

NATURE

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ANGLO-AMERICAN CO-OPERATION IN COLONIAL DEVELOPMENT 5246

THE developments in the campaign against the tsetse fly in Central Africa, and the recently published report of the Commission of Enquiry into the Swollen Shoot Disease of Cacao in the Gold Coast (see *Nature*, January 15 and 22, and February 19) have emphasized the importance of the contribution which science has to make to the health and development of the backward territories, and through them to human welfare generally. Furthermore, the very nature of the latter Commission, consisting as it did of scientific men selected from a list prepared by the United Nations Food and Agriculture Organisation, demonstrates the value of international co-operation in this field; and especially of regional developments, such as the conferences with the French, Belgian and Portuguese Governments, and the discussions with the French Government and other associated Governments on the possibility of co-operation in development schemes to which the Colonial Secretary, Mr. Creech Jones, referred in a House of Commons debate on Colonial affairs last July. Mr. Creech Jones clearly recognized that in such areas as West and Central Africa, co-operation between these Powers in tackling the fundamental problems of Colonial development is all-important.

The fourth proposal made by President Truman in his inaugural speech on January 20, namely, that the United States should embark on a bold new programme for making the benefits of her scientific advances and industrial progress available for the improvement and growth of under-developed areas, will therefore be widely welcomed. Mr. Truman said:

"More than half the peoples of the world are living in conditions approaching misery. Their food is inadequate. They are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas. For the first time in history humanity possesses the knowledge and skill to relieve the suffering of these peoples.

"The United States is pre-eminent among nations in the development of industrial and scientific techniques. The material resources which we can afford to use for the assistance of other peoples are limited. But our imponderable resources in technical knowledge are constantly growing and are inexhaustible. I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge . . . and in co-operation with other nations, we should foster capital investment in areas needing development. Our aim should be to help the free peoples of the world, through their own efforts, to produce more food, more clothing, more materials for housing and more mechanical power to lighten their burdens. We invite other countries to pool their technological resources in this undertaking. Greater production is the key to prosperity and peace. And the key to greater production is a wider, more vigorous application of modern scientific and technical knowledge."

This invitation to a co-operative enterprise in which all nations work together through the United Nations and its specialized agencies, wherever practicable, could scarcely have been issued unless there lay behind it the draft of a project in which ways and means are dealt with in considerable detail. It is true that President Truman linked this proposal with the continuance of support of the United Nations and of the European Recovery Programme as well as with the support of freedom-loving nations against aggression by regional pacts, such as those embodied in the treaty of Rio de Janeiro or at present being worked out for the North Atlantic Area. Nevertheless, it is not easy, even with the precedent of the Colonial Development Corporation before us, to visualize the exact means by which this idea of co-operative capital development can be made to work.

Capital investment is admittedly one of the fundamental needs of the backward areas; but even if the proposal means that the United States are prepared to take over the role of leadership in this century which Britain filled in the last, the task is immensely more complicated. Against the greater advantages and resources for human welfare which science and technology have given us to command, there have to be set the growth of nationalism and the extent to which the expectations of the under-privileged everywhere have been magnifying the standards achieved in more prosperous countries. Even without the existence in Communism of a political force which not only makes these aspirations articulate but also may confuse the issues to support a rival bid for world leadership, the task of reconciling opposing, or apparently opposed, interests will be far from easy. The report of the Commission of Enquiry into the Swollen Shoot Disease of Cacao in the Gold Coast provides sufficient illustration of the way such considerations may intrude on a purely scientific or technical problem.

Mr. Truman's statement was warmly welcomed by the Foreign Secretary, Mr. Bevin, in his speech to the Foreign Press Association on January 25. Mr. Bevin thought that all the Powers responsible for overseas territories would throw into the pool all the knowledge, ability and resources they had at their command. Successive Colonial Secretaries have already made plain the readiness of Britain to associate herself with schemes of regional development in the Caribbean, Africa and elsewhere, while at the same time dissociating themselves from any idea of international government. Discussions, in fact, have already taken place in Paris on the possibility of closer economic co-operation between France and Great Britain in their Colonial territories.

