

## Middle Articles

### OUTSIDE EUROPE

#### Medicine in Burma Today

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Very great developments have taken place in Burma, and particularly in the medical services in Burma, over the past two decades, and a new administrative organization of these services was inaugurated on 1 January 1965. Little has been heard of these developments in Britain or elsewhere, yet they are remarkable and important. Remarkable in that they have been carried out without any considerable amount of external aid and in this way differ fundamentally from those which have taken place in Africa. Important in that very great emphasis has been given to taking medical services to the people in rural areas, an aim which has defeated the health administrators of many tropical countries. It is important, too, that these developments should be known; there are many lessons to be learned from them and there may be some opportunities for co-operation in furthering them. The opportunity recently arose to see something of these developments, and some of the changes that have occurred in the country during the past 20 years, when I was invited to Rangoon by the Burma Medical Association and to participate in its Annual Meeting.

First a word about why comparatively little is known of these developments outside of Burma. The short answer is, of course, that in recent years Burma has been relatively isolated; the passionate and understandable desire which the Burmese have for complete independence led them to leave the Commonwealth and, as a corollary to this, to make themselves ineligible for aid extended to Commonwealth countries. Likewise, in 1953 Burma terminated the arrangements which they then had for aid from the United States Government. The precipitating factor here was involved with the now almost forgotten Chinese Nationalist invasion of Burma at that time and the evidence that aid to these invaders was coming from American sources. There were various other reasons for the termination of the arrangements with the U.S.A., principal among which being an intense desire on the part of the Burmese people to avoid any help, no matter how desirable, if conditions were attached to it. This is mentioned as a matter of record; the purpose is to present some of the factors which enable us to understand the background to current developments in Burma and the reasons why these are proceeding with a minimum of outside aid. No doubt material developments could have taken place more rapidly had large-scale aid been accepted, but this desire for independence, so passionately cherished by the Burmese people, who prefer to develop along individual lines, is something which has won widespread respect. They, like everyone else, realize that South-east Asia is now and for some time has been in a highly inflammable state and they have no wish to become another Vietnam. Their country has in the last 20-odd years been torn by war several times, first in operations against the Japanese, then by civil war which continued in places until

about 1960 and which was aggravated by the Chinese Nationalist invasion between 1950 and 1954, an invasion which came within 20 miles (32 km.) of the important town of Taunggyi in central Burma. A result is that only recently have they begun to see the end of a phase of national reconstruction.

#### Colour, Gaiety, and Hospitality

In reconstructing their country after all this trouble the Burmese people have a great desire to weave all that is best of their ancient culture into national development in its modern sense. This finds expression in the encouragement being given to traditional Burmese opera, of which there are schools in Rangoon and Mandalay. Burmese opera is certainly a fine art in the true sense of that term as meaning that skilful execution is aimed at as an objective in itself. It is not an art form which has been subjugated to propaganda purposes, and, in keeping with the Burmese national character, it is extremely colourful. Indeed, gaiety and a capacity for friendship and hospitality are outstanding characteristics of the Burmese, and colour is one of the most striking characteristics of the country.

This desire for colour is of course very obvious in the dress of the tribespeople from around the periphery of Burma. As we all know, there have been differences of opinion between these groups and the central government, and the present aim is to bring about their integration with the peoples of Burma proper. With this object a school for national groups has been established at Sagang, and here selected young persons are brought together for periods of a year and trained in local government, so that on returning to their homes they will be able to take a prominent part in running local affairs. I visited the Academy, and certainly they were an exceedingly happy group obviously getting on well together.

#### Thriving Teak Industry

The Ava Bridge, near Sagang, partially destroyed in the last war, has been repaired, and some years ago was reopened. There was evidence near by that the teak industry is thriving, and there were many very large rafts of teak logs temporarily halted at Sagang on their way down the river. I was informed that exports of teak have surpassed their previous level and that a large demand for it has been created by the recently introduced improved processes for veneering cheap woods, such as pine, with teak.

