My Student Elective

Guinea-pigs, green boas, and gastroenteritis

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The Hospital de Rimac, attached to the Universidad Cayetano Heredia, is situated in one of the poorer parts of Lima. It has only 250 beds to serve a population of more than a million. Our arrival in Lima from a cold and strike-bound England brought us relief from only the cold: all non-medical hospital workers were striking for a weekly wage of £10. The pickets eventually let us through the hospital gates on the condition that we were not to go near any of the few emergency patients they let in. The three of us had two main aims on this elective. Firstly, we were to take part in a course in tropical and infectious diseases organised by Dr Hugo Lumbreras, director of the Instituto de Medicino Tropical at Universidad Peruana Cayetano Heredia. This course was arranged for the fifth-year medical students, with whom we studied. Secondly, we were to look at the problem of acute diarrhoeal disease in Peruvian children and to investigate whether rotavirus played any role in its pathogenesis.

In a jungle town, Iquitos, we collected stools from infants aged from 6 to 24 months who had had diarrhoea for three to 14 days. Infantile diarrhoea is, as in many countries, an important cause of morbidity and mortality. One of the problems we encountered was that mothers often had only a vague idea of how long their babies had had diarrhoea. Their medical education was such that they would rarely bring their children to hospital unless symptoms had persisted for several weeks. We were able, however, to show later by electron microscopy in samples we brought back that rotaviruses are a cause of infantile gastroenteritis. Furthermore, other tests showed that it was the type 2 virus that was responsible, which indicates that common antigenic strains of rotaviruses are prevalent even in this remote area.

An old Greyhound bus took us at high speed down the Pan-American Highway, which for most of its length is a poorly metalled, two-lane road. It runs the full length of Peru's 2000-kilometre desert coastline. Our first stop was Ica, a small desert town surrounded by sand dunes and barren mountains. Here we three pale foreigners attracted much curiosity. Groups of small boys would hail us with "Gringo" and offer to clean our boots for a small charge. Ica was the centre of a thriving pre-Inca culture, which is commemorated in the local museum. As well as all the usual displays of handiwork and tools, the museum contains a fascinating archaeopathological section. The extreme dryness of the area meant that preservation was excellent. *X*-rays of skeletons over 1500 years old showed evidence of tuberculosis, syphilis, leprosy, and osteomyelitis—all of which are still problems today. A superb collection of over 400 skulls showed that trephining had occurred.

Across the Altiplano to Titicaca

A train took us up the western side of the Andes and over the barren Altiplano to Puno on the banks of Lake Titicaca at 3660 metres. The train had a white-coated gentleman on board called the "doctor." His job was to revive those who flagged because of the reduced oxygen at altitude. This he did using a large green canvas bag with a nozzle at one corner. He would fill this from a cylinder (supposedly oxygen) and then, with the nozzle located under the sufferer's nose, squeeze the bag. Surprisingly, this seemed to have rapid and long-lasting effects, though we were sure they were mostly psychological.

The boat across Lake Titicaca was a fine example of early twentieth-century shipbuilding. Made in Hull, this vessel was dragged in pieces over the Andes by men and llamas before the railway was built. The 11-hour voyage across the lake was extremely comfortable. We ate a five-course dinner, included in the ticket, surrounded by polished brass, mahogany, and leather.

The strike over, we returned to the Institute of Tropical Medicine in Lima, where we saw patients with diphtheria, brucellosis, typhoid, anthrax, rheumatic fever, leprosy, malaria, leishmaniasis, and coccidiomycosis presented as interesting but real and everyday problems. As our Spanish improved we discovered that the patients came from all parts of Peru—desert, Andes, and jungle. Most were poor. Outpatient clinics at the Institute were informal and often doctor and patient smoked a cigarette together. Local fungal infections, intestinal parasites, and toxoplasmosis were the commonest problems.

Before the course in tropical medicine started, we organised a visit to a hospital in the "high jungle" at La Merced. The train passed through the Andean mining town at La Oroya, whence comes Oroya fever, which is caused by an intraerythro-

