are two classes of drugs which may prevent the onset of an overt attack: (1) those which act on the pre-erythrocytic phase; and (2) those which act on the asexual erythrocytic phase. The biguanides are the only drugs which can achieve the former effect in non-toxic dosage, and their action in this respect is confined to falciparum malaria. Since, however, they act also on the asexual erythrocytic forms of all species of human plasmodia, their use in prophylaxis is by no means limited to falciparum infections. The dosage of proguanil recommended for prophylactic use is 100 mg. daily for non-immune individuals, and 300 mg. in a single dose once weekly for indigenous inhabitants of malarious areas. A great advantage of this drug is that it can be placed in the hands of laymen for distribution without risk of ill-effect, even should the prescribed dose be grossly exceeded.

The second group of prophylactic drugs, which exert their effect solely by their suppressive action on the asexual erythrocytic parasites, includes the cinchona alkaloids, the 9-aminoacridines, the 4-aminoquinolines, and the 2:4-diaminopyrimidines.

For the effective suppression of falciparum malaria, quinine has to be administered in doses as high as 10 gr. (0.65 g.) daily. Against New Guinea strains of *P. falciparum* even this dosage has proved insufficient. Apart from the unpleasant side-effects caused by the prolonged administration of this amount of quinine, the association of this drug with the precipitation of blackwater fever renders it unsuitable for use as a suppressant in areas where falciparum infections are prevalent.

Mepacrine, in a dosage of 100 mg. daily, is a very effective suppressant of all forms of malaria, provided that the drug is taken for 14 days before exposure to infection and continued for one month after leaving the endemic area, but it has certain disadvantages which militate against its routine use under peacetime conditions. A variable degree of nausea and abdominal discomfort is fairly common during the first fortnight of administration and these symptoms persist to some extent in a small proportion of cases. Headache, insomnia, and giddiness may also occur during this stage, but are less frequent. When taking the drug over long periods a proportion of individuals develop skin lesions, the most common of which is a lichenoid dermatitis affecting chiefly the hands, wrists, feet, and ankles. Yellow discoloration of the skin is also comparatively common.

Chloroquine is probably an even more powerful suppressant than mepacrine, the dosage usually prescribed being 300 mg. of the base (500 mg. of the diphosphate salt) once weekly. Its action resembles that of mepacrine, but it is considerably less toxic and does not tint the skin. The same advantages are claimed for camoquin, in a dosage of 500 mg. weekly.

At present the choice of drug for prophylaxis seems to lie between proguanil and either chloroquine or camoquin. Neither of the last two possesses the very low grade of toxicity which is so remarkable a property of proguanil, rendering this drug particularly suitable for widespread administration among labour forces or other employees recruited from indigenous populations of malarious regions. The comparatively low cost of proguanil and its inhibitory effects on gametocytes are other arguments in its favour. On the other hand, it has been shown that, in falciparum malaria at least,

resistance to proguanil may be brought about by irregular or insufficient dosage. It is important therefore to ensure that the drug is taken regularly and in the amount prescribed. It is also advisable in dealing with communities under proguanil prophylaxis to use some other drug, such as chloroquine or mepacrine, for the treatment of overt malarial attacks.

Conclusion

There are many examples of the wide variation in the response of different geographical strains of the same species of malaria parasite to particular drugs. For example, Italian strains of *P. falciparum* have been found relatively resistant to quinine, but readily susceptible to mepacrine. A strain of *P. falciparum* in New Guinea proved resistant to mepacrine, but highly susceptible to proguanil. The existence of strains which are naturally resistant or have acquired resistance to proguanil has also been reported. It is therefore unwise to be too dogmatic on the most suitable form of treatment of malaria in any particular circumstance, and it is fortunate that, owing largely to the enormous volume of intensive chemotherapeutic research carried out during the war, we now have at our disposal a number of specific antimalarial drugs, so that, should a strain of parasite prove resistant to any one, an alternative may be used.

FIVE YEARS OF PROGRESS IN THE HONG KONG HEALTH SERVICES*

BY

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Five years have now passed since the Japanese surrender, and it is possible, on looking back over what has been done, to get far enough away from the trees to see something of the wood.

When news filtered into Hong Kong's prisoner-of-war and internment camps in August, 1945, that the war was at an end, those responsible for the administration of the Colony, including the health services, made their way out of confinement and began a survey of the desolation and destruction left behind by the Japanese.

Nearly two-thirds of the European type of dwelling-houses and about one-fifth of the houses of the working-class Chinese were damaged or in ruins, and, in addition, many public buildings, such as schools, hospitals, dispensaries, and other similar institutions, were destroyed. Those responsible for the administration of the health services set to work without proper office equipment, with a complete absence of all records, and having to rely almost entirely on memories impaired by three and a half years of severe privation. The streets were largely deserted, and the whole Colony could boast of probably little more than 600,000 people, most of whom were suffering from a prolonged period of semi-starvation, and who, like those released from the camps, were unfit for any extended physical effort. There was no public transport, and private cars were a rarity. Antimalaria measures had been neglected for three and a half years,

*Written in 1950.

and malaria had become epidemic; and no real attempt had been made by the Japanese to deal with smallpox and cholera. This was the position in August, 1945. One year later the population was 1,600,000 and to-day is over 2,250,000, which, with the destruction of so much housing, has resulted in serious overcrowding and further complicated the health problems. It is against this background that the present state of the health services and the health of the Colony must be measured.