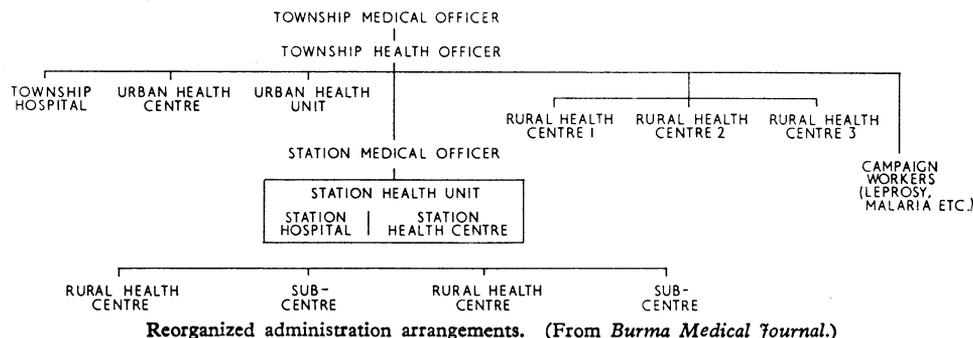
#### Reconstruction of the Health Services

Regarding the magnitude of the task of reconstructing and developing medical services in Burma it must be remembered

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that, unlike India and the countries of Africa, building up after the last war had to begin from a medical service which had virtually collapsed during the Japanese regime. A major factor at that time had been the departure from Burma of large numbers of doctors and health auxiliaries on which the health service had mainly depended. To quote Tinker (1961), "Rangoon became a vast slum following the breakdown of the public services and the influx of thousands of refugees who erected basha huts in the main streets and in all open spaces. Everywhere malnutrition was widespread, malaria was rampant, not one vaccination was carried out after 1941, and there were several smallpox epidemics." Though the framework of the medical service was quickly re-established after the cessation of hostilities much that had been damaged could not be speedily restored; to take but one example, the vaccine depot at Meiktila had been razed to the ground, and, with the organization built

was in charge of a new station health unit comprising a small hospital of 16 beds with an attached health centre. From such a station health unit there are normally to be run some four to six rural health centres staffed by health assistants, health visitors, or midwives. In other places rural health centres may not be run directly from a station health unit. Attached to an organization such as this there are the various campaign workers. The township of Hlegu was, for example, in the attack phase of the national malaria eradication programme. The kinds of diseases dealt with at this township hospital are shown in the Table. There are two main wards, a medical and a surgical, and a total of 50 beds. A small laboratory of the clinical sideroom type is equipped with a microscope and some simple reagents. In all the hospitals which I visited I was struck by the number of patients with amoebic dysentery and its hepatic complications, and this small hospital was no excep-



around it, could not be readily replaced. Similar destruction elsewhere, together with the subsequent civil war, has meant that development in Burma has gone on slowly, with dependence on imported supplies to a much greater extent than in most other countries.

The reorganized health services as inaugurated on 1 January 1965 are noteworthy in that they have been moulded with the aim of extending their frontiers to the rural workers and farmers, and a particularly important point is that preventive and social medicine is to be based at hospital centres. These preventive and social services will not form, as elsewhere, a separate organization divorced from clinical work. There is also to be complete unification of health services both of Burma proper and of the states, and the health services of the central government and the local administrative services have been merged into one.

### Township Medical Officers

Burma has now a population of approximately 23 million and is served by 2,100 doctors—that is, one doctor for 11,000 inhabitants. A key person in the reorganized medical service is the township medical officer. He represents the Director of Health Services at the township level; he will have at least one additional medical officer under him even in the smallest township, and there can be as many as ten or more in the larger towns. The township medical officer, with the assistance of other medical officers and staff, will be responsible for all the functions of the health department in his district, both curative and preventive. In most cases he will be a doctor with general medical training, along with training in preventive medicine. The organization is as set out in the Chart, which is adapted from KoKo (1965).

*Hlegu.*—The population covered by the township medical officer will be variable, but one that I visited was at Hlegu, and is representative of the pattern. Here the town itself has some 10,000 people, and the district around it which the centre serves has approximately 60,000. The urban centres function mainly as general practitioner units. The station medical officer in this particular set-up was located at Phaunggyi, some 17 miles (27 km.) distant from the township of Hlegu. He

was in charge of a new station health unit comprising a small hospital of 16 beds with an attached health centre. From such a station health unit there are normally to be run some four to six rural health centres staffed by health assistants, health visitors, or midwives. In other places rural health centres may not be run directly from a station health unit. Attached to an organization such as this there are the various campaign workers. The township of Hlegu was, for example, in the attack phase of the national malaria eradication programme. The kinds of diseases dealt with at this township hospital are shown in the Table. There are two main wards, a medical and a surgical, and a total of 50 beds. A small laboratory of the clinical sideroom type is equipped with a microscope and some simple reagents. In all the hospitals which I visited I was struck by the number of patients with amoebic dysentery and its hepatic complications, and this small hospital was no excep-

Admissions to Hlegu Township Hospital

	1965	Range 1961-5
Trauma .. .. .	106	
Pneumonia .. .. .	52	
Pulmonary tuberculosis .. .. .	46	9-66
Intestinal helminths .. .. .	39	39-723
Malaria .. .. .	35	35-73
Beriberi .. .. .	29	
Anaemia .. .. .	28	
Snake-bite .. .. .	26*	
Bacillary dysentery .. .. .	21	1-131
Amoebic dysentery .. .. .	17	3-132
Typhoid fever .. .. .	13	2-13
Others .. .. .	648	
Total .. .. .	1,060	

\* Including 3 who died.

