

NOTES

The Diminishing Terror of Leprosy*

Leprosy is not the fearsome disease it used to be; discovery of sulphone drugs, modern methods of treatment, and a new approach to the whole problem give firm promise of complete cure for present sufferers and the eventual eradication of the disease.

There are about 7,000,000 victims all over the world, 1,000,000 of whom are in the United Kingdom's dependent territories. Of these the majority are in Africa, but there are considerable numbers in Singapore, Hong Kong, Fiji and other Pacific islands, as well as in the Caribbean. The tropical regions, in which so many of these dependencies lie, are the principal remaining strongholds of the disease. In India and Pakistan there are 2,000,000 sufferers.

Until recently treatment consisted of weekly injections of chaulmoogra (hydnocarpus) oil derivatives. These injections were painful, hard to tolerate over a period of years, involved segregation, and were relatively ineffective. Modern treatment by sulphone drugs, introduced in the United States in 1943, proved much more effective but was costly and required daily injection under medical supervision.

In 1949, it was found from research in Nigeria and elsewhere, that the basic sulphone, DDS, or dapsone, hitherto thought too poisonous for human use, could safely be given in very small quantities. As effective as other sulphone drugs, it is cheap and easily administered in tablet form. This has changed the picture completely.

Only one quarter of all cases of leprosy are believed to be infective and to need isolation; the other three-quarters can now be treated as out-patients. Today, segregation is seldom compulsory but, as it is important to have the infective cases isolated, sufferers from the severe form are encouraged to become voluntary in-patients in leprosaria.

These are now run on generally similar lines in most territories—a hospital for in-patients and, for out-patients, outlying clinics which are visited regularly by trained staff. "Settlement villages", often built by patients themselves, are sometimes part of these schemes. There sufferers lead a community life, cultivating their own plots and learning handicrafts.

It is essential that sufferers have treatment at an early stage of the disease, and all possible efforts are made to persuade them to do this.

Although the results of dapsone treatment have been so encouraging, research continues for an even more effective, quicker and cheaper drug. Since 1955, trials of a new drug, DPT, (compound of Diphenyl Thiourea), developed in a United Kingdom laboratory, have been conducted in leprosy research centres in East and West Africa.

* From British Information Services.

Studies are now directed to the suitability of DPT for out-patient treatment, and to its wider use in combination with dapsone and other drugs. Search is also being made for a means of inoculation against leprosy, and it now seems possible that BCG (Bacillus Calmette-Guerin) vaccination, which affords some protection against tuberculosis, may also be a prophylactic against leprosy.

Leprosy is not incurable, nor need any case be considered hopeless.

For those left disabled or disfigured, physiotherapy and occupational therapy have proved of immense value. Plastic and orthopaedic surgery, though still in the experimental stage in relation to leprosy, have been used with some success, and, without doubt, will become even more successful.

Clearing the Road for Malaria Eradication*

The third Asian Malaria Conference, under the chairmanship of SHRI D. P. KARMARKAR, India's Minister of Health, has closed its first session by passing a series of recommendations designed to clear the way for speedy and unhindered progress towards eradicating malaria.

The recommendations of the first session call on Governments which have not yet undertaken eradication programmes to prepare for them, lest, by maintaining a reservoir of infection, they jeopardise the progress already made in neighbouring states towards freedom from the scourge of malaria.

The importance of planning is stressed and of carrying out the plans efficiently and with "a full appreciation of the element of urgency in the successful conclusion of the programme."

Governments are advised to guarantee funds for the carrying out of the full eradication programme and to build up efficiency so that their campaigns will show the kind of results which will encourage continued assistance from international and bilateral agencies.

To get the work of malaria eradication done, the Conference recommends that whatever authority is entrusted with a country's malaria eradication programme "should have full autonomy to issue the necessary sanctions with the utmost speed for the day-to-day implementation of eradication procedures."

The Malaria Eradication Service, it is recommended, should be a distinct service, entrusted fully with the responsibility of malaria eradication and the chief of this service should be given adequate authority to exercise full control over its various categories of personnel.

The Conference, recognizing the arduous nature of malaria eradication work, recommends that all categories of workers in the service should receive adequate pay, since this is essential if the task is to be successfully carried out.

* From WHO *Press Release*.

