

NOT FOR PUBLICATION

INSTITUTE OF CURRENT WORLD AFFAIRS

CHGO-24
Science, Industrial Research,
and Government in Malaysia

27 Lugard Road,
The Peak,
Hong Kong.

March 28, 1964.

Mr. R.H. Nolte,
Institute of Current World Affairs,
366 Madison Avenue,
New York 17, N.Y..

Dear Mr. Nolte,

Malaysia is one of the few countries in Asia which has no national science policy-making body, no national research council, nor any other form of science council. There is no organization through which the country can adhere to the International Council of Scientific Unions (ICSU) and thus formally partake in international scientific activities. Malaysia was one of the very few U.N. member countries which sent no representative to the United Nations' UNCSAT conference in Geneva last year. On the other hand Malaysia is one of the most prosperous of Asian countries.

This state of affairs is in marked contrast to the experience of most countries in the world. The general rule appears to be that the more developed the country, the greater the sophistication of the organization of science, and the greater the percentage of the gross national product spent on scientific research. During the two weeks I spent in Singapore and Malaya recently, I made enquiries about the background and reasons for this conflicting situation. Although I did not visit the other Malaysian territories of Sabah and Sarawak I was told there was little or no scientific research in either place.

Early scientific work in Malaya and Singapore followed the usual British colonial pattern of individual projects within different government departments. There was no overall co-ordination or planning. (This is in marked contrast to the American colonial pattern of a centralized Bureau of Science in the Philippines). Some of this early work was of a very high standard. For example, the Pathological Institute in Kuala Lumpur, founded in 1900, has become renowned for its scientific research on tropical diseases, particularly malaria and beri-beri. The present Geological Survey began as the Geologists' Office, Federated Malay States, as early as 1903. By the end of the first world war there was some scientific research also going on in the Botanic Gardens, and Departments of Forestry, Museums, and Agriculture. This work was gradually expanded, particularly in the years after the second world war, so that at the time of Malayan independence in 1957, there were fourteen government departments engaged in scientific research.* In addition

* The Departments of Agriculture; Forestry; Botanical Gardens; Drainage and Irrigation; Veterinary; Fisheries; Geological Survey; Mines; Medicine; Chemistry; Public Works; Meteorology; Statistics; and Museums.

a quasi-governmental organization, the Rubber Research Institute, was established in 1925. This Institute has undertaken very valuable research in all aspects of the agricultural production of natural rubber, the processing of latex and the preparation of rubber for export. It is financed by a tax on rubber produced and exported from Malaya.

University research in Malaysia is of recent origin because the University of Malaya was not founded until 1949. At first it was located in Singapore, but in 1959 it split into two divisions, one in Singapore, the other in Kuala Lumpur. These are now two independent universities. Both have active science faculties with departments which do research.

There is also a Pineapple Research Station and three Commonwealth organizations which conduct research in Malaysia. The latter are a Freshwater Fish Culture Research Institute in Malacca (with a nominal annual contribution from the Malaysian Government of M\$11,000); a research project by Royal Engineers on deterioration of vehicles and equipment stored and used in humid tropical conditions; and a radio research and satellite tracking station operated as a substation of the Department of Scientific and Industrial Research in the U.K.

Industrial research is non-existent in the Federation (the old Malaya) but has recently been started in Singapore. The Industrial Research Unit in Singapore is based on the Industrial Research Department at the University of Canterbury, New Zealand. Its purpose is to provide solutions to day-to-day problems met with by industry, rather than to tackle long range research problems. New Zealand provided the equipment, the services of two experts to start the Unit, and has provided Colombo Plan fellowships to train scientists and engineers from Singapore in Canterbury. The Government of Singapore provided floor area in the new workshop block of the Polytechnic. The Unit came into operation a few months ago, and it is still too early to assess its value to Singapore industry.

In neither the Federation nor Singapore is there any central co-ordinating or advisory body which formulates scientific policy. Although here again Singapore has moved slightly out in front by virtue of the recent appointment of a full time science advisor to the dynamic and personable Minister for Finance, Dr. Goh Keng Swee.

