

# NATURE

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## DEVELOPMENT OF COLONIAL TERRITORIES

THE many-sidedness and complexity of research in the overseas territories of Great Britain are well illustrated in the five annual reports recently published under the title "Colonial Research", a digest of which appears on p. 614 of this issue; but fears that such research is over-organised or centralized excessively should be dispelled by the whole tenor of these reports. In the report of the Colonial Research Committee, in particular, it is observed that it, and the specialist committees in their particular fields, are not to be regarded as the sole fount and origin of all projects of research, and that it would be unfortunate if their mere existence were in any way to inhibit initiative on the part of other agencies or individuals who may have in mind projects of potential interest or value. On the contrary, the Committee would cordially welcome proposals from any source, and will be glad to consider recommending financial assistance toward their execution. As the Colonial Research Committee rightly points out, the scientific needs of the Colonies are too wide and too complex to be made the preserve of any single organisation of committees, and initiative and interest in these fields cannot be too widespread.

It is in keeping with this, and with the further fact that many of the problems, as these reports well illustrate, are regional in scope, that there is already a marked tendency towards collaboration across not merely Colonial but also national frontiers. Such collaboration is increasingly tending to take place at the technical and scientific level, and this may well prove an important factor in promoting closer political understanding and co-operation. Moreover, a second point made by the Colonial Research Committee in this, its third, annual report is of importance in the same connexion. In many fields the problems to be solved at the present stage themselves require accurate identification and definition before they can be profitably investigated. The Committee is therefore disposed to favour projects which have as their immediate objective the exploration and identification of problems, rather than intensive investigations.

Such background research, which enables the scientific problems of the Colonies to be seen in proportion, and general research plans to be framed with some confidence that emphasis is being placed in accordance with actual needs, is, in the Committee's view, required in much greater measure than in the past. Pilot surveys and preliminary studies of this type are in fact no less suitable for co-operation on a regional basis than those intensive investigations on well-defined problems where the value of international co-operation has been so effectively demonstrated during the last three decades.

While the other reports do not discuss the wider aspects of Colonial research in quite the same way or in general terms, such aspects are clearly being kept in mind, as is shown, for example, by the incidental comment of the Colonial Products Research Council that the promising work of evaluating the

medicinal properties of many Colonial vegetable products would be gravely handicapped but for the ready co-operation of the Medical Research Council. Again, the general policy adopted by the Colonial Medical Research Committee of trying to obtain men with the initiative and originality necessary for good research, and encouraging them to choose their own problems and their own methods of approach, is well calculated to stimulate creative work of the standard most desired. The five reports, indeed, suggest that none of the Committees is unmindful of Rutherford's conviction that an academic atmosphere, with complete freedom to follow whatever paths of investigation seem desirable or necessary, is essential for progress in fundamental science.

Whether the Committees will be able to avoid, in present circumstances, what Rutherford regarded as such a grave mistake, namely, the tempting of men with high abilities for academic research into industrial or State laboratories, remains to be seen. Assuredly the most fruitful use of the available scientific man-power of Britain will tax the utmost wisdom of the administrator—be he man of science or layman—during the next decade, and the general attitude of these Research Committees as disclosed in these reports is reassuring. The matter is all the more important as the whole trend of Colonial developments, whether under the influence of the Trusteeship Council of the United Nations, or stimulated by such schemes as the plan for the production of ground-nuts in Tanganyika, Northern Rhodesia and Kenya resulting from an official mission to East Africa (Cmd. 7030. H.M. Stationery Office. February 1947. 1s. net), is likely to increase the demand both for research schemes and for scientific men in research and development work.

The high importance of this bold and comprehensive scheme for the development of backward territories must be stressed. Its potentialities for meeting the serious threat of famine which now faces East Africa, and to supply food, other than the fats primarily intended for the outside world, have attracted public attention to an extent which rather overshadows those aspects with which the scientific worker is more directly concerned. Even from the point of view of the difficulty which will be experienced in obtaining the staff and equipment required for success, it is important that the scheme should be carefully studied by men of science themselves. It is estimated, for example, that the permanent operation of the project will require about 750 Europeans, and this figure includes, in addition to unit managers and engineers, such specialists as surveyors, soil conservation experts, medical men and welfare superintendents as well as scientific staff. The project outlines a comprehensive research programme, both in regard to the use of land, and the human problems of nutrition.

The scheme is primarily intended to meet the critical shortage of oils and fats, amounting for Britain alone to an annual deficiency equivalent to one and a half million tons of ground-nuts; and although the present acute phase may have passed in four or five years, expert opinion predicts a con-

tinuing world shortage for the next ten to twenty years. The position can only be substantially improved by the most highly mechanized forms of agricultural development, and the scheme proposes to take a total area of 3,210,000 acres of waterless, almost uninhabited, fly-infested country, and convert it by mechanized units of 30,000 acres into a healthy farming region producing by 1950-51 a minimum of 600,000 tons of ground-nuts annually. Of the 107 units, eighty are proposed for Tanganyika Territory, seventeen for Northern Rhodesia and ten for Kenya. All the resources of modern scientific agriculture will be employed, and when the units have been brought into production, the farming operations will need a permanent labour force of 32,100 Africans, while at the peak of operations in 1949 and 1950, some 25,000 Africans will be required for bush-clearing alone.

This gigantic undertaking, with which the Government has already decided to proceed on the general lines recommended by the mission, is one of the most stirring examples of the contribution which science can make to human welfare. Apart from its importance in meeting the world's dietary needs of fats and the African need for subsistence, its economic and social effects are likely to be far-reaching. Local plans for development and welfare will be aided by the mass production of ground-nuts, particularly in regard to the clearing of tsetse-infested bush and the control of sleeping sickness, the establishment of water-supplies, the improvement of communications, and the provision of an economic foundation for social advance.