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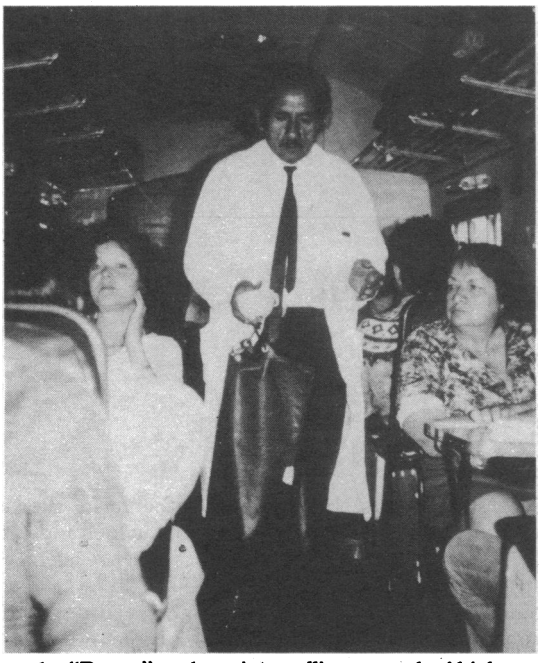

FIG 1—"Doctor" on the train travelling across the Altiplano. (Published courtesy of Dr D N Bennett-Jones.)

cytic bacterium, *Bartonella bacilliformis*. The initial haemolytic anaemia is often succeeded by a salmonella infection, which accounts for most of the deaths. The next stop, Galera, at 4780 metres, is the highest station in the world on a standard-gauge railway. The line terminated at Huancayo, where we sampled a local delicacy—guinea-pig. This was prepared in a garlic-based sauce and had the taste and texture of tender chicken. The next day a bus took us down a precipitous road for several hours until we arrived in La Merced. We were relieved to make our destination as we saw several vehicles lying in the river, 60 metres below the road.

No water, no penicillin

La Merced, at 1000 metres, has a tropical climate. With one women's, one men's, and one paediatric ward, the hospital serves a population of some 30 000 town and country dwellers. The majority of admissions are due to infectious disease and trauma. Tuberculosis is rife, and virtually everyone has intestinal parasites. Malnutrition in infants is often due to the fact that most of a family's protein goes to those who are working—so the smaller the child the less protein it receives. Burns in children are also common and, not surprisingly, are often infected. Even in the hospital flies were feasting on the wounds.

The outpatient clinics opened our eyes to the scale of social and medical problems. The first day we saw a 24-year-old pregnant woman with five children. Her youngest had severe gastroenteritis and needed immediate admission. Her husband earned £4·50 a week. As the consultation cost 20p, she could not afford to have her child admitted for parenteral feeding. She had to leave with no solution to her problems. In contrast, the next day we saw a 16-year-old girl complaining of infertility.

During our stay the town's water supply was cut off for two and a half days; with the temperature over 30°C, life was very uncomfortable. The hospital had to rely on rainwater collected from the roof. Towards the end of our stay the hospital ran out of penicillin and *x*-ray plates.

Puerto Bermudez is a "low jungle" settlement with an ambient temperature over 30°C day and night and a high relative humidity. Its 500 inhabitants are accessible by air and river alone. We arrived in a six-seater "air taxi" to visit the medical *posta*, run by a Dominican nun, who had to treat minor problems and give drugs after only six months of nursing training in Spain. Serious problems had to await the monthly visit of a doctor or be sent by plane to La Merced or Lima. The village enjoyed electricity for two hours a day after sunset. The electric lights attracted huge armies of insects, and mosquito nets were therefore essential.

In the space of a few hours a crowded bus took us up to Cerro de Pasco, where mining is carried out at up to 6000 metres. The people are short and barrel-chested and suffer from many respiratory complaints, of which bronchitis, tuberculosis, and asthma are the most common. We visited the High Altitude Research Laboratory, which has superseded the one built in 1924 by a team from Cambridge University. The new laboratory has facilities for both human and animal experiments. Some Peruvian physiologists believe that man adapts extremely poorly to living at very high altitude and may have reduced intelligence and a shortened life span because of the hypoxia. Comparison with animals has shown man's adaptation to be inferior.

Eiffel was here

For the next six weeks we undertook a course in tropical and infectious diseases with the fifth-year medical students at Universidad Cayetano Heredia. The course consisted of lectures, seminars, ward rounds, practicals, and assessment. We covered worldwide problems such as malaria, tuberculosis, and yellow fever as well as local problems like Chagas' disease, bartonellosis, and *Diphyllobothrium pacificum* infection. This teaching was invaluable, and gave us a first-hand knowledge of the subjects covered. Without it tropical medicine would have remained a collection of names of rare diseases.

To end the course, Dr Lumbreras had organised a two-week visit to Iquitos, an Amazon town deep in the jungle. The Peruvian air force flew us there in a Hercules, as the son of the air minister was in the class. Historically, Iquitos gained importance as a rubber town and because sea-going vessels could make the 4000-kilometre journey from the mouth of the Amazon. It boasts a building built by Eiffel during his South American tour. Now the importance of the rubber industry has been superseded by that of petroleum and wood.

