boys and girls from refugee families who spend their vacations at Camping Centre Sibley in Upper Austria;

For refugees working in steel mills, for various refugee groups in Paris, and for handicapped refugee boys and young men who need vocational training;

In England, for Poles residing in that country and young people who pursue their studies or have obtained employment.

FLYING DOCTORS

Communications in the interior of Africa are generally still difficult. Distances between villages may be hundreds of miles, with no road link. The doctor has therefore to overcome natural geographic obstacles to respond quickly to calls; he needs to use every means made available by modern technology, particularly the airplane and the radio. Hence, in several regions of the continent, the " flying doctor " services modelled on those which have proved their worth in Australia.

Two articles on " flying doctors " in Africa have been published, one by Joan Duncan *in the journal of the World Medical Association and the other by* Peter T. Dewhurst *in the monthly review issued by the League of Red Cross Societies.*[1] *We reproduce them below, as we believe that National Societies elsewhere might be interested in these field operations which bring the benefits of science to those who suffer in the remotest regions.*

Nigeria.—It is in Nigeria, Africa's " Giant in the Sun " that the techniques of radio and aviation are being harnessed to carry the skills of doctors, agriculturalists, educators and other experts into the rural areas as a team to speed up rural development.

[1] " The Flying Doctor Service in Africa ", *World Medical Journal*, Copenhagen, July-August 1966, vol. 13, No. 4, and " Zambia's Flying Doctor ", *Panorama*, Geneva, January 1966.

Nigeria, great land of contrasts, reaches 650 miles from the coast of West Africa, northwards to the fringes of the Sahara Desert and 700 miles from East to West. The population of over 50,000,000 people makes Nigeria by far the most heavily populated country in Africa, but in this newly independent country one of the greatest problems is the shortage of skilled manpower; this is magnified by the poor communications even in the south where villages are closer together and linked by roads.

Nigeria is predominantly an agricultural country, 80 per cent of the total working male population being farmers, the majority growing food for themselves and their families and a small amount in the way of cash crops. Poor feeding, especially the lack of protein in the less accessible areas, underlies much of the disease, as does the lack of sanitation. However by means of modern communications techniques a way has been found to make the best possible use of available skilled manpower and to ensure supervision and continued training for semi-skilled staff over vast areas.

For almost 40 years the people living on lonely cattle and sheep stations in the outback of Australia have been served by the Royal Flying Doctor Service and in 1957 Dr. Neil Duncan left the Flying Doctor Base at Cloncurry in Queensland with plans to establish a similar service for Africa. Having served previously as a medical officer with the Colonial Medical Service in East Africa he could see ways in which the techniques could be adapted to suit the needs of Africa. Knowing that millions of people in villages rely on the help of African Dispensary Attendants who have a 2 or at the most a 3 year course of training in simple medicine, he envisaged outposts in village dispensaries equipped with two way radios which would give daily contact with a doctor. Many of the dispensers are lucky if they receive a visit from a doctor once a year, and in one instance it was discovered that a dispensary had not been visited for 8 years. Flying Doctor Service could radically alter this situation, not only by the radio contact but by a monthly visit by air giving adequate time in the village for training and public health.

By September 1962 sufficient funds had been raised in Britain to enable Dr. Duncan to go out to Gusau in Northern Nigeria at the warm invitation of the government of that country, to set up

the demonstration scheme. With the help of 15 young men and women volunteers from U.K. the buildings at the Base were erected and villages visited to show the people how to mark and clear suitable landing strips. The first aeroplane landed at Gusau on June 2, 1963 but was destroyed in the worst storm in living memory 4 hours later. It was insured and the replacement aircraft, a six-seater Pilatus Porter, arrived in April 1964.

Already the Service is fully operational to 15 villages in an area the size of England and Wales. In this area there are 5 hospitals, 2 mission and 3 government, and also a rural health centre. There are in all 10 doctors covering this enormous area, including the medical officer on the W.H.O. Malaria Eradication Scheme at Birnin Kebbi. All these doctors have access to Flying Doctor Service radios and seats on the plane are available to them whenever they wish to visit one of the outposts.

Each dispensary serves something like 15 other villages in the area around, which means that a very large percentage of the patients treated have to walk or be carried 12 miles and more for advice. Even so their medical care has been dramatically improved. The dispensary attendants are treating up to 3,000 cases a month, a total of 36,000 in a year, and every case benefits from the training and supervision which the dispenser receives from the Flying Doctor.