### Divisions

The country is at present divided into six divisions—Rangoon, Central, North-west, South-west, South-east, and Eastern. Later these will be subdivided to make nine. The divisions contain variable numbers of townships with their associated hospitals and organizations, and each division contains variable numbers of district hospitals. An example of one of these is the new General Hospital, Taunggyi, which has recently been completed and has 200 beds. Taunggyi is a town of 40,000, and is the capital of the Shan states, in which 2.2 million live. From most of central Burma malaria has now been eradicated, and it has disappeared from Taunggyi.

### Co-operation between Military and Civil Medical Services

A great deal of co-operation takes place between the military and the civil medical services in Burma, and this is exemplified

by the arrangements existing at Maymyo. This town of approximately 60,000 inhabitants has a civil hospital of 180 beds and the base military hospital of Northern Command, Burma, of 500 beds. Patients needing special treatment are transferred from the civil hospital to the military hospital. Here are five divisions—medicine, surgery, obstetrics, dentistry, and paediatrics—and eight specialists in charge of the main divisions plus sections of pathology, anaesthetics, and ophthalmology. Diseases of particular interest encountered here include, in addition to the dysenteries and some imported malaria, approximately 15 cases of mite typhus per month. When I was there towards the end of January they had had 30 cases in the previous two months. Here as at Taunggyi many liver abscesses are dealt with; there had been six in the six weeks preceding my visit to the hospital. They had also had six proved cases of typhoid in the previous year. A good deal of leprosy occurs; they had 60 cases in the hospital when I was there, and approximately 40–50 new cases are seen per year.

### Workers' Hospital

There are various other hospitals below the teaching hospital level, and among these is the new Workers' Hospital in Rangoon. This has 200 beds, and is a very modern and well-equipped institution. It is outside the health services, being run by the Ministry of Labour, not the Ministry of Health, and is open to those who join a contributory scheme. It has five whole-time specialists—one each in medicine, general surgery, obstetrics, ophthalmic disease, and anaesthetics. There are 1,500 deliveries a year in the hospital, and it is of particular interest that about 100 patients suffering from liver abscesses are seen annually.

### Teaching Hospitals

#### Mandalay

There are now medical schools at Mandalay and Mingaladon in addition to Rangoon proper. At Mandalay the school was opened in 1955 and now has three groups of graduates. The teaching hospital, until a new one is built, is the long-established Mandalay General Hospital. The accommodation is adequate, perhaps not more than adequate, and ancillary services are well established. Much of the preclinical accommodation is in a converted school. There are 50 graduates annually. A certain amount of new building is taking place; the preclinical buildings include some that are new and others that have been adapted from a school. The nurses have a very fine new building, and more building is to follow.

I was interested to learn that kwashiorkor is a common disorder in and around Mandalay. The scientific importance of its occurrence is increased by the fact that there is no malaria in the region now, and in the children with kwashiorkor helminthic infection is not a problem, so that the absence of these two infections—both of which in Africa are sometimes thought to precipitate an attack of kwashiorkor—suggests that that disease is more certainly the result of a pure nutritional deficiency in some and a deficiency with superadded bacterial or viral infection in others.

McRobert (1966) commented on the contrast between utilization of medical women in Britain and in Asia, and stated that "the education of medical women was one of the best things we did in Asia." In this connexion it is of interest to note that, whereas in Britain there is only one woman professor of general medicine among 27 medical schools, in Burma there is one from Mandalay among three medical schools, the one being Professor Daw Myint Myint Khin.

**Leprosy.**—A leprosy control project was started at Mandalay in 1958 and has become the base from which control throughout the country is very largely organized. There are approxi-

