

INSTITUTE OF CURRENT WORLD AFFAIRS

CHGO-34
Science in India II:
New Leather from Old Cows

27 Lugard Road,
Hong Kong.

October 1, 1964.

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

Dear Mr. Nolte,

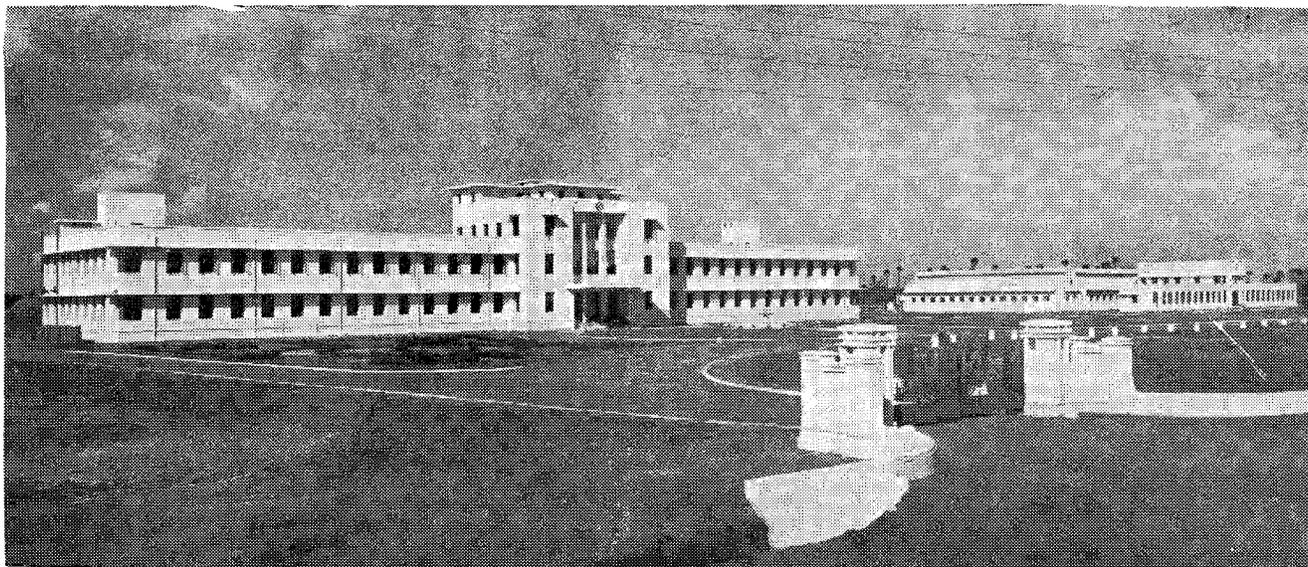
Discussions about developing countries inevitably produce the question: "Do they need indigenous research? Is there not sufficient science and technology known in the world to satisfy the pragmatic needs of the developing countries for many years to come?" My reaction to this is a strong desire for the questioners to be able to go to South India and see the Indian Government's Central Leather Research Institute in Madras.

When I learned that the Council of Scientific and Industrial Research in Delhi had arranged for me to visit a leather research institute I was not enthused. Leather research sounded dull compared with aeronautics, geophysics, and food research -- which I was also scheduled to see. I was due for a surprise. The Leather Research Institute has more lessons to teach the student of science and development than any other institute that I have visited in Asia.

Situated in spacious grounds on the outskirts of Madras, the Central Leather Research Institute (CLRI) has been in existence for only eleven years. It was established by the Government in Delhi as one of a chain of about thirty research laboratories, concerned with different topics, which are scattered throughout the country. The Director of CLRI is a tall, handsome young man called Dr. Nayudamma. He has been director for eight years. It is his personality, driving enthusiasm and, to be frank, dictatorial qualities, which have helped to make the Institute one of the world's leading centers for research in leather technology.

India has two cows for every three humans, and leather forms an important export commodity. A big problem however, is that the Hindu religion prohibits the killing of cows, so that hides are mostly available only from old cows which have died a natural death. Thus the Leather Research Institute's main task is to keep Indian leather competitive in the world market by finding ways to make good leather from old cows. A second major task is to help India cut down on imports of some commodities by finding ways to replace them with home-produced leather.

In addition to the technical problems involved there are a number of social problems which add to the difficulties of the Institute. Eighty percent of all tanning in India is done on a



The Central Leather Research Institute

small scale by village craftsmen. Tanning has always been regarded as a degrading occupation and the tanners were among the lowest caste, the "untouchables". The main reason for this apparently, is the obnoxious odour which is associated with tanning. This odour gave rise to the notion that tanning is an unclean occupation and because the prevailing winds in South India are from the South, to the requirement that tanners should always live at the north end of the villages. One of the research projects currently under way at the Institute is designed to find ways of treating the tannery effluents to avoid the objectionable odour and color.

But a more serious consequence of low caste has been the general lack of education in this group. This has resulted in a tremendous conservatism and reluctance to leave old traditional ways. It has frequently made the extension work of the Institute very difficult.