The earliest attempts by a group of government and university scientists to form an advisory and co-ordinating body led to the creation in 1953 of the Pan Malayan Scientific Advisory Council. Its terms of reference were "To promote the spread of scientific information, to advise on scientific problems relating to Malaya, and to advise on and assist in the co-ordination and financing of scientific research with power to receive and administer endowments, donations and grants."

The Scientific Advisory Council was made up of a central committee and six technical committees, with the Chancellor of the

University of Malaya as president. There were 77 members of the Council. The various committees held several meetings, but according to all reports, the Council was remarkably ineffective. It became defunct in 1957. The most frequent answer to my query as to why it did not work was that the administrative side of the Government refused to take any notice of its suggestions. "Government did not want to be advised," I was told. Also the Council had no legal constitution as a corporate body and had no real executive authority. The similarities between the problems of this body and those facing the Hong Kong Committee for Scientific Co-ordination are most marked.

The need for industrial research was mentioned in a report published in 1955 by a mission organized by the International Bank for Reconstruction and Development. The report suggested that the scope for quick rewards from industrial research was greater in Malaya than in most of the less developed countries since Malaya possesses a considerable entrepreneurial class with the interest, initiative, and capital to put research findings to practical use.

As a follow up to this report, Dr. Francis Godwin visited Singapore and Malaya under the joint sponsorship of the Governments of both places. Dr. Godwin, who had successfully launched an industrial research institute in Ceylon, spent three weeks in the area in 1957. His report recommended that a Pan Malayan institute of scientific and industrial research be established to serve both Singapore and Malaya. There appear to have been strong objections in some quarters to the proposals in the Godwin report. I was unable to determine the real reasons for this, although it was clearly felt by some that the industrial research institute was only a part of the much broader problem of the whole future development and organization of science in Malaya.

Therefore in 1960 another expert was invited to survey science in Malaya and make recommendations about the needs for industrial research. This expert, Dr. L.A. Jordon, spent three months in Malaya under U.N. auspices. His report is considered highly confidential (why, I don't know) but I gathered that his recommendations went beyond those for just an industrial research institute. In essence Jordan proposed the formation of a science council which would act as the scientific policy making body and advisory group to the government and at the same time be the supervisory council of a department of scientific and industrial research. The latter department would consist of an industrial research institute, together with a testing and standards laboratory. It would include the present Department of Chemistry which would become the national chemical laboratory, and would eventually include a national physical laboratory. His report related only to Malaya. Singapore apparently decided to proceed independently with its own research plans, and in 1960, invited Professor T.R. Pollard from New Zealand to study Singapore's industrial research needs. His recommendations led to the setting up of the Industrial Research Unit which is now fully operational.

The next stage in Malaya was the setting up of a working

party to consider the Jordon report. This working party has been meeting for over two and a half years. It held one of its meetings during my visit to Kuala Lumpur and I was told that its recommendations are now ready for presentation to the Cabinet. The working party has rejected many of the Jordon recommendations, at least for the time being. It has rejected the idea of a science council, rejected the idea of a national chemical laboratory, and rejected the idea of a national physical laboratory. It is agreed in principle that an applied research institute be established, particularly to look for industrial uses of local raw materials. In addition the ideas of a standards laboratory and a testing laboratory are also approved. The working party decided the idea of a science council should be studied by another working party.

Thus nine years after the Bank of Reconstruction and Development's report, the Malaysian Government has agreed "in principle" to what was one of the Bank's main recommendations.

In the meantime there has been created a small government committee made up of heads of scientific departments which is called the Scientific Services Advisory Committee. This has, on a few occasions, been called upon to give advice to the Government on scientific matters. There has also been formed quite recently a committee of natural scientists to advise on a natural resources survey.

"But," I kept asking, "Why has it taken so long, what are the reasons for the hold-ups? Why has it taken two and a half years to deliberate over the Jordon report? Why was the idea of a science council rejected, why was no representative sent to UNCSAT? Why does the Government spend so little on scientific research?" Clearly there can be no single factor which provides an answer to these questions, but it is instructive to look at some of the answers I did receive.