Temporary Measures on Reoccupation

Within a fortnight of leaving the camps the Colony's health service personnel had opened out-patient clinics and hospital wards, using makeshift equipment left behind by the Japanese. Antimalaria measures of a temporary nature were also started at once, and deaths from malaria, which totalled 765 in 1946, fell successively to 253 in 1947, 193 in 1948, and 116 in 1949. At the present time these temporary measures are being gradually replaced by permanent work, and malaria has ceased to be a threat to the health of the Colony.

Smallpox and cholera, fed by the influx of people during 1946, reached epidemic proportions, and in the winter of 1946-7 there were 1,560 cases of smallpox, with 977 deaths. A vigorous vaccination campaign was instituted, and when the winter of 1947-8 arrived over 2,000,000 vaccinations had been done, and the population was largely immune. Since the spring of 1947, in the three years 1947, 1948, and 1949, a total of only 52 cases have occurred. Cholera was tackled equally vigorously, and many hundreds of thousands of inoculations have been carried out yearly since the reoccupation of the Colony. This, combined with education and regulations concerning the protection and handling of food, has undoubtedly played some part in the disappearance of the disease after the epidemic in 1946.

As more and more of the problems left behind as a war legacy, particularly those connected with personnel, were solved, efforts were made not only to re-establish the health services in existence before the war but to extend and develop them to meet the needs of the vastly inflated post-war population. To follow this development step by step would require many pages of print, and an appreciation of the position reached at the present time is all that can be given.

Progress Made

Perhaps this position can best be understood by examining a few vital statistics. The estimated population of the Colony on March 31, 1950, was 2,357,000. The death rate, based on a figure of 1,857,000, was 8.8 per 1,000 in 1949. The infant mortality rate was 99.4, with a neonatal mortality rate of 29.4. The maternal mortality rate was 2.12, and the birth rate 29.5. Some of these figures have an uncertain factor in the estimated population, but those that depend on registration of births and deaths and on the information supplied in the certificate of cause of death are probably as accurate as in any country where such figures are provided.

The maternity service provides one of the outstanding successes. Out of a total of 54,774 births in 1949, 44,587 were delivered in a hospital or a maternity home, 8,991 were delivered at home by midwives, and only 1,196 (2.2%) of the total births were unattended. Roughly one-third of these cases were dealt with by Government

and the remainder by private doctors and midwives. There are 102 small private maternity homes, containing from one to seven beds, run by registered midwives and totalling 333 beds. All these homes and all practising midwives come under the supervision of a senior Government doctor, who combines this supervisory work with the secretaryship of the Midwives Board. In this way a very strict control is maintained over the standards of the midwives.

Another service that has developed considerably since the reoccupation is the tuberculosis service. This is based on the tuberculosis clinic on the island, to which will be added, by the end of this financial year, a second clinic on the mainland. There are 291 Government beds available, of which 58 are reserved for surgical cases; these surgical beds are fed by patients from Government and Government-assisted hospitals. In addition, in the Government-assisted hospitals there are 120 beds in the Hong Kong Anti-Tuberculosis Association's Ruttonjee Sanatorium, and 110 beds for advanced cases in the Tung Wah Group of Hospitals. Survey work is carried out free for all firms or employers of labour who are prepared to undertake responsibility for the medical and social welfare of any patients discovered. An annual survey is made of all Government servants, and legislation is being introduced to provide for a similar survey of all registered school-teachers, private and Government.

The Social Services

There is a limited schools medical service, which provides inspection for all schools, Government and private, and for the medical, dental, and ophthalmic care of children in Government and Government-assisted schools. As these children number only some 17,000 out of a total of about 140,000 schoolchildren, negotiations are in progress with the managers of private schools for an extension of this service to their schools, including in-patient treatment of the children, if necessary, at a cost of \$15 a year—that is, rather less than £1 sterling.

There is a social hygiene department running five clinics and a small hospital, one clinic being primarily designed for the use of seamen. This department is staffed by six doctors, one technical assistant, and 25 nurses and dressers.

There are three main infant welfare clinics and three subsidiary teaching centres where attention is not only given to the children and nursing mothers but great emphasis is laid on education. Numerous lectures and demonstrations are given, films and lantern slides are shown, and in 1949 each of the three main centres held a "Healthy Baby Week," which attracted large numbers of visitors, including classes of senior girls from the schools. This has resulted in requests from a number of schools for regular instruction in infant welfare.