Unfortunately, the Trusteeship Council of the United Nations has so far conspicuously failed to win the respect accorded by the Colonial as well as the Mandatory Powers to the Permanent Mandates Commission of the League of Nations. Time will be required to dispel the suspicion that the new Council is being used mainly as a sounding board for irresponsible and destructive criticism and not as an organ of co-operation. Meanwhile, quite apart from

the fact that the whole trend of President Truman's statement indicates that he is prepared to use other agencies where the specialized agencies of the United Nations are ineffective, there has already been demonstrated a growing measure of international co-operation in the scientific and technical field, and it is on this field that President Truman laid particular stress. No such obstacles as may beset the proposition for co-operative capital development, with the necessity for dovetailing such projects very carefully with the demands made under the Marshall Plan, need hinder the spread of technical knowledge in these undeveloped areas.

That in itself is a long-term project which will require time for fruition. There are, however, various ways in which the United States could probably render immediate and direct assistance. Thus it could share its own pre-eminent development of industrial and scientific techniques at no great cost by broadening the facilities offered to students of all nations to study in the universities and technical institutes of the United States. This would do much more than simply ease the great strain placed on the over-crowded universities of Great Britain through the admission of increased numbers of overseas students and co-operation in the development of the new universities throughout the Colonial Empire. The students may be expected to carry back to their own lands both knowledge and also an enduring appreciation of the American way of life.

Whether such help is given in the form of men and women, or of space in educational institutions, or of finance—and in few fields could a relatively small financial outlay bring such a large return—it can only be welcomed by Britain and other Colonial Powers. At first, indeed, it can only be on a small scale, for students well equipped to profit by the opportunity will not easily be found until education has further advanced in the African and other backward territories concerned. Some part of the American effort might accordingly take the alternative form of assisting educational enterprises in lands that have not the resources to break the fetters of illiteracy for themselves.

Significantly enough in this connexion, it may be recalled that the Colonial Office has already asked the United States Economic Co-operation Administration whether American men of science and technicians could fill posts in the Colonial Geological Survey and the Colonial Geodetic and Topographical Survey until the recruiting position caused by the gap in training during the war years improves. The vacancies are for reconnaissance work required before new areas can be opened up for mineral and other development, and the recruitment of some fifty Americans in this way would be a notable step in the pooling of experience. It would be a manifestation of Anglo-American partnership in service which might well contribute to the spread of Anglo-American ideas and principles in a way comparable to the permeation of Indian thought in the last century by the ideas of British educationists.

President Truman's proposal should give a further stimulus to the zeal and enthusiasm lying behind

some of the striking achievements of science and technology, which are opening up new opportunities for human welfare and economic development in Africa, and to the international and regional co-operation required to realize those possibilities. It should be remembered that, more than a year ago, in a speech in the House of Commons on January 22, 1948, the Foreign Secretary linked the development of the backward areas with the economic recovery of Western Europe. The imaginative passage in which Mr. Bevin urged the closest possible collaboration between the British Commonwealth and French, Dutch, Belgian and Portuguese as well as British overseas territories, should be set beside Mr. Truman's recent proposal.

Neither Mr. Truman nor Mr. Bevin pursued the idea into any detail. Mr. Bevin was content to emphasize that there is no inherent conflict between the social and economic development of these overseas territories to the advantage of their peoples and their development as a source of supplies for Western Europe and a contributor to the balance of payments. President Truman has clearly responded to this vision of the tremendous resources of the Middle East, Africa and the Far East being brought together, with European and American resources, for the purpose of making the whole world richer and safer. The significance of his proposal lies less in its novelty than in the evidence of American response to a challenge for economic and social planning on a bolder and more imaginative scale than the world has yet seen.

possible to assess what has been achieved and to speculate on future developments.