Classes continued in Iquitos, but with greater emphasis on seeing patients. We encountered several new problems, of which snake bites were one. The types of venomous snake vary in different parts of the jungle, but both neurotoxic and coagulation

FIG 2—Slums of Iquitos.

problems occur. Often victims are not brought to hospital for many hours so death is common. Another problem we encountered in the military hospital was a new experience for us: five cases of lymphogranuloma venereum and two of chancroid. Apparently all had contracted the diseases while on the same military exercise.

One day of the course was set aside for a visit to a remote village to vaccinate the young against measles and tuberculosis, both causes of considerable morbidity and mortality. Two hours in a naval boat took us to Santa Clara, a riverside settlement of about 500 people. Houses on stilts with roofs thatched with palm leaves made the existence look idyllic. Many houses had a veranda, and under the shade of these we came across several natives swinging gently to and fro in hammocks. The village was divided into sections, and a group of us went to each section with a vacuum flask of cooled vaccine. The number, ages, and names of the children in each household were recorded before vaccinations were given. Later, truants were rounded up and immunised at the *posta*. This completed, those prepared to risk *Ancylostoma duodenale* cooled off in the muddy river.

The jungle with its incredible variety of flora and fauna was the most fascinating area of Peru. We could only stare in disbelief at the myriad species of flowers, fruits, birds, and butterflies.

On returning from Peru, our feelings were of sadness at leaving such a fascinating country. We had made many friends and were shown kindness and helpfulness everywhere. It was an invaluable experience both sociologically and medically, and the problems we encountered contrasted vividly with those of the NHS.

This account would be incomplete without expressing sincere thanks to the following, without whom this elective and research would not have been possible: Dowager Countess Eleanor Peel Trust; the Trustees of St Thomas's Hospital; British Petroleum Ltd; St John's College, Cambridge; and Caius College, Cambridge.

If I Was Forced to Cut

General practitioner

BY A SPECIAL CORRESPONDENT

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"My attitude to working in general practice has changed considerably in the past 10 years, and one unintended result of this change is that I now spend much less NHS money." Dr Primus, a general practitioner working in the South of England, made this intriguing statement as we began our conversation on what financial cuts might mean to general practitioners.

Almost half of the patients presenting to general practitioners have no clearly defined physical or psychological illness, thinks Dr Primus. A doctor can manage these patients in many different ways: he may search for organic causes by means of investigation; he may infer emotional problems and prescribe psychotropic drugs; he may search for psychological problems and start psychotherapy; or he may follow his own unique patterns of management. Dr Primus suspects that whatever is done most of these patients will get better and that it is often unnecessary to prescribe anything. There is much evidence to support this idea. Marsh[1] by cutting his prescribing for minor illness reduced the number of items prescribed by 19%; he estimated that if all doctors did the same the NHS would be saved £10m a month. Ryde[2] thinks that a doctor's prescribing costs are inversely proportional to his grasp of the problem and his understanding of the patient.

"I'm sure that these patients without clearly defined illness benefit from coming to the doctor," continued Dr Primus, "but I don't think it matters too much what treatment they receive. If we have a problem with some plumbing at home and I tell my wife it's not worth worrying about and we don't need to do anything, she won't be happy. But if the plumber comes round and says the same thing then my wife is content." He agrees with Balint that the doctor himself is the most important drug in the general practitioner's pharmacopoeia. But whereas Balint saw those patients' problems in psychosocial terms, Dr Primus thinks there is little to be gained from this approach. "Every single one of us has those kinds of problems. Patients can benefit from visiting the doctor without these problems being turned up and talked about."

In Dr Primus's practice there is wide variation in the drug bill of the individual doctors. Since he has changed his attitude Dr Primus has prescribed much less. All the other doctors in the practice prescribe three times as many antibiotics as he does; two prescribe three times as many drugs for gastrointestinal problems; one prescribes twice as many psychotropics, and another twice as many drugs for rheumatic problems. There are clearly large savings to be made in drug costs and, Dr Primus suspects, in the cost of investigations.

Political measures

(1) Increase research into general practice

(2) Encourage general practitioners to think more about what they do and how they might reduce their drug bill

(3) Consider taking cough mixtures, liniments, and other non-essential drugs off prescription

Household measures

(1) Contain the system of consultant domiciliary visits

(2) Consider abandoning appointment systems