

About three-quarters of all facilities are under the safeguards system, and agreements which USA has with Colombia, Costa Rica and Venezuela may be added.

It is clear that all Latin American countries are well aware of many of the ways in which atomic energy can assist in development, and that its role in the region will expand rapidly.

HIMALAYAN EXPEDITION TO STUDY GOITRE

A New Zealand team carried radioisotopes and equipment when scaling the Himalayas on an expedition of mercy. Besides helping to build a hospital, they studied the serious results in the area resulting from the prevalence of goitre in an effort to bring relief to the mountain-dwelling Sherpas. In one village nearly every inhabitant was suffering from thyroid disorder.

Leading the expedition was Sir Edmund Hillary, who not only gained world fame as the first conqueror of Everest but formed a lasting friendship with the Sherpas whose assistance was valuable in that feat. He had determined to return in order to help establish a hospital for them and in October last year was able to carry out the difficult project, thanks to generous voluntary contributions from the people of New Zealand. They had already helped him to set up some schools.

With him on his return was a medical research group headed by Dr. H.K. Ibbertson, of Auckland Hospital, New Zealand. Under a research contract placed by the Agency at a cost of \$15 500, supported by a grant of £3000 (\$8400) from the Wellcome Trust of London, they flew from New Zealand and then, with the help of sturdy native porters, man-handled their heavy equipment up the steep slopes. Among the supplies, all of which survived the hazardous journey, were a portable X-ray generator, instruments for use with radioisotopes and a supply of radioactive compounds. Eventually they established camp at Kunde, 13 500 ft (4 200 metres) above sea level and probably vying with other Agency-supported expeditions in the Andes as the highest goitre research project in the world.

Having established themselves in two tents, they set up a clinic and managed to deal with patients who numbered between twenty and sixty a day. Giving them traces of radioactive iodine in order to make measurements was,

An idea of the terrain in which the Himalayan expedition had to work is given in this photograph taken by J.J. Tait.



however, only a beginning. They then had to convince the Sherpa people, who were completely unaware of modern methods, that it was both safe and necessary to take blood samples, an exercise to which there was some local opposition. Urine samples needed for analysis could not be relied upon with any accuracy since the patients were completely without any idea of time. For this reason most of them had to be taken on the spot in order to obtain an idea of the extent of iodine deficiency in the region.

Although slow at first, the treatment of patients gained momentum during the last two or three weeks in Kunde, and the team was able to carry out a therapy trial with four groups of people on varying combinations of thyroxine, iodized oil and placebos, the total number involved being about 600. One of the gratifying results was that some goitres had shrunk dramatically as a result of treatment, and no noticeable side effects were found. Children attending the local school who had for about two years been fed potassium iodate had, it was found, a lesser incidence of goitre.

After two months here, the team moved their camp still higher, to Phortse further towards Everest. Although the additional altitude was only a few hundred feet, the climb was considerable. Moving some of the equipment, particularly the X-ray generator weighing about 350 lbs (approx. 160 kg) became a considerable task. "Ed. Hillary and myself" reported Dr. Ibbertson "spent an agonizing afternoon trying to prevent it falling over some precipitous falls while being man-handled by four or five expedition Sherpas".

The village of Phortse proved to be a thyroid expert's dream — or nightmare. Practically every inhabitant was affected with goitre and there was obvious hypothyroidism in about half the population. Goitre produces not only physical deformity but in children is also associated with cretinism, deafness and other secondary effects. Among the 220 inhabitants there were thirty classical cretins and an equal number of deaf-mutes with less apparent mental disorder. It was obvious that the area was very deficient in iodine.

An interesting discovery here was that the villagers ate large amount of buckwheat, to the exclusion of most other foodstuffs. It imparted a yellow colour to the urine, and was suspected of being a cause of goitre. The team decided to take a large supply back to Auckland for human and animal experiment. According to Dr. Ibbertson "It might just account for the much higher incidence of goitre and hypothyroidism in Phortse as compared with some of the surrounding villages".

J.J. Tait, the team's physicist who had come from Christchurch Hospital, made a summary of research studies over a two-months period. About 350 people were investigated by radioisotope methods. All were also measured for height and weight, and were photographed and examined by Dr. Ibbertson and by Dr. M. Pearl, the other expedition doctor, who made a clinical estimate of their thyroid state. Electrocardiograms and "ankle-jerk" measurements were also done, and X-ray photographs of children's hands taken for bone-age esti-

mation. Smaller numbers of patients were selected for more specialized tracer studies.

Rather large daily variations in air temperature created problems with the counting instruments, making it necessary to carry out frequent measurements to establish standards and background, particularly in the early mornings and later afternoons. A disused Sherpa house near the camp served for radioisotope handling, and here a snow-filled hole in the basement was turned into a cold-storage for the radioactive stock solutions and urine samples.

Handling and shipping out the precious samples were attended with many difficulties. Unable to obtain dry ice from India to lower the temperature of urine and serum samples, the team had to use snow collected from surrounding peaks and mix it with salt to bring the temperature to around -15°C . This enabled them to freeze the samples, though not as well as they would have liked. Each evening, after the day's work, they had to "swing down" the blood (a process which means literally what it says) and prepare ampoules by sealing glass tubes with a butane flame. The intense cold caused problems by making the serum separate and then to solidify immediately, so that often they had to swing the blood down several times.

At Khatmandu a Bristol freighter aircraft was found to fly out the samples to Singapore and thence to New Zealand. But owing to delay in obtaining customs clearance it flew without them, forcing the team to bring them back on commercial aircraft two or three days later. Then in Calcutta they were held up by an airline strike. Although they obtained extra ice, the samples thawed there and could not be deep frozen again until they arrived in Hong Kong and were able to find dry ice. Thereafter, however, it was plain sailing to New Zealand.

The general organization of the expedition was excellent, and of Sir Edmund Hillary the comment by Dr. Ibbertson was "I am quite sure we would not have achieved what we did without his great experience in the region and his constant negotiations with the locals".

In Auckland, the long and detailed business of sorting out and analyzing the valuable information brought back on a cruel disease that affects people in many parts of the world, is now in progress.