A weak spot in some campaigns is covered by a recommendation that since malaria teams are very dependent upon transport, an adequate organization for transport maintenance should be provided, with adequate workshop services and in charge of a qualified transport officer.

To encourage the very necessary public support for the programmes it is recommended that provision be made in the malaria eradication service for imparting health education on the various phases of the campaigns.

It is added that the Conference "emphasises the need to include within the scope of health education all levels in the community, including high-ranking administrators, parliamentarians, members of the medical profession, social organizations and the like."

And, further to help the malaria eradication work to be carried out effectively, governments are recommended to use existing laws and consider the feasibility of additional regulations to facilitate entry into houses for spraying purposes, the detection of malaria cases, taking blood slides from suspected cases, for providing treatment and "for taking any other such steps as may be necessary to prevent the spread of the disease from proved reservoirs of infection."

Mental Illness and Mental Health in the World of Today*

It is one of the paradoxes of modern civilization that countries technologically most advanced and enjoying the highest standards of living should have about half the total number of hospital beds occupied by mental patients.

Mental illness has a close relationship with conditions under which people live and the strains and tensions of an industrial society have repercussions on the mental state of the people. In such a society the rate of mental illness may be expected to be high. But it does not mean that the underdeveloped parts of the world—the vast rural or semi-rural communities—are entirely free from the problem.

With so few reliable statistics available it is not possible to determine the true incidence of mental disorders in countries of South East Asia but such indications as are available make it clear that the mental health problem is big enough to cause concern to health planners.

No doubt emotional stresses and strains of daily life are important factors in mental illness but it can also have such causes as chronic malnutrition and under-nourishment. And the strains of industrialization are not the only ones to which communities are subject: anything which leads to a sense of insecurity—unemployment, refugee movements, migration of populations for economic reasons, the sudden impact of urbanization—can contribute to mental ill-health.

While it is only proper that the tremendous health effort now being made in South East Asia should take especially into account the economically ruinous and high fatality communicable diseases such as malaria, tuber-

* World Health Day Statement by W.H.O. Regional Director.

culosis, cholera, smallpox, yaws and leprosy and such problems as mother and child health and training of health personnel, the increasing incidence of mental ill-health should not be ignored.

We can learn from the experience of the technologically advanced countries. They were caught unawares by industrialization. We know what they could not at that time know. We can start preventive mental health work in time and avoid the pitfalls.

Psychiatry is a young science and until recently very little was known about the nature of mental disorders. Many beliefs are still prevalent which have no scientific basis. It is necessary to dispel the false beliefs through proper teaching and to make people understand that mental illness is just another kind of illness, that there is nothing disgraceful about it and it is curable and largely preventable, like so many other diseases.

It is my hope that World Health Day 1959, by focussing the attention of the people and the authorities on the problem of mental illness and mental health, will pave the way for the emergence of sound public health services which will cater for the total health needs of the individual and safeguard not only his physical health but also his mental and social well being.

New Arteries for Old*

Polyethylene fabric used by Surgeons in Britain

One of the exhibits in the British Pavilion at the Universal and International Exhibition, Brussels, Belgium, was a seamless tube made of yarn based on a special kind of polyethylene; it was an artificial artery. This marks the latest stage in one of the most fascinating stories in the whole field of medicine—the search for new arteries to replace old ones.

The search began in earnest about fifty years ago, and during this half century a wide variety of substitutes for arteries has been tried, including tubes of glass, ivory, aluminium and gold. None of these, however, proved of any value, and it was not until the introduction of what are now known as man-made fibres—such as nylon—that real progress began to be made.

Before these became available, however, it had become clear that the best substitute for a damaged stretch of artery was another artery. But this was scarcely a practical proposition, as none has any arteries to spare that can be removed from one part of the body and used to patch a damaged artery in another part.

The next alternative was to use a vein. The difference between an artery and a vein is that a vein has a much thinner wall than an artery, as it has to stand up to much less strain. It was this wall thinness that proved the stumbling block in the widespread use of veins to patch damaged arteries. Although they proved an excellent substitute in many ways (and most of

* From British Information Services.

us have veins that we can dispense with, if necessary), they are liable to burst when used to patch an artery.