mately 140,000 patients with leprosy in Burma—that is, 6 per 1,000—and of these 25% have the lepromatous variety; when the project started there were 210,000. The World Health Organization is helping with this control project. Patients are treated in their homes, and admission to hospital or institution is reserved for those who are seriously ill. In each project area one doctor, two leprosy inspectors, and approximately 30 paramedical personnel are employed. There are now 30 such areas. These paramedical personnel "dig out" the patients, visit them, and deliver the drugs personally and see that they are taken. The staff of 30 project areas are entirely Burmese with the exception of two members of W.H.O. personnel. In these project areas the survey is carried out in three parts. The first part is limited to established patients, whose treatment is organized and assured, and the second part comprises all schoolchildren in the project area and all known contacts; patients found in this way to have leprosy are rapidly brought under treatment. The third stage of the survey is then entered upon, and everyone in the project area is examined. It is found that even with the most assiduous industry in stages one and two, approximately 30% of those who have leprosy will be missed unless the third stage is carried out. The W.H.O. project leader, Dr. F. Noussitou, with whom I discussed this work, told me that because of the arduous nature of the duties and of the close co-operation required from the local population, comprehensive leprosy control and eradication of this kind has either failed or been only a partial success in every other country in which it has been tackled. However he, an Argentinian, was high in praise of both the quality of the Burmese staff with whom he had been provided and of the co-operation of the local people, the result of this combination being that the scheme was regarded by the World Health Organization as highly successful.

Many who have been to Mandalay will be pleased to know that the extensive war damage to the fort and to Pagoda Hill has now been completely repaired.

On the way from Mandalay to Rangoon by air there was an opportunity once again to see Mektilla, which at the end of the last war was extensively damaged but which has now been entirely reconstructed.

### Medical Schools at Rangoon and Mingaladon

At Rangoon and near-by Mingaladon there are the remaining medical schools in Burma.

The Mingaladon School, named the Number 2 Medical Institute, Burma, was opened only in June 1963. The preclinical buildings are all new, are well equipped, and have a very good library. There is an intake of 50–60 students per year. The teaching hospital associated with the medical school is the much-expanded Defence Services General Hospital, Mingaladon.

### Institute of Medicine No. 1 Rangoon and the Rangoon General Hospital

This hospital has been expanded from 750 to 1,400 beds since the end of the war, largely by converting the basements and parts of the somewhat spacious verandahs into wards. The eye, the ear, nose, and throat, the tuberculosis, and the children's sections have been moved out of the main hospital into special hospitals of their own, only some emergency work in these fields being done at the General Hospital. Many special units have been set up, including neurosurgery, thoracic surgery, urology, orthopaedics, hand surgery, plastic surgery, a leprosy reconstruction unit, a cancer unit, and a cardiological unit.

The Burmese medical qualifications have recently been accorded full recognition by our own General Medical Council.

The expansion of the hospital and preventive medical services has caused a very great increase in the demand for paramedical personnel, and this demand is being met by the construction of a fine new school for such personnel. It is located in the grounds of Rangoon General Hospital, so that the full facilities in the hospital will be available to the trainees.

### Burma Medical Research Council and Institute

The Burma Medical Research Council was founded in October 1962 with the aim of improving the health of the people, of advancing medical and allied sciences through research, and of the co-ordination of work in medicine and of organizations concerned in medical research. The Burma Medical Research Institute is an executive arm of the Burma Medical Research Council and was opened in June 1963. The pattern on which the Council and the Institute have been founded and are run is based on that of the Medical Research Council here and its associated institute at Mill Hill. There are at present departments of bacteriology, experimental medicine, haematology, instrumentation, medical statistics, pharmacology, and physiology. The work on which they are at present engaged appears to have been well chosen, with the object of providing a baseline from which future studies can be extended. They are concerned with such subjects as prevalence of anaemia in Burma, the various blood groups in the country, the occurrence of haemoglobinopathies, biochemical norms in Burma, normal pulmonary capacity of Burmese, the pathology of liver disease in Burma, and the thiamine content of various strains of rice—important because there is still a great deal of beriberi in Burma.

### School of Preventive and Tropical Medicine, Rangoon

Great efforts are being made to take curative and preventive medicine to the people, particularly those in the rural areas where 85% of Burma's population live. With the object of providing well-trained staff in sufficient numbers for carrying out this programme a School of Preventive and Tropical Medicine has been established and at present is being housed in No. 1 Medical Institute, Rangoon. Emphasis is of course to be entirely on diseases endemic in Burma; the course will cover clinical and preventive aspects of these diseases and will occupy one academic year. The school was opened in the autumn of 1966 and 10 students were then to be admitted. The teaching departments comprise tropical medicine, hygiene and public health administration, epidemiology and statistics, and microbiology, with subsections for bacteriology, virology, parasitology, and serology. A comprehensive syllabus has been drawn up which should well equip those who are to go out into the districts as township medical officers with their teams and take part in the scheme of medical care outlined in the earlier part of this paper.

There are many doctors in Rangoon who are old students of schools in this country, and it is planned to continue to send as many as they have foreign exchange for or scholarships for, particularly to our more advanced diploma courses. One of the delights of going to Rangoon was to be greeted by 15 of my old D.T.M.&H. students, who arranged a very enjoyable reunion dinner.