Considerable, and increasing, attention is being paid to health education. This is provided by means of a travelling cinema van and public address systems, lectures, posters, and the production of a number of local films. These films have been made by the Medical Department, and have proved a great success. It is hoped to develop this work considerably in the future with the assistance of equipment from the World Health Organization.

Of a different nature but of considerable importance to the Colony is the Port Health work. Here there is a senior Port Health Officer and eight other doctors to

help him. Their activities cover the sea-port, air-port, and the railway terminus. A few figures will perhaps give a better indication of the magnitude of their work. In 1949, 13,707 ships and junks, with over a million passengers and crew, were examined in the quarantine anchorage, 42,000 immigrants were investigated, and 179 ships were fumigated. Nearly 700,000 passengers arriving by train were examined and just over 400,000 of these were vaccinated. Over 4,000 aircraft with 70,000 passengers and nearly 20,000 crew coming from infected ports were inspected. As Hong Kong lies in the midst of endemic areas of plague, smallpox, and cholera, the work of the Port Health Office is of supreme importance.

The Hospitals

Finally there is the clinical side. During the Japanese occupation 400 potential beds were destroyed, and at the present time there are approximately one million more people in the Colony than before the war. Owing to the amount of destruction of buildings in general and to urgent defence requirements, the replacement of these beds has not yet been possible. The demands on hospital facilities, out-patients as well as in-patients, have been so great that it has been almost impossible to meet them. At one large polyclinic on the mainland as many prescriptions were filled during the first quarter of 1950 as during the whole of the previous year, which was in itself an all-time high record. One new polyclinic has been opened on the island, additional doctors have been posted to other clinics, and further beds have been put up in the hospitals. In this way the more urgent demands have been met, and it is hoped that the facilities will become more adequate as the great temporary swelling of the population subsides.

Much has been achieved in five years—but a great deal still remains to be done. Some of this undoubtedly would have been done had there been any interval between the “washing up” after the last war and the “laying of the table” for the next.

[NOTE.—Since writing the above the second tuberculosis clinic has been completed and is in use, and the schools medical service has been extended to include another 27,000 children.]

SIR ROBERT HUTCHISON, Bt., 80

Sir Robert Hutchison will celebrate his eightieth birthday to-morrow (October 28). In recent years his tall spare figure has been rarely seen in London. He gave up the Presidency of the Royal College of Physicians in 1941 after three years of office, which he said was long enough, and settled in his delightful country house in Berkshire. But although he has forsaken the Whitechapel Road and Devonshire Place and Pall Mall East, Robert Hutchison remains a living force in British medicine, as is clear from the current issue of *Archives of Disease in Childhood*. His sayings, often caustic but always wise, are treasured and quoted, and his students, undergraduate or postgraduate, and those who served with or under him in hospital acknowledge the abiding influence of his personality.

It is 55 years since Robert Hutchison came to London from Edinburgh with the proverbial half-crown in his pocket and a few introductions. He was appointed house-physician at Great Ormond Street, and six months later assistant to Dr. (now Sir) Leonard Hill, then lecturer on physiology at the London Hospital Medical College. Hutchison's classic work, *Food and the Principles of Dietetics*, was first published in 1900, the substance of it having already been given in lectures at the London Hospital and in university exten-

sion lectures in the East End. It reached its twenty-fifth printing in 1940, and its tenth edition in 1948. His *Lectures on Diseases of Children* was first published in book form in 1904, and has run through many editions. *An Index of Treatment* first appeared in 1907, and reached its thirteenth edition in 1948. Many writers have contributed to it, but Hutchison has written more than them all, and on a wide variety of subjects. A hand-list of Hutchison's writings has been prepared, including 14 books (without counting separate editions) and over 260 other writings. The list ranges from his *Clinical Methods*, first published in 1897, of which he was the main author, and which has been a working manual for medical students through its 45 impressions, down to the “Retrospect of Medicine” which he contributed to the “Fifty Years of Medicine” number of this *Journal* at the beginning of last year.

But it is not only as a great clinician, a medical teacher, and a “best seller” among medical authors that we salute him. It is as a man of wit and excellence, one who has illuminated medicine by a certain genius which we can only inadequately describe as judgment—judgment which, he said once, was an inborn faculty, a union of mind and character, which a man either had or had not. He has combined an adherence to convention with an open outlook. One piece of advice he gave to students was expressed in a couplet:

“Be not the first by whom the new is tried,
Nor yet the last to lay the old aside.”

The tradition of Hutchison will live long. His comments and epigrams which made his clinical rounds so lively for his students, and which came out in his lectures and in his general conversation, are still retailed, but above all he will be remembered for his kindness and humanity. Students and many in higher places than students might quail before his rebukes, especially, as one of them has said, when a cold north-east wind was blowing down the Whitechapel Road, but the little girl patients who presented him with a button-hole during his ward round at Great Ormond Street understood the real man.

His portrait, by James Gunn, which we reproduce, was painted in 1939 and presented to him by the Edinburgh University Club in London. It depicts him in the gold-embroidered black robe of the President of the Royal College of Physicians.