It takes only a few moments to teach a dispenser how to use his pedal radio, and several of them have used them the day after installation to discuss really complicated cases with the doctor. The normal radius on our network is 250 miles but recent tests have proved that these radios, although only ten watt sets, will work effectively over a 700 mile range.

During the radio sessions and on the monthly visits by air, the Flying Doctor has been able to improve their standards of diagnosis and treatment, introducing drugs previously not available to them.

In epidemic control the Service has proved invaluable not only in early diagnosis and isolation of cases but in rapid supply of drugs. A dispensary which previously experienced a 7-8 weeks wait for drugs in an emergency was able to receive them within 24 hours of calling in on the radio. Cases needing urgent hospitalisation, often for complications of pregnancy, have been sped on their way

by rapid contact with the hospitals and supportive treatment has been given to ensure arrival in a condition in which further treatment can be effectively given.

Combating poor feeding and sanitation is part of the extension work of the service made possible by close co-operation with government, medical, educational, agricultural and social welfare staff, with Nigerian Red Cross and with the W.H.O. Medical Officer and Public Enlightenment organisers of the Ministry of Information. Until the minds of many of these people are opened by further educational facilities it is difficult to introduce the public health measures and improved farming methods necessary to overcome the basic problems; thus the team effort made possible through Flying Doctor Service is ensuring that from the cradle to the grave the people in the villages of Africa can be undergirded by the knowledge and skill of experts in every field of rural development.

In co-operation with Lagos University Teaching Hospital and University College Hospital, Ibadan, research is planned. A baseline study has already been undertaken on behalf of the former and will be followed up in 12 to 18 months time so that an assessment can be made of the value of the Service to rural communities. The governments of the developing countries need to be presented with statistics which will show them whether it is an economic feasibility for them to use these techniques to achieve rural development and it is the firm belief of Dr. Duncan and his team that this can be established over the next two years. For this reason an appeal is continuing for funds to enable the expansion of the Service to a further 26 outposts, the full quota which it is estimated that one doctor and his team can effectively cover.

The cost is £ 25,000 per year—less than £1700 per year for each outpost—once the service is up to full capacity. Bearing in mind that each outpost serves up to 15 other villages, an average of £50 per year per village should not be outside the reach of these developing countries. The benefits are enormous, remembering that the services of a doctor trying to cover such an area by road are wasted for a very high proportion of the time while he is travelling. Given a radio and plane, his skill is available for 90 per cent of the time. This is true of all other skilled personnel. In addition the

vexed problems of locums for doctors due for leave or replacement is covered by the Flying Doctor Service in exactly the same way as it has been done for many years now in Australia, by working through the Nursing Sister in charge of the hospital.

" Flydoc Gusau Flydoc Gusau, this is Flydoc Kamba speaking how do you read me, over? "

" Flydoc Kamba, Flydoc Kamba, this is Flydoc Gusau reading you loud and clear, what can we do for you this morning? "

Within a few moments the burden of the problem is lifted on to the broad shoulders of F.D.S., as new hope and new life emerge from the quiet revolution taking place in the rural areas of Africa. There is a new weapon in the fight against ignorance, poverty and disease.

Zambia.—The ambulance doesn't use a screaming siren or a clanging bell, its radio doesn't cover 10 kilometers (5 miles) but more than 250 km (150 miles) radius, and there isn't hard road spinning away beneath the patient on the stretcher but empty space . . .

For this ambulance is a plane.

And as kilometer after kilometer of matted jungle treetop and barren veld flash below, a rugged-featured Lancastrian bends over the prone figure to reassure him and to see that all's well on the flight.

" Doc " James Lawless—Zambia's Flying Doctor—is at work. For him, this is not just one more sick or injured person he has cared for in his years of medicine. It's a chance to prove his point, to justify his determination, above all to demonstrate that his unorthodox idea and fierce energy make a powerful and working combination against problems and troubles of Man and Nature, in the world's daily battle to help the sick.

Doctor Jim is flying three times a week these days on routine calls, and much more on emergencies. Into primitive airstrips hacked out of forest and out again, onto scorched bush freshly cleared of the giant anthills typical of Zambia and off again, his tiny green and white Piper plane nips smartly to and from its base at Arthur Davison Hospital, Ndola. Zambia Red Cross' Director

Mrs. Grace Matoka, wife of the Minister of Health, christened the plane last November.

Kambilombilo airstrip, at Mushingashi, was cleared and levelled by the villagers themselves—their own muscle-power and some mechanical equipment loaned to speed the work of bringing in the modern medico. Coming in to land Doctor Jim sees below him his patients from the villages around the strip, walking along the narrow paths to the grass-roofed clinic. Since the early hours of the morning they have been arriving, to sit patiently under the big trees until the doctor can examine them.

