

Industrial Hygiene in Latin America

By JOHN J. BLOOMFIELD

THE spurt in industrial hygiene activities that began in South America some 5 years back is a story connected with our foreign policy. Latin American countries have been drawing on our experience and our industrial hygienists. There is a West Virginian in sky-high Bolivia, a Texan in Chile, a man from North Carolina in Colombia, New Hampshire men in Peru, and a Californian in Brazil.

Assistance in industrial hygiene is given through the Institute of Inter-American Affairs as part of the cooperative public health program it conducts with ministries of health in Latin American countries. The Institute comes under point four, but only by adoption, for its technical assistance programs started in 1942, and in fact they have provided much of the philosophy and the methods of operation for that program.

Economic Benefit

The economic benefit of industrial hygiene is of great appeal, because the costs of indemnifi-

cation are high in Latin America compared with the numbers of industrial workers.

Though the industrial working force is small, its accidents and illnesses are costing a great deal of money. Data gathered in detailed studies of Latin American countries indicate that sums spent for indemnification represent from 12 to 15 percent of the national incomes and from 30 to 50 percent of the national budgets.

It can be put this way—their social legislation has out-run their public health work. The legislation, though well conceived, is more costly than it should be for lack of the complementary preventive health work that keeps people well and on the job. These countries have had long years of experience with legislation for compulsory sickness insurance, old-age and death benefits, workmen's compensation for accidents and occupational diseases, and similar provisions which cover the workers. The emphasis, however, has been on paying them for losing their health rather than on keeping them in health and on the job.

They are exposed to many preventable hazards on the job. Such diseases as silicosis, metal poisoning, and toxic conditions resulting from exposures to gases, vapors, and fumes are common. Industrial hygiene practices aimed at controlling these hazards are practically unheard of.

Latin American governments are getting in on a well-developed movement in the United States and can draw on a vast body of experience in the control of occupational diseases and the improvement of health in industry. They frankly acknowledge their need for technicians

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in this field and are turning to us for that kind of assistance. This is the kind of role that fits the United States well—to share its technicians with other nations. By this role we demonstrate our belief that science and technology should be used for the benefit of mankind.

In the development of industrial hygiene programs in Latin America, the principles upon which the Public Health Service has based its work with the States are followed closely. The Public Health Service has aimed at the establishment within a State health department of a nucleus of trained personnel with essential field and laboratory equipment. These units are responsible for providing services to local industries and for aiding large companies in developing their own industrial hygiene programs.

If there is a good public health program in a community, the development of an industrial hygiene program is that much easier. In many of the regions, however, there are no community health programs, and it has been more practicable, therefore, to develop centralized industrial hygiene programs under the direction of experienced United States personnel. It can best be explained by telling what has been done in Peru.

Peru's Program

The Peruvian department of industrial hygiene was established in 1940 in the Ministry of Public Health, but for several years it lacked a trained staff with equipment to do the job. In 1947, the Minister of Public Health requested an independent survey of industrial health problems. In that same year, in March, the Peruvian Government passed law 10833, which made a preventive program of industrial hygiene mandatory and laid a tax on industrial payrolls to support it. The Peruvian Government put up all the money for operations, asking only for technicians. Ours was the job of administering the funds and running the department of industrial hygiene, and we are still at it.

We had to start from scratch and train a staff. One of our engineers was assigned to Peru and began the training of the first engineer. A

young Peruvian physician working in the cooperative health program was given a fellowship by the Institute of Inter-American Affairs to study industrial medicine—first at Harvard and then at the laboratory at Saranac Lake. The Institute sent a consultant chemist, who established an industrial hygiene laboratory in the department and began the training of three graduate chemists from San Marcos University. A house was renovated for the department, and we are still in it, though a new building one of these days is in prospect.

In April 1949, the first survey team went to Cerro de Pasco, 14,000 feet high in the Andes, to make its first study. The Cerro de Pasco corporation had agreed to be the “guinea pig” and had made facilities available where the team members could live and set up a clinic and a laboratory.