The latter aspect merits a little more detailed consideration. Reflecting the broader tendencies of modern thought, the project rules out private enterprise as permanent owners or operators. The United Africa Co., which is undertaking the initial work, will be replaced by a public corporation sponsored and financed by the British Government, but with provision for the project to be taken over ultimately, first by the local Governments and eventually by the African communities themselves. Incidentally, the project paves the way for the eventual institution of the co-operative use of land, and it is this emphasis on the community rather than the transformation from primitive to scientific methods of cultivation that marks the truly revolutionary character of the scheme.

What has been lacking in most of the development and welfare schemes for the Colonial territories under the 1940 Act is evidence that development will proceed fast enough for the Colonies to carry their own burden of social services in the near future. Generally, the Colonies are being encouraged to plan for a higher standard of living before it is clear whether they will be able to maintain it. The danger is most apparent in the West Indies; but the present scheme, which involves a capital expenditure of about £24,000,000 spread over six years, well illustrates what is needed in order to raise standards of living.

The decision of the British Government to accept the financial risks of this scheme removes the main difficulty of securing the greater capital investment

needed in the majority of development and welfare schemes, and while the scheme is as financially sound as expert foresight can make it, the reservation that agricultural development on the scale and of the type contemplated in the mission's report has not been attempted hitherto in tropical countries adds to, rather than subtracts from, the credit due to the Colonial Office for its initiative. Moreover, the scheme is only one of several measures taken by the Government. A public utility company has been formed to take over the whole of the electricity supply of Nigeria, and the Cameroons Development Corporation will cultivate 250,000 acres on a communal basis, growing rubber, bananas and oil-palms, while all mineral rights in the Colonies are to be nationalized.

This plan for East and Central Africa is thus an example of the kind of work which the Colonial Office will be called upon to undertake in increasing measure in the scientific and concurrent pursuit of the twin aims of development and welfare. Coming at a time when the Trusteeship Council of the United Nations has commenced its task of ensuring the progressive advancement of the many millions of non-self-governing peoples inhabiting the trustee territories, it indicates that, in the Colonial revolution now proceeding, Great Britain will be in the van of progress, and that neither boldness nor imagination will be lacking from her administration of dependent territories. The dual mandate conception of Lord Lugard has entered on a further phase, and one in which the contribution of science will be of growing importance.

This is brought out specifically in two sections of the report itself. Observing that the opportunity which the project provides for introducing measures for the prevention of disease and for desirable standards of nutrition, the report urges that the possibilities should be brought to the notice of the Medical Research Council and its Human Nutrition Research Unit. Similarly, the Colonial Social Science Research Council may wish to consider the wider implications of the project, while the report envisages the creation, at the outset, of a research section of the undertaking, and in accepting the scheme the Government slightly increased the provision for central administration and research installations. The primary task of the research section in the earlier years will be to conduct research and trials to facilitate the maximum economic production of ground-nuts by the use of liming materials, fertilizers, suitable varieties, methods of soil conservation and rotation, and for the control of disease. This work can be planned in such a way as to provide basic data on problems of soil crops in East Africa, thus aiding research on these problems undertaken in the East African Agricultural Departments and at the Central Research Station for East Africa at Amani.

In later years, work in these fields will be extended to include more fundamental aspects. Studies of the production of other food crops, for example, should be linked with nutritional studies and planning, if the project is to make its fullest contribution to the solution of African problems. Veterinary problems

will arise as control of the tsetse fly makes possible the introduction of animal husbandry, while, as social and economic research and planning become important, the investigation of natural resources and power supplies for industrial development would follow.

The scientific programme contemplated for the first two years includes meteorology, soil fertility studies, soil survey and mapping, crop disease survey and variety testing. A central meteorological station will be required at each main centre, and appointment of an entomologist with ecological training for study of the tsetse fly, especially in relation to bush clearance and other problems, is desirable. A pathological laboratory will be necessary for the medical service, and a nutrition adviser should be appointed, as well as a statistician and a soil chemist, competent, in conjunction with the surveying of the units, to carry out the mapping of the main soil types in the areas concerned.

For the third year the programme envisages the continuance of fertilizer work and study of the effect of incorporating humus and of conservation work on the moisture content of the soil, as well as experiments on crop rotations, including studies of the fate of nutrient elements in the soil, particularly nitrogen. The testing of alternative fertilizer materials and methods of application; the suitability of local materials for fertilizer manufacture and other industrial purposes; the investigation of water conservation problems, including drainage, on a 'geographical' scale; positive programmes of plant-breeding for resistance to disease and yield of oil; and the acclimatization of new crops, particularly of fruit and vegetables, are other directions in which research is regarded as likely to yield results of value to East Africa as a whole. In the veterinary field, studies of cattle nutrition are contemplated, and pasture studies should develop from the botanical survey of the earlier years.

This programme indicates the fundamental importance of the contribution of science to the success of the scheme, and on that ground alone the proposals and the report formulating them merit careful study by scientific workers concerned with these fields. Beyond this and beyond the importance of co-operation between men of science and scientific departments in many fields—the Rhodes—Livingstone Institute, as well as the Colonial Research Committee, the Medical Research Council and several Government Departments are all in a position to make invaluable and indispensable contributions—there is the great human interest which is attached to this experiment in human welfare. It is a programme the implications of which reach far beyond the Colonial field itself, and may provide a demonstration of the power of science to contribute to the improvement of standards of living and to increase the resources of mankind. It may open up increasing possibilities in the use of science for the welfare and not the destruction of mankind, and the fulfilment of the hopes which the vision and imagination of such schemes as the Tennessee Valley Authority and the Food and Agriculture Organisation of the United Nations have already raised.