Three times a week—Mondays, Wednesdays, Fridays. From the moment about 11 o'clock in the morning that the little aircraft buzzes in and the doctor climbs out. Right through the searing midday heat and on till around 4 o'clock in the afternoon. Often, not even time to stop for lunch, not even time to sample the gifts of food—eggs, bananas, vegetables—brought by grateful villagers. These are special tokens of appreciation and affection for Doctor Jim, for the Flying Doctor Service is free of charge, so they will be taken back to Ndola, to be enjoyed in more leisurely moments.

Like the long-established Flying Doctor Service in Australia's great outback and other services in other parts of Africa, Zambia's new service is filling a great gap. But in Zambia, the Red Cross contributes directly in the scheme. In an area where medical facilities have been sadly lacking in the past, President Kenneth Kaunda and his Minister of Health Peter Matoka have understood Doctor Jim's enthusiasm for an idea that could solve a tough problem. The cost is high in relation to the number of people helped at present, but Dr. Kaunda and Doctor Jim are certain that time will tell . . . that the present 3-month trial period on the leg 180 km (110 miles) West from Ndola to Mushingsahi will show the scheme can be successfully expanded. With a radius of 250 km from Ndola, 16 airstrips would serve 112 localities, 112 ambulance teams.

For the two essential parts of the whole scheme are first—radio in the villages around the airstrip, to call up emergency help, and second—aircraft to fly in medical help. So far, in the bush around the Kambilombilo airstrip, six radio transmitters are being installed,

so that in cases of emergency, the village headman can radio Ndola airfield, main base for the whole Service. Doctor Jim is within seconds of the airfield, and the flight to Mushingashi takes only 35 minutes in the new aircraft.

From the sick man's village to the airstrip? Here, Zambia is pioneering two new ideas which we believe no other Flying Doctor scheme has. First, Red Cross volunteers to link the villages with the airstrip, second, a " wheeled stretcher "to carry the sick man.

Zambia Red Cross, young and energetic, backed enthusiastically a suggestion that 6-man Red Cross volunteer teams be trained in each village where the short-range radios are located, to transport the emergency case to the airstrip for evacuation to hospital in Ndola. Zambians are keen to help themselves: British Red Cross sent George Bolton as Senior Field Officer to train Zambian instructors in first-aid and also in all Red Cross activities including Junior Red Cross, so they can help develop this new Society and spread knowledge of the Red Cross. Six full-time instructors are at work, they have taken over from Bolton the training of local volunteer teams for the Flying Doctor Service.

Recruiting and training are going on very well. Even romance —Harry Shiompa, already at work as instructor in the Mushingashi area, met his wife in September 1965 when she was attending a first-aid course he was running at Chisamba, near Lusaka.

Now the Shiompas work together, another husband-and-wife team on this trail-blazing work—for Doctor Jim himself met his wife Meg, also a Lancastrian, while they were both studying medicine at St. Andrews University in Scotland. The Lawless' married shortly after qualifying, and came out to Zambia about five years ago.

Harry Shiompa has seen the start of the volunteers in the villages. He can judge also and report back on the success of another though smaller innovation: a " wheeled stretcher " to bring patients from the villages. Something like this has been used before by Red Cross teams—mountain rescue teams often use something similar.

In Zambia, the idea is modified to take into account the very narrow paths through thick undergrowth and the fact that the villages will be often quite a distance from the nearest airstrip. Two

large bicycle-type wheels and perhaps a smaller guide-wheel fore and aft—this seems the most likely final version of the stretcher, which will have to be available in considerable quantity when later the Flying Doctor scheme is fully developed. Tests and trials with a prototype will show the best construction, which must also be light and collapsible.

George Bolton wrote to League of Red Cross Societies' headquarters in Geneva, for whom he was special delegate in this area: " I flew with Jim Lawless in the new aircraft recently bought for his Service by the Zambian Government to the airstrip at Mushingashi, to see the clinic and to speak with some of the patients. From the response to this scheme, among the people around this airstrip, there can be no doubt that there would be no shortage of volunteers for training—they see for themselves how much can be done. They are very grateful. The benefits of such a service, working along the lines described, will be very great, possibly revolutionising the whole standard of medical care in these areas. Many lives, now lost could be saved. It represents a tremendous opportunity for the Zambia Red Cross and those who back her up "