Undaunted, medical researchers continued their search. They discovered that an artery removed from one individual would effectively repair an artery in another and that an artery removed from a body soon after death could be used for this purpose. It was soon realised that if patients were to benefit from all the research work that had been done, a supply of arteries must be available for the surgeon.

This problem was solved by the setting-up of what are known as artery banks. The artery to be preserved is placed in a sealed tube and submitted to the process known as freeze-drying. When this process is completed, the artery in its sealed tube can be kept at ordinary room temperature for an indefinite period. This means that there can always be a supply of arteries available for the surgeon, and many hospitals in which this specialised type of surgery is carried out, now possess such artery banks.

Efficient though such banks undoubtedly are, they are not the final answer to the problem, and the search still went on for an efficient artificial artery that would save the trouble and expense involved and would be freely available to surgeons in all parts of the world.

This was where the new plastics—or man-made fibres—came into the picture. Most of them have been tried—"nylon," "Orlon," "Terylene," and now the special British invented polyethelene fabric which was on show at Brussels. Hitherto "Terylene" and "Orlon" have proved the most satisfactory, but it looks as if this newest polythene type of material may have certain special features. It possesses many of the qualities which are essential for an artificial artery. It is hard-wearing, but also flexible. This last feature, of course, is most important because an artery in the leg, for instance, must be able to bend easily.

It has another advantage—it shrinks when placed in boiling water. This is most important, because, when a surgeon decides to operate on an artery he can never be quite certain until he actually sees the artery at operation how wide it really is. By X-rays he has a rough idea of the size—but no more. If he can use a tube of this new material, he knows that if he chooses a size slightly bigger than the artery, then at the time of operation he can shrink it to the exact size needed by placing it in boiling water.

What is equally important in an artificial artery is that the weave must have a net-like structure so that the surrounding tissues of the body can grow in and around it and so anchor it firmly. It is only when the new bit of artery becomes firmly incorporated in the body like this that it can be depended upon to take the necessary strain. Moreover, because these man-made materials are "inert"—which means that they do not irritate the tissues of the body—the body accepts them as a harmless addition and, instead of trying to get rid of them, incorporates them as part of itself.

The perfect plastic artery has not yet been discovered, but, in view of the progress that has been made, there are good grounds for believing that within the next few years we shall approach even nearer to the ideal.

New Discoveries in Surgery*

Two remarkable discoveries have enabled the surgeon's eye to penetrate into the walls and valves of the heart: artificial blood circulation and disconnection of the heart under hypothermic conditions. The first experimental use of the apparatus for artificial blood circulation was made by the Soviet scientists, in 1926-1930. The first clinical operation on the "dry" heart was performed in 1957.

Artificial blood circulation is being successfully used in the surgery of mitral and aortal stenoses and defects of the interauricular wall. Eight operations on the "dry" heart have been performed in the Vishnevsky Surgical Institute with the aid of artificial blood circulation.

To switch off the heart from blood circulation under hypothermic conditions is less complicated and safer for the patient than artificial blood circulation after disconnection of the heart. But the former can be applied for short operations only (such as sewing in defects of the valves of the pulmonary artery and aorta), lasting for six or eight minutes.

Methods of preventing haemorrhage after operations on the "dry" heart, in which the apparatus of artificial blood circulation has been applied, are most important. A lower content of prothrombin in the blood, a considerable lengthening of the thrombogenic period and periods of blood coagulation and recalcification, an increased content of heparin in the blood and lesser quantity of thrombocytes prevent coagulation of the blood. Therefore after the apparatus for artificial blood circulation is switched off, the after-effects of heparin must be neutralized by protamine sulphate. Haemorrhage, the dangerous complication of the post-operative period, can be avoided by constantly taking into consideration, during the operation and after it, the factors that disturb the process of blood coagulation, and adopting timely measures to eliminate them.

The Institute is carrying on work on a large scale to improve clinical and roentgenological diagnosis of the defects of the heart walls. Heart soundings and angiocardiology with intervals of 0.5 second between the recordings are important means of achieving greater precision in the diagnosis of congenital defects of the heart. The exact type of congenital heart defect can be diagnosed by a complex clinical examination of the patient, in which special methods of research are applied.