In the first place one is struck by some unusual, if not unique, facts about this new subject. There is, for example, the remarkable feature that it owes its development almost entirely to one man in Europe and to a large number of able investigators in America. This is reflected in the authorship of these books, which comprises G. Hevesy and thirty-one North American contributors. In the case of the radioactive isotopes, this feature may also be looked upon as a reflexion of the distribution of usable cyclotrons during the war years. Whatever truth there may be in this, it must be a cause of general satisfaction that the initial period of unequal opportunity is practically at an end and that isotopes are now within the reach of almost everyone.

It is also doubtful whether any other subject of present or past popularity can lay claim to such a wide audience. Listed among the contributors to these volumes are physicists, chemists, biochemists, physiologists, physicians and radiotherapists, each of considerable eminence in his own subject. In the case of the symposium held at Wisconsin, many of these were brought together in harmony around the same conference table, which is no ordinary occurrence in this specialized age.

Surveying some of the achievements, there is in the medical field the rapid estimation of thyroid efficiency, the location of extra-glandular thyroid tissue and the therapeutic destruction of malignant tissue whether in the gland or in functional secondaries, all by the use of radioactive iodine. This field is conservatively reviewed by I. L. Chaikoff, A. Taurog, S. Hertz and C. P. Leblond. Hevesy and P. F. Hahn set out the satisfying story of the conservation of iron in the body, particularly in relation to the life-span of the erythrocyte. The metabolism of compounds of nitrogen and carbon is reviewed by B. Vennesland and of proteins by D. B. Sprinson. Without detracting from the outstanding merit of their articles, the omission of D. Rittenberg's name from the list of contributors will not pass unnoticed. Much of his earlier work in association with R. Schoenheimer is dealt with in an article of excellent historical perspective by Hans Clarke. H. G. Wood writes on carbohydrate metabolism, whether studied indirectly with radiophosphorus or directly with carbon and deuterium. He makes no claim to completeness, and in this he has clearly been wise, since the prevailing enthusiasm for this field of work is such that in the interval since the article was written there has appeared little short of an avalanche of papers.

We owe to Hevesy more than to anyone the important conception of turnover-time, which shows signs of furnishing the basis for an entirely new point of view in biochemistry. His method of determining it, to take the case of phosphorus compounds as an illustration, is to maintain constant the specific isotopic activity of plasma phosphate and to compare it with the specific activity of the tissue compound at the end of an interval which is short in relation to the time required for complete renewal. This is the experimental basis of his statement (p. 279) that 20 per cent of the lecithin in rat liver is renewed every four hours. He fully recognizes that the value will be affected if the specific activity of intracellular inorganic phosphorus is not the same as that of plasma inorganic phosphate; in other words, the permeability of the cell membrane affects turnover time as determined by his method. However, it was

2716 ISOTOPES IN BIOLOGY AND MEDICINE

A Symposium on the Use of Isotopes in Biology and Medicine

Contributors: Hans T. Clarke, Harold C. Urey, Glenn T. Seaborg, Paul C. Aebersold, Alfred O. Nier, Charles D. Cory, Martin D. Kamen, Donald B. Melville, David B. Sprinson, Harland G. Wood, Konrad Bloch, David M. Greenberg, I. L. Chaikoff, Joseph G. Hamilton, Byron E. Hall, Saul Hertz, William F. Bale, James J. Nickson, Farrington Daniels. Pp. xiv+445. (Madison, Wis.: University of Wisconsin Press, 1948.) 5 dollars.

Advances in Biological and Medical Physics

Edited by John H. Lawrence and Joseph G. Hamilton. Vol. 1. Pp. xi+484. (New York: Academic Press, Inc.; London: H. K. Lewis and Co., Ltd., 1948.) 8.60 dollars.

Radioactive Indicators

Their Application in Biochemistry, Animal Physiology, and Pathology. By George Hevesy. Pp. xvi+556. (New York and London: Interscience Publishers, Inc., 1948.) 60s.

THESE three comprehensive volumes dealing with biological and medical applications of isotopes appear within a few months of each other, and mark a milestone in the subject. The rate of development in this field has been so rapid that the opportunity has scarcely arisen to take stock of progress. With their appearance a panoramic view of the literature is provided, with the help of which it becomes