It was suggested by several scientists that one of the biggest single stumbling blocks was the fact that government officials were Arts graduates who did not understand science. Like many people they are afraid of what they do not understand and hence resist the encroachment of science and scientists into government.

This is not a problem unique to British colonies (past and present) but it does appear to be particularly pronounced in these places. An interesting reason for this can be found in the attitude of the British public schools to science during the latter part of the Nineteenth and early part of the Twentieth Centuries. It was the ex-public schoolboys who, almost without exception, staffed the British colonial secretariats around the world. They had been schooled in a tradition which rejected science as an intellectual pursuit, and which bitterly fought to exclude science from the school curriculum. Testifying before a Royal Commission on science education in the 1870's the headmaster of Winchester said, "I will give prizes for collections of wild flowers but as

for chemistry and physics, we have no time." Using the same arguments that were being used in China, at exactly the same time, the public schools and the conservative Chinese resisted the encroachment of science by saying, "The only true education is the education in the classics." (It is interesting to note that the Chinese introduced mathematics and physics into their civil service examination system about a decade before the British introduced it into their civil service examinations.) The result was that the colonial administrators had no understanding of science and no real appreciation of the role of science in development.

The same tradition continues today in Kuala Lumpur, complicated by the present requirement that four-fifths of all government posts be filled by Malays (the other fifth can be filled by other Malaysians, who are primarily of Chinese and Indian extraction). A university degree is also required for senior government posts. Malays are notoriously weak in science having until recently, no opportunity to study the subject in the vernacular in their schools. As a consequence nearly all Malays study Arts subjects at the University, most of them preferring "Malay Studies", reputedly because this is the easiest way to get a degree and in this way be eligible for government service. Thus the system of mainly Arts graduates entering government service is perpetuated.

One senior scientist, explaining why he thought the efforts to form a science council had failed, said, "It's largely the result of bureaucracy. The Department of Commerce and Industry want to control industrial research. If they had agreed to a science council which acted as the supervisory body of a department of scientific and industrial research, it would have meant Commerce and Industry losing control. This they were unwilling to do."

Dr. Alexander, Director of the Geological Survey, has been the chief proponent of a science council. "This should come first," he said, "Then its technical committees could consider the relative needs and merits of agricultural, industrial, and medical research." But the working party considering the Jordon report rejected this on the grounds they were a Department of Commerce and Industry working party, and could only consider matters relating to their Department.

Another factor which I was told had hindered the development of science in recent years was the attitude of the remaining expatriates. There are now only about 200 left, and only a few of these are in scientific jobs. Most of these will have gone by the end of next year. But many hold positions of responsibility, and for the past year or so have, quite understandably, been concerned with maintaining a status quo situation until their Malaysian counterparts are ready to take over. The exception to this perhaps, is the Director of the Geological Survey who thinks it will be several years before the Survey can be effectively run by Malaysians. In fact he had several colourful charts on the walls of his office, which at first I took to be geological cross-sections showing crustal thickness variations across Malaya. Closer inspection showed they were

diagrams illustrating the combined years of experience of expatriates in geology in Malaya, compared with years of experience of Malaysians, both plotted as a function of year. The trends were continued showing the date when it would be least disruptive to change over to all Malaysian geologists.

Most Malaysian scientists had not heard of the United Nations conference on the applications of science and technology for the benefit of the less developed areas (UNCSAT). And it was a long time before I was able to get an answer as to why Malaysia was not represented. It turned out to have been a decision by an economist who told me, "There are 600 international conferences to which we are invited to send delegates every year. We first of all select those to which we must send somebody, such as ECAFE meetings and other regional conferences. Then we choose the ones which we think will be most beneficial to the country." In his estimation the UNCSAT conference did not rank sufficiently high to warrant a Malaysian delegation.

Malaysia is slowly advancing to join the more scientifically developed countries in the world, but the speed is too slow for many Malaysian scientists. Greater speed in applying science for the country's development would seem necessary in view of the rather drastic fall in the price of natural rubber and the consequent need for diversification and industrialization. Perhaps the new Industrial Research Institute will be the needed catalyst.

Yours sincerely,

C.H.G. Oldham

C.H.G. Oldham.