The Institute has the reputation of being run on unconventional lines, so I asked Dr. Nayudamma to explain how the Institute is organized. He said that when he became director in 1956 the scientists were working on 192 problems, and there was a rigid hierarchical system of command which he felt was paralysing the whole research effort. Now effort is concentrated on only a few vital problems, and apart from the director and his deputy, all the scientists are on an equal basis. For each project a leader is chosen, but when that project is completed he reverts back to the scientists' pool. In this way the best man for a particular project becomes its leader, not the one who has most seniority, as was the practice in the past.

Another innovation which was started a short while ago is the "merit card" system. At meetings, projects are discussed and each scientist tries to predict how much he can accomplish in a certain time interval. Those who meet their goals gain a number of plus points. Those who do not, get a negative score. Other

factors, such as presentation of reports at seminars, also count for points. Salary increases are awarded on the basis of the merit cards. I argued that this was more likely to be a hindrance to good research. In the first place surely the scientists would set low goals so as to be sure to achieve them, and secondly it could discourage someone from following up an interesting lead which was not scheduled for. Dr. Nayudamma smiled and said they were giving it a try anyway, and so far it seemed to be working quite well.

The research projects each have an information officer, whose job is to search the literature and gather all relevant information that has been published on the problem; an economist, who decides on the economic value of a given solution to the problem; and an extension officer.

When he is in Madras, Dr. Nayudamma spends each morning on a tour of the Institute. In this way he keeps in close touch with the work, and gives everyone an opportunity to discuss problems with him. On these occasions he accepts no telephone calls nor sees any visitors. Due to a delayed plane I had been unable to keep an afternoon appointment and so an exception was made and I was invited to join him on his morning tour. In the course of a couple of hours we payed brief visits to all the different laboratories. In most, the Director called on project leaders to explain the work of their groups. We also toured the tannery where new ideas are tried out in a "pilot plant" operation. Dr. Nayudamma said, "We don't recommend any new technique until it has been thoroughly tested here, nor do we allow anyone to publish his work until it has been thoroughly tested both here and in the field. We don't want anybody spending large sums of money on things which don't work." In another part of the Institute there were various machines for stretching and splitting hides, and I saw equipment for making new leather products, such as a loom for weaving leather, and machinery for making leather board.

After the tour we returned to the Director's office which, incidentally, was equipped with its own small chemical laboratory, Dr. Nayudamma began to talk about the extension work. He explained that it is a major problem to persuade tanners to accept innovations. "It is no use just telling people what you can offer, neither is it any use writing papers or even printing pamphlets. You have simply got to show them, actually demonstrate in front of their eyes that they are going to gain if they accept the innovation. You have to remember that most of these people live at subsistence level, they just dare not take a risk. You cannot blame them for being conservative. For the few large companies the Institute puts new ideas to them on a financial basis. We ask them to try our new technique and say, 'If it makes money for you, its yours free. If you lose money on it, then we will pay.' In a developing country such as India, it is the only way that you can persuade private industry to try something new."

It is an even tougher problem to persuade the illiterate village tanners to accept innovations. Dr. Nayudamma found the only way to get things done was to go around the different States himself. Each month he chooses a State and spends two weeks touring around. He makes a point of getting together the State's Director of Industry, Director of Cottage Industries, and some of the labour people. They all set off together on a tour of the villages. In

each village Dr. Nayudamma talks to the tanners and asks them their problems. Sometimes the problems are technical and sometimes to do with marketing or co-operatives, etc.. He visits 10 to 15 villages and covers about 250 miles a day. He told me, "We do this for two weeks -- and it causes quite a commotion. Then, while everything is still fresh I send several of my men in to cover the State and follow up on my whirlwind tour. They come back and we write a report which covers the whole tanning industry in that State. One chapter will be on the technical research problems which we feel are important. The report is sent to the State government with the comment that 'This is the situation as we see it ... these are the problems which need solving. Regardless of what you do, we are going to solve the technical problems.' It is amazing what an effect this has. The following month we go on to the next State, and so over a period of 18 months to 2 years we cover the whole country." I asked if it was necessary for him to go each time. "Yes," he replied, "it needs the Director of the Institute to go, otherwise the State Directors of Industry don't go -- and that really is half the battle."

In addition to all these activities, the Institute trains both students and tanners. It is closely affiliated with the University of Madras and for five years students in leather technology spend part time at the University and part time at the Institute. After graduating the students spread far and wide over India and are in a position to provide a constant feedback of problems as soon as they are encountered.

Another successful scheme has been the "Guest Tanner" program. This is for the larger firms to send one of their senior men to the Institute for several months. They learn about the work going on there, and the Institute sends one of its men to the firm while the guest tanner is away. In this way the Institute learns first hand the problems of the firm and the substitute tanner can often introduce useful innovations. Each year about 6 to 12 guest tanners are accepted.

One of the most unusual training schemes I have ever encountered is practised by the Institute. Any tanner can come and learn as much as he wants for as long as he wants, absolutely free. He stays, said Dr. Nayudamma, "Until he gives us a certificate saying he has learnt all he wants." This caused some eyebrows to be raised since it was contrary to government regulations to provide free training of this sort. However, he persisted and was able to prove that India has benefitted by many times the cost of his scheme.

Much of what Dr. Nayudamma does is unconventional, frequently controversial. But time and again his ways have been proved effective, and directors of other government research institutes are now beginning to try out some of his methods -- with the encouragement of Dr. Zaheer, the Director General of the Council of Scientific and Industrial Research.

Yours sincerely,

C.H.G. Oldham

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