable margin for improvement on most farms.

The official approach to this major problem—the important Agriculture Act of 1947 and the agricultural expansion programme of the same year—called for improved quantity and quality of products, and laid emphasis on better farm management and adequate application on the farm of the results of scientific and technological research. The agricultural expansion programme is an endeavour to meet the economic rather than the military vulnerability of Great Britain. It is a challenge, not so much to agricultural science as such, but to the science of getting existing knowledge applied as rapidly as possible to increasing the productivity of the large majority of the relatively small units of an inherently conservative industry.

The assessment of British farming quality and efficiency in terms of monetary values and profits has of recent years, in view of subsidies, other artificial fluctuations in financial returns and arbitrary changes in rates of exchange, lost much of its significance. Efficiency must now be measured in other terms. Production per acre of foodstuff of adequate quality, when compared against local or national standards of good husbandry, gives the basis for a better estimate, and one more in line with national needs, of the quality of the work of any given farmer, or group of farmers, and provides a standard for emulative effort.

Milk production is by far the most important of agricultural enterprises in Britain. At present, by whatever yardstick it is measured, production

efficiency varies very greatly from farm to farm. It is now possible to propose reasonably quantitative standards for assessment of quality in dairy farming. The average dairy farm in England and Wales, with a cow population of twelve to fourteen, should, by using modern scientific knowledge and up-to-date management methods, be able to carry double that population with no loss, but rather an increase, in yield per cow. This would allow, on such a farm, for one other competent worker as well as the farmer to be maintained and adequately paid. In an average year, such a farm could be made almost self-supporting, given the necessary fertilizers from without. In the product, good keeping quality, freedom from pathogens and high nutritional quality denote also the 'quality' dairy farmer. It is of particular importance to maintain high nutritional value of milk: payment for milk on compositional quality would assist in this desirable objective.

With the substantially increased yields of milk per cow and per acre that science has now placed within the grasp of the competent dairy farmer, the 2,000 million gallons of milk per year for the United Kingdom, which the nutritionist calls for to meet national minimum requirements for liquid milk consumption, could be produced from a very appreciably smaller acreage than is the 1,750 million gallons produced at present. A steady move in this direction, with a concentration of dairy cows into specialist herds, should progressively liberate more good-quality land both for the home-grown cereal expansion programme and for providing more and better quality beef and other animal products. Methods for improving the quantity and quality of pigs and poultry, using home-produced feeding-stuffs only, are now known, and new methods are being investigated. The possibility of producing fodder yeast in Colonial territories abroad for supplementing pig and poultry rations at home requires further consideration and large-scale experiment, which would be likely to benefit both home and Colonial economy.

In improving farming quality, one of the most important needs is to give the large and increasing number of scientifically and practically trained young agriculturists, who have, under present inflated price conditions, little or no prospect of being able either to purchase or rent a suitable holding, a real opportunity to farm for themselves. Modern farming demands to-day a high level of scientific training and practical skill in its entrants, and must become in fact, if not in name, a chartered profession for which the same careful and thorough preparation is required as for other nationally important professions. In future, some certificate of competence from a national registration authority should be required before a man (or a woman) is allowed to farm on any but a quite small scale. This principle has already been officially adopted for smallholders.

The most serious question in British agriculture to-day is how to introduce more rapidly into practice on the majority of farms the new knowledge that agricultural science has made available. Research is needed on the limiting factors which prevent the established results of agricultural research being sufficiently widely and effectively applied. The greater the extent to which, during the very near future, these recent findings of science can be applied to the general improvement of farming quality, the less hard will it go with the nation when the highly artificial and somewhat inglorious receipt of aid from abroad comes to an end.