The electroencephalographic control applied in the Institute during operations on the "dry" heart has disclosed the inter-dependence between the electric activity of the cortex and various surgical influences and disturbances of blood circulation.

Besides the clinically approved apparatus for artificial blood circulation, designed in the institute of experimental surgical equipment and instruments, another original model has been designed in the clinic of chest surgery of the Ukranian tuberculosis institute.

Operations on the open heart, lasting ten minutes, can also be performed

* From News and Views from Soviet Union.

without using the apparatus for artificial blood circulation, by temporarily switching off the heart under hypothermic conditions. This method was elaborated and applied for the first time in the Soviet Union in 1955 by PROFESSOR P. KUPRIANOV. The major advantages of the method are: the combination of small doses of narcotic with muscle-relaxing drugs that completely abolish the tone of the muscles during the whole time of refrigeration and operation; the prescription of small doses of phenothiazine derivatives (mainly diprazin) and small doses of ganglion-blocking substances (hexone, pentonium, etc.). Dittilin is recommended for relaxing the muscles and 'switching out' the breathing of infant patients. It can be injected in a 0.25 per cent solution, or fractionally in a more concentrated form.

It is believed that the heart can be excluded from blood circulation under hypothermy for nine or ten minutes at the most at a body temperature of 29°C to 30°C, without causing any irreparable damage to the organism.

Alloplasty is another new and important problem in surgery. Under this method, the alloplastic material is gradually replaced by the tissues of the organism, or else new tissue forms similar to a transplant. A Soviet surgeon has, for over 3 years, been applying plastic thread for suturing wounds of the thoracic and abdominal cavities. He covers up deficiencies of post-operational hernias with kapron (a plastic material) plates and uses plastic tubes in operations for inoperable cancer of the oesophagus and plastic prosthetic appliances for deficiencies of the semilunar valves of the aorta and in plastic surgery of the aorta.

The recanalisation of the oesophagus and replacement of its deficiencies by alloplastic prosthetic appliances in operations for cancer of that organ are very interesting items. In cases of inoperable cancer of the oesophagus, this method presents definite advantages as compared to gastrotomy.

Processes of implantation have been studied experimentally on plastic film transplants in cases of serous membrane deficiencies. Plastic surgery of the hard cortex of the brain and of the pericardium, in which plastic film is applied, looks particularly promising. Kapron and nylon netting can be used to suspend the testicle to the aponeurosis of the external spermatic muscle, to sew a sunken kidney to a rib, to fix the sigmoid intestine to the anterior peritoneal wall.

A promising new line of research for non-reactive materials, suitable for osteosynthesis, is the use of quickly hardening synthetic pitch combined with various filling and hardening substances. Pins made of these new materials have been successfully applied in intramedullar joining of broken-off fragments of bone.

A synthetic glue called osteoplast has been discovered. It can be used for the following purposes: to fill in the cavity of tubular bone transplants in osteosyntheses and various osteoplastic operations for pseudoarthroses, deformities, fresh and wrongly joined bone fractures; for joining splinters of bone in multi-splintered fractures; for gluing fragments and plates in osteoplastic amputations.

The new discoveries in surgery outlined above hold great promise for the future.

1958 was a Bad Year for Cholera*

Last year was a bad year for cholera, according to a report issued in Geneva by the World Health Organization, and the number of cases which occurred in Asia—93,000 (provisional figure)—was the highest recorded since 1953, when the disease struck 242,000 people.

Epidemics occurred last year not only in India and Pakistan, but in Thailand and Nepal as well.

The worst epidemic was in the lower Ganges Valley, in East Pakistan, where twenty per cent of all cholera cases for the year were reported. Several districts in India were also severely hit, and there were no fewer than 4,895 cases, with 1,765 deaths, in Calcutta alone. Other ports and cities with international airports reporting a high number of cases were Delhi (241 cases), Madras (208) and, in East Pakistan, Chalna (133).

West Pakistan, which had been spared for the past ten years, had a cholera outbreak in four districts in November.

And, for the first time since 1949, cholera struck in Thailand—9,396 cases, of which 6,175 were recorded in Bangkok and its neighbourhood.

There were also 1,950 cases in *Nepal*, in and around Kathmandu, where the epidemic lasted 14 weeks.

* From WHO *Press Release*, Feb. 1959.