

Survey of "Science in Colonialism"

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The following is a brief survey of chapters for science in relation to colonialism in *International Relations* volume, *Nippon Kagaku Gizyutusi Taikei* 7 (1968).

The Place of Colonial Science before World War I

Today most developing countries invite foreign aid, whether American or Soviet, military or economic. In the 19th century, however, there was no well-formulated colonial policy.

There were many scientist-explorers, who came to the East Asia to search for flora and fauna, or other findings of "local science". These people contributed to the academic world of their home countries, not to the advancement of scientific standards of the natives.

It is hard to generalize the situation of the whole Asian region, as the conditions vary according to each country. Therefore, in the following, I shall take one example from the Dutch East India.

Pastors and medical doctors were first invited there to serve the white colonists. Western medicine proved ineffective in treating "local diseases", by which the colonists were easily infected. Thus, the white doctors improved the sanitary conditions of the white residential areas, and established bacteriological institutes where the just-born vacteriological method was introduced.¹

Hygienic problems could not be solved by cleaning up only the white residences; the surrounding native areas had also to be taken care of. Furthermore, the colonists wanted to decrease labor losses due to sickness among the slave employees on their plantations. The Dutch doctors alone could not supply sufficient health care for all the natives, so the colonial government started to recruit and train natives as lower-class hygiene officers by establishing training centers. As higher standards of medical techniques became needed, these centers were turned into medical colleges, with courses in language and basic sciences on the secondary education level. This is how higher education in Indonesia was founded.

On the contrary, the activities of British and American missionaries were more aggressive and systematic. They had a long-established authority in the Western educational world in primary and secondary schooling, and they extended

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¹ Paul Christiaan Flu: *The History and Present State of Scientific, Medical Research in the Dutch East Indies* (published by Internationale Circumpacifische Onderzoek Commissie, ca. 1930)

their education policy freely to the non-Western areas, especially where no existing system conflicted with it.

It is possible to draw a clear contrast between two extremes in colonial educational policy—the French and American.²

The French policy was almost completely controlled by the home government. They forced natives to give up their native language (except in Indo-China), and missionary activities (Catholic) were subordinated to the directives of the government.

On the other hand, overseas colonial policies of America were never interfered with by the home governments, federal or state. Colonial education was carried out solely by private institutions, mainly missionary organizations and the Rockefeller Foundation.

They were highly mission-oriented. They believed in the “American ideal”, the American high living standard, and that civilization and power were due to education, and thus that it was the noble mission of Americans to diffuse this ideal all over the world.

It is generally admitted that French policy is the worst of all and the American is most enlightening—though the latter is often criticized in that enthusiasm for the ideal blinded their consideration of native conditions, as testified in the Philippines, where young enthusiastic Deweyite teachers were eventually disillusioned. British and Dutch policies fall somewhere between these two extremes. Japanese policy was closer to the French.

Science and Language

No one will question the importance of language for conveying Western science and in delivering health care. We can find a typical problem in India.

Unlike the French, the British colonists tried to keep the Indian people out of touch with the English language, so as not to humiliate the tradition-minded Indians. But from the early part of the 18th century, partly due to pressures from enlightened natives who wanted the benefits of Western culture and partly due to the desires of some missionaries to evangelize through the English language, the colonial government agreed to permit language teaching for sons of the upper class; the latter were sent to British universities, and on returning home they played the part of a privileged ruling class under the British colonists.

These people became fluent in English (the only unifying language) but the rest of the population was left uneducated. As a result, a double culture was created: an English-speaking upper class and the native mass. English is certainly an effective language for practicing science and Western medicine. A Western-oriented Japanese minister of education once tried to convert from Japanese to English late in the 19th century, but failed. If the Japanese had adopted English,

² Herbert Theodore Becker: *Die Kolonialpädagogik der grossen Mächte — Ein Kapitel der vergleichenden Erziehungswissenschaft der Gegenwart* (Hamburg, 1939).

then they may not have been linguistically handicapped in the international conferences of scientific research. But, at the same time, scientific culture would have remained only in the sphere of the upper class and would never have permeated the level of the general public. Health care might not have been delivered to the lower classes either. Out of this experience we should draw the lesson to consider seriously the problem of rendering scientific terms into native languages.

The Professions in Colonialism

Effective colonial administration requires the recruitment of lower-class officials and engineers from native human resources. However, the overproduction of intellectuals should be cautiously avoided; otherwise, jobless intellectuals turn into revolutionaries who undermine colonial regimes.

On the other hand, what native persons want to gain from education is technical knowledge, which guarantees privileged social positions even under colonialism. Medical work is, no doubt, one of the best technical professions. It seems to me that in the absence of pressures from below and without competition, the native medical profession often tends to be conservative.