That was 4 years ago. Today the Peruvian department of industrial hygiene has a staff of approximately 50 persons, of whom about half are professionals. They have all been trained on the job, and 4 of the physicians and 2 of the engineers have completed postgraduate work in the United States. One chemist has finished a year's training at the Industrial Hygiene Laboratory of the Public Health Service in Cincinnati. Other members of the staff are learning English against the time when they will be enrolling in one of our schools of public health or trying to catch on to operations in one of our industrial hygiene departments.

The director of the department of industrial hygiene is from the United States, assigned by the Institute. His assistant is a Peruvian physician, who has studied industrial medicine in the United States.

The staff of the department up to the present time has made medical and engineering studies in about 80 industries, which include copper mines, gold mines, coal mines, the largest and highest vanadium mine in the world, and also smelters and concentrators. More than 6,300 workers have been examined on these surveys.

A total of 3,200 medical examinations have also been made of workers claiming compensation for disability from occupational disease. The department makes these examinations for the labor courts which are adjudicating claims.

This service is a means of introducing a real medical evaluation into the process, and it also helps to establish the department as the medical authority in occupational disease.

The laboratory has meanwhile developed to the point where it is able to train chemists for neighboring countries. A man has been trained there for Chile, 1 for Colombia, and 2 for Brazil. These four have finished their training and returned to their countries, and are now responsible for developing industrial hygiene laboratories. They have the help of our consultant chemist who is at the service of all the countries that need him.

The Peruvian department of industrial hygiene has worked mainly in the mining areas with the pneumoconioses as the chief target. Law 10833, passed in March 1947, specified that the program start in those areas and with that target, and such an emphasis is important not only to Peru but also to the United States, for we look to these high mining areas for such strategic minerals as lead, copper, antimony, and vanadium. Thus, anything we can add to the stability of labor benefits not only the South American countries but also the United States.

And here is a very interesting point about that labor force. It is a limited group of men—about 26,000—who have the physiological makeup to do hard work in the high altitude. High altitude men in Peru are Andean Indians who have big chests, outsize hearts and lungs, and extra millions of red blood corpuscles and extra quantities of blood. No others need apply for the hard work of mining at 14, 15, and 16 thousand feet, for they could not do it. Thus, the Indians, by their special physiology, still hold the key to this ancient wealth of the Incas.

Nearly all the miners are illiterate. Many of them speak only Quechua, an Indian tongue. However, they know silicosis, which they consider a tuberculosis of the mines. They have seen what it has done to men before them, and are afraid of it. Today many young men of the high Andes who would ordinarily be miners are refusing the occupation.

Silicosis Cases Decrease

The first 2,837 medical examinations made in the course of the surveys revealed silicosis in more than 13 percent of those examined. It is too soon to produce a graph showing silicosis sliding downhill, for first the reservoir must be lowered. Public health personnel know that the disease is taking the downward path, however, because of the controls being instituted over the dust. Industries are responding handsomely, inviting the department's men back to help in carrying out the recommendations they made following the survey. Big companies are putting in their own health programs and looking to the department for guidance.

A plant physician from a smelter high in the Andes came to our Lima office one day last December. He had requested that someone from the department come to the plant to advise him on respirators, but before anyone could be sent he came down to Lima and visited the department. He wanted to know what types of respirators to buy and wanted advice also on sterilizing equipment and the daily handling of the devices. The company was buying 4,000 respirators to use as temporary controls until permanent ones could be installed.

The response from labor is equally gratifying. The unions used to ask for extra pay for the men for hazardous work and let the problem go at that. Now they are inviting the department to send in its specialists to evaluate the environment and are asking for health talks and motion pictures and anything else for the enlightenment of the worker.

The department is using its surveys to stimulate general public health work. A sanitary engineer goes along with the team to make a study of the community sanitation facilities. The physicians in examining workers in the course of a survey offer immunizations to everybody—not just the workers but their families and neighbors. They also evaluate diets and carry on health education. In places where there is a single large industry, the plant program, by putting out such shoots, may promote in the end a general health program.