### Conclusion

Burma is an exciting place to be in; the Burmese are working very hard with comparatively little and they are doing important things in a very workmanlike way. The recent recognition by the General Medical Council, London, of the Burmese medical degrees is further evidence of this. The Burmese are keen to have constructive criticism, and throughout my visit

it was emphasized that they wanted that, not praise. Behind all this activity is their Prime Minister, General Ne Win, with his solid practical approach.

I came away with very great admiration for the approach to medical problems which is being followed in Burma, and I am sure that there are opportunities for co-operation between our two countries in this field. We can probably help them with selected personnel, and an epidemiologist for the new school of preventive and tropical medicine has already been seconded from the Department of Clinical Tropical Medicine, London School of Hygiene and Tropical Medicine. The fund of good will towards British people in Burma is immense. If their material resources could match their good will the Burmese would indeed be ideally placed.

There is much to be learnt from the way many things are being tackled in Burma and especially in the medical sphere, where dealing with large problems of disease is being imaginatively undertaken with limited resources. The Burmese have much to be congratulated upon. We for our part can help in various ways in this venture, and it is here, in increasing co-operation between the two countries, that this article may perhaps bear results.

### REFERENCES

- KoKo, U. (1965). *Burma med. J.*, 13, 2.  
McRobert, G. R. (1966). *Times*, 6 June.  
Tinker, H. (1961). *Union of Burma*, 3rd ed., p. 214. London.

## Approved Names

The second supplement to the November 1966 consolidated list of Approved Names is printed below. Communications relating to Approved Names should be addressed to the Secretary, British Pharmacopoeia Commission, General Medical Council, 44 Hallam Street, London W.1.

Approved Name	Other Names	Action and Use
Alprenolol	1-(2-Allylphenoxy)-3-isopropyl-aminopropan-2-ol Aptine is the hydrochloride	Beta adrenergic receptor blocking agent
Amfonelic Acid	7-Benzyl-1-ethyl-4-oxo-1,8-naphthyridine-3-carboxylic acid	Central nervous system stimulant
Aprotinin	Trasylol	A polypeptide proteinase inhibitor
Clorazepic Acid	7-Chloro-2,3-dihydro-2,2-dihydroxy-5-phenyl-1H-1,4-benzodiazepine-3-carboxylic acid AH 3232 is the dipotassium salt	Sedative
Diacetamide Droperidol	4-Acetamidophenyl acetate 1-[1-[3-(4-Fluorobenzoyl)propyl]-1,2,3,6-tetrahydro-4-pyridyl]-benzimidazole	Analgesic Neuroleptic
Felypressin	Droleptan 2-Phenylalanine-8-lysinevasopressin	Vasoconstrictor
Gestronol	Octapressin 17-Hydroxy-19-norpregn-4-ene-3,20-dione Gestonorone (I.N.N.) SH 582 is the hexanoate N-[4-[4,4-Di-(4-fluorophenyl)butyl]-piperazin-1-ylacetyl]-2,6-xylylidine $\alpha$ -Aminotoluene- <i>p</i> -sulphonamide	Progestational agent
Lidoflazine		Cardiac stimulant
Mafenide		Antibacterial agent
Meclofenamic Acid	N-(2,6-Dichloro- <i>m</i> -tolyl)anthranilic acid	Anti-inflammatory
Mepivacaine	1-Methyl-2-(2,6-xylylcarbamoyle)-piperidine Carbocaine	Local anaesthetic
Mithramycin	An antibiotic produced by <i>Streptomyces argillaceus</i> and <i>Streptomyces tanashiensis</i>	Antibiotic
Pancuronium Bromide	2 $\beta$ ,16 $\beta$ -Dipiperidino-5 $\alpha$ -androstane-3 $\alpha$ ,17 $\beta$ -diol diacetate dimethobromide	Neuromuscular blocking agent
Prazitone	5-Phenyl-5-(2-piperidyl)methyl-barbituric acid	Antidepressant
Propyphenazone	AGN 511 is the hydrochloride 4-Isopropylamino-2,3-dimethyl-1-phenyl-5-pyrazolone Present in Gevodin	Analgesic
Quinestrol	3-Cyclopentylxyloxy-19-nor-17 $\alpha$ -pregna-1,3,5(10)-trien-20-yn-17-ol	Oestrogen
Taloximine	Estrovis 4-(2-Dimethylaminoethoxy)-1,2-dihydro-1-hydroxyiminophthalazine	Respiratory stimulant