Between the Two World Wars

Some say the Russo-Japanese War of 1904–1905 ignited nationalism in the non-Western area, since it proved for the first time in modern history that a non-Western national could defeat a Western one. Psychologically it may be, the real start of non-Western nationalism came on the eve of World War I when most of the European nations, busy fighting each other, lost their effective margin of controlling power over colonial lands. Indeed, it may be said that it was not Germany that was defeated in World War I, but Europe, the winner being the non-Western world.

As a model of nationalistic movements, the Soviet socialist regime emerged and appealed to many nations, replacing the outdated "Meiji" model. At the same time there arose in most countries a somewhat more affluent native middle class, which demanded access to higher education.

Faced with this new situation, colonial policy had to be modified considerably. In response to native demands, colonial governments adopted compromise policies, such as setting up local universities—which turned out to be centers of nationalistic movements—and cultural friendship agencies, while more rational and systematic means of control were enforced.

Missionary activity has often been regarded as the other side of the coin of colonialism. After World War I the rise of nationalism inhibited the diffusion of Christianity. In order to adapt itself to the new circumstances, mission organizations were obliged to re-examine their policies. In 1928 the Jerusalem Conference of International Missions came to the conclusion that "the fundamental purpose of

Christian mission should be clearly distinguished from the cultural and economic expansion of European nations and the U.S.A.” Western colonialism and missionary activity had to be essentially different in purpose and function. Confronted with the rise of native nationalism, continued co-operation with Western powers meant for them to share the destiny of colonialism. Hence, they tried to escape from the bonds of colonial policy.

Furthermore, they had to change attitudes toward industrialization, which the non-Western peoples sought, and thus took the stand that “our enemy is not natural science but materialism”. Anti-scientism, as exemplified in opposition to the theory of evolution, no longer appealed to enlightened non-Western peoples. This also happened to be the time of the decline of charity-type health care. Influenced by the diffusion of socialistic ideology, medical evangelism shifted its focus from charity to social security. The 19th century continued to exhibit optimism in the curing of social diseases from the bottom up by means of charity. But with the rise of mass consciousness of health care in the first half of the 20th century, people began to take the initiative in thinking of their own health.

I must mention something about Japanese colonialism in Korea. As a late-comer in imperialistic competition, Japan was able to formulate the most systematic and thoroughly rationalized type of colonial policy. In the beginning the colonial administration focussed its energy on economic aspects, setting education aside, except for emphasis primarily on Japanese language and medical care to create better hygiene conditions. Engineers were all provided from Japan.

After World War I, in order to weaken the rise of nationalism, the colonial government took educational policy seriously and founded Seoul University, partly to meet local demand, though this institution was mainly for the sons of Japanese colonists.

Catching-up Model or Indigenous Course

Several of my Indian colleges who tackle the problems of modernization of Indian science have asked a question if it is possible for her to follow the Japanese model of modernization. My answer is negative since The Japanese experience was, after all, a 19th century one. The world situation has since changed very much, and it would be a terribly obsolete model to follow now. Japan began its modernization late in the 19th century when imperialistic competition became very tense; and though the Indians themselves did not experience it directly, most East Asian peoples can testify to Japanese cruelty. Even in the field of science, geologists and biologists were sent to neighbouring countries as vanguards of invasion. If we take account of the Japanese “Meiji model” analytically rather than rhetorically, we may find some elements still to be followed even now, such as its education policy; but the scheme of “strengthening military power” is not acceptable in the present situation when “gobbling up one’s neighbors” is practically impossible.

Then what model is to be followed? Between the First and Second World Wars

it was claimed that the most likely cause of wars is the gap in the amounts of natural resources, such as petroleum and iron. Today, we can perhaps say, in a somewhat modified fashion, that the main cause is the science and technology gap. Those who have science and technology can kill and control, while those who do not have it are killed and controlled. This technology gap between advanced and developing countries seems to be ever increasing; at the moment, at least, there is no sign of its diminishing.

Under the circumstances, this matter was raised and discussed at the Peking Symposium held in 1964. I was informed by a Japanese friend of mine who attended this symposium that a Japanese physicist delegate proposed the creation of an entirely new science without following any Western precedents. His proposal was applauded by the Chinese, but most of the delegates from other developing countries did not take it so seriously, as they were preoccupied with only a fixed target of catching-up with Western standards of science as quickly as possible.

Although we are not well informed about the position of science and technology in the Cultural Revolution in China, I gather from the writings of K. Yamada, that they are trying an "anti-technocratic" approach to science. Such an approach involves (1) complete control of science by laborers, (2) the priority of political action over technical solutions, and (3) the education of engineers through participation in production labour rather than normal schooling.⁸

Obviously we cannot break away from the existing course of scientific development (Japan's modernization model) as long as we adhere to imitating Western precedents. The Chinese experiment of blocking technocracy is, at least, an interesting experiment, though I am not too optimistic about its eventual success. It may, however, offer a challenge to the developmental models of developing countries.

⁸ Keiji Yamada: "The Science and Technology of Contemporary China" *China and the Great Cultural Revolution* (World Student Christian Federation Asia Office, Tokyo, 1969, mimeograph), pp. 63-80.