

INSTITUTE OF CURRENT WORLD AFFAIRS

CHGO-20  
Science in Asia:  
An Introduction

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Mr. R.H. Nolte,  
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Dear Mr. Nolte,

I am about to embark on a study of scientific development in Asia. In order to explain why I consider this is important it is first necessary to state the main arguments in support of the less developed countries developing an indigenous science. Only when the importance of this has been established can the value of a knowledge of the present status of scientific development be appreciated.

At the present time the first and most important reason why all countries should have their own science is because science and technology play a major role in economic development. Some people argue that there is so much known technology in the world that newly developing countries can buy everything they need without the necessity and expense of developing their own science. This idea is only partially correct. Experience over the last fifteen years has shown that scientists and engineers are needed to help their governments make the right choice on which technologies to buy. Then they are needed to adapt them to local conditions, and finally they must do applied research to solve local problems.

The other reasons are not so obvious and are harder to articulate. They are extremely important however, and in the long run may prove to be as important as the applications for economic development.

In the first place there are the social changes which are likely to follow the general teaching and understanding of science. Caryl Haskins has pointed out the tremendous social changes which took place in Elizabethan Britain as a result of the philosophical implications of Newton's work. Not only did these implications affect the leading scholars of the day, but during forty years the whole way of thinking of the entire society went through a revolutionary change. For the first time, fact was distinguished from superstition, faith, and intuition, and the consequences were profound. An indigenous science would expose most people in the newly developing countries to the basic concepts of science for the first time. Just as in Elizabethan Britain, old beliefs and superstitions are bound to be shattered -- hopefully for the good. Some of the leaders of the new countries realize this, the late Reverend

Solomon Caulker of Sierre Leone, said at the 1960 Rehovoth Conference on Science and the New States, "What we want from science is not prestige projects but the answer to the witch doctor".

A personal example will help to illustrate this point. About a year ago, our wash amah had a baby boy -- a consequence of Chinese New Year spent with her husband and family near Canton. The amah's mother arrived to help look after the baby and all three of them lived in our house. One night when the baby was six months old, he fell out of bed and hit his head on the concrete floor. A week later the amah mentioned the incident to us saying, "Look Missy, baby got hole in head". Sure enough, there was an indentation the size of a thumbprint in the scalp above one ear. But the baby was bright and cheerful and apparently unaffected by the injury, and the amah did not intend to do anything about it. Brenda insisted on taking them to see a doctor. X-rays were taken and the skull was found to be fractured. The Chinese doctors at the hospital admitted the baby to a bed and said he must have an operation. The amah refused. The doctors pointed out that without an operation it was likely that in a few months or even years, the baby might suffer permanent brain damage. It was to no avail. Brenda suggested she leave the baby in hospital and come home to discuss the matter with her mother and the other amah. But the grandmother was equally adamant, and although the cook amah was in favour of an operation, the mother could not be swayed. The baby was brought home.

The reasons given for not allowing the operation were understandable. In the past, any illness in the amah's village near Canton had been treated by Chinese traditional medicine. Only when this had failed and the patient was clearly about to die would he be sent off to the nearest hospital to be treated with Western medicine. It was frequently too late and the patient died. Therefore to the villagers, Western medical practice had a much lower success ratio than traditional Chinese medicine. It being forgotten that Western medicine was tried only when traditional medicine had clearly failed. The amah was also influenced by the fact that her baby cried when left in the hospital bed, but this was very understandable because he was used to spending his waking hours on his grandmother's back. Money was not a consideration. The cost of medical treatment given by the Government is nominal for poor Chinese in Hong Kong. The cost of the full day's attention for the baby, including x-rays, was only U.S. 20¢.

Afterwards the baby was taken to a Chinese traditional doctor who prescribed a treatment of herbs, and the total cost of this was the equivalent of U.S. \$20. Several weeks later, the old mother had a severe bout of stomach 'flu'. It was then decided that the Fung-Shoei (wind and water) of our house was bad for them (i.e. it was an unlucky house) and the grandmother and baby moved down to a part of a room in a crowded tenement building in Kowloon. The amah is still with us and sees the baby once a week on her day off. After six months he is still alright, and we sincerely hope he will continue to be so.

I mention this incident in some detail because it brought home to us in a sadly personal way, the tremendous importance of education and particularly science education, not just for a few, but for everyone. Hospitals and doctors are of little use if people will not make proper use of them.

Another reason for developing an indigenous science is that by contributing to the world store-house of knowledge a country will gain in self-respect and national prestige. This objective is often criticised on the grounds that questions of prestige and self-respect are unimportant compared with economic development. People who support this view argue that a country's scientific resources should all be concentrated on development. There is a great deal of sense in this argument. But to many members of the less developed countries, one of the first tasks is to establish national unity (and therefore stability) and for this, self-respect and national prestige are important. Science is such a major part of the modern world that without an indigenous science the new nations are bound to lose self-respect. Conversely, contributions to knowledge will enhance national prestige. Clearly, these contributions should be on a modest scale at first. A compromise has to be reached between the extremes of nuclear reactors on the one hand, and nothing, on the other.

A fourth reason why a country should have an indigenous science is that science impinges on so many policy decisions that governments need sound scientific advice. Without a pool of competent scientists to draw upon, the government will find it difficult to get this advice.

A fifth reason in support of indigenous science stems from the fact that the language of science is the same throughout the world. Scientists from all countries communicate on equal terms. A major non-scientific achievement of the International Geophysical Year was the demonstration that men of nearly all countries could work together harmoniously despite differences of political beliefs. If a country does not have an indigenous science it will be unable to participate in these international ventures, and it will be cut off from one of the major forces for promoting understanding and co-operation.

For these reasons the newly developing countries should begin to nurture indigenous science. For the same reasons the developed countries should help them in their task. The most immediately important and obvious help -- aid in the form of known technology -- must be provided by governments. But other forms of aid can be provided by the individual scientists of the more developed countries. Those free to choose their own research topics can help by choosing topics which, if successfully solved, will benefit the less developed countries. But also through their national and international scientific societies, academies, and unions, scientists can foster the growth of science in newly developing countries.

Before aid can be wisely given or wisely administered, it is necessary to know the facts about the present status of science in newly developing countries. The OECD has published a few reports on science in its member countries, but I know of nothing comparable for the less developed countries. It was with these thoughts in mind that I decided to select several countries in different stages of economic development in Asia and in each study the status of science and its impact on the society.

The first part of the study will be to collect facts and statistics about the organization of science, scientific policies, science and education, technical assistance, and scientific societies, in order to be able to compare the activity in each of these topics in different countries. The second part however, will be to try to probe into the social aspects of science. For example, what are the motivations of the scientists for doing scientific work in the Asian countries? Western scientists automatically assume that the prime motivation must be to help develop the country but I have already seen some evidence that many Asian scientists, like those elsewhere, do science because they enjoy it. If they cannot do what they want in their own country they simply emigrate and do it where they can. I also wish to find out about the forces which oppose the introduction of science and technology, and study other problems of this nature.

The first stop is Manila, and in the next letter I hope to tell you something of science in the Philippines.

Yours sincerely,



C.H.G. Oldham.

Received in New York November 29, 1963.