needed for houses, and little was available for hospitals. All these difficulties are, by almost superhuman efforts, being slowly overcome.

The Future

July 5, 1948, will see the end of the L.C.C. hospital service as such. The hospitals of the whole country will be transferred to the State and their administration entrusted to Regional Hospital Boards and Boards of Governors of Teaching Hospitals. It was the largest hospital service in the world under local administration. It is being broken down into four quarters, each of which will form part of one of the four Metropolitan Regional Hospital Boards—N.W., N.E., S.W., and S.E. There will be no "London: Hospital Service." Apart from the four Regional Hospital Boards each serving a quarter of London, there are 26 designated teaching hospitals or groups of hospitals in London which are independent of the Boards, thus making 30 separate hospital administrations.

Two of the L.C.C. hospitals—Hammersmith and the Maudsley—are designated teaching hospitals, the North-Western Hospital is to be a part of the Royal Free Teaching Group, and St. Pancras Hospital is added to University College Hospital. It is too soon to assess what the L.C.C. did for the hospitals transferred to it in 1930, nor would it be for me to attempt the assessment, but it may be said that, having regard to the fact that there were only about six years in which progress was possible, the hospital service was expanded and improved remarkably. It took two or three years for the L.C.C. to learn the service, and effective progress ceased in 1939.

The Act makes provision for a domiciliary medical and a general dental service free to all. This service will be administered by Executive Councils. There will be one for the administrative County of London.

The Act makes other important changes in the structure of the health services of London. It transfers from the Boroughs to the County the maternity and child welfare services so that they may be co-ordinated properly with the school health services. It continues and expands the domiciliary midwifery and ambulance services. It requires the County to provide home nursing, which it is doing by arrangement with the District Nursing Associations. It empowers them to provide a home and domestic help service. It must provide a health visiting service with enlarged functions. It repeals the vaccination laws and requires the Council to make arrangements for vaccination to be done on a voluntary basis as is the case in immunization against diphtheria. The V.D. service and the clinical side of the anti-tuberculosis service are to become the responsibility of the Regional Hospital Boards, but the Council remains responsible for the social and preventive work. The Council must submit proposals for the "prevention of illness, care and after-care," and for appointing "authorized officers" whose functions will be similar to those of the relieving officers who up to now have dealt with persons of unsound mind and arranged for them to be admitted to the appropriate institution. Another important duty of the Council will be to provide Health Centres for general medical and dental practice at which doctors and dentists under contract with the Executive Council will work. All these and the unchanged public health duties of the Council and the Boroughs are of immense importance to the well-being of London.

Considerable expansion of the old and development of new activities will be called for. The personal health services of a public health authority such as London need large-scale planning, but local application and the new service is to be largely administered from nine divisional

offices, just as the school health service had to be divisionalized. Close relationship with the Borough services must be maintained. The duties of the Council cannot be carried out effectively without the closest contact with the other elements of the National Health Scheme, the general practitioners and dentists, the Regional Board hospitals, and the teaching hospitals.

London presents unique difficulties in that there are four Regional Hospital Boards and 26 designated teaching hospitals. It contains a large population, yet nevertheless it is only the nucleus of the much larger "Greater London."

Good will and an earnest desire to co-operate are evident on all sides. Many new opportunities present themselves. For the first time health officers should be able to obtain information on the total morbidity in their areas. Health officers will be relieved of the time-consuming detailed administration of hospitals, though they will need to have a substantial voice in the provision made for such classes of patient as the tuberculous, the fever and maternity case, and for school and other children. Their horizon should not be limited to the communicable diseases, but should be extended to include all preventable illness.

The past achievements of British medicine are noteworthy. If our present opportunities are grasped, if the administrative machine does not become too complicated, and if full scope is given to initiative, imagination, and experiment, then the future is indeed full of hope.

THE END OF "COMPULSORY" VACCINATION

BY

MAJOR GREENWOOD, D.Sc., F.R.C.P., F.R.S.

On July 5, not quite a year before the two-hundredth anniversary of Edward Jenner's birth, vaccination will cease to be obligatory in law. For 95 years parents have been under a legal duty to permit their infant children to be vaccinated, and from 1853 to 1899 the provisions of the law affecting parents changed but little. If a Board of Guardians obeyed the law, refusal to submit an infant to vaccination subjected its parents to penalties serious to poor people. In the early days of compulsion more than 60% of infants were vaccinated, and the proportion tended to increase down to about sixty years ago. Writing in 1888, the Medical Officer of the Local Government Board estimated that of children born in 1886 there survived in February, 1888, 689,323 vaccinated and 59,000 unvaccinated; a ratio of more than ten to one. From about this time opposition to the vaccination of infants hardened in some parts of the country, and by 1898 the proportion of infants vaccinated had fallen to a little more than 60%—roughly what it had been in the early days of compulsion.

In 1898 an amending Act, which came into force in 1899, not only reduced the formal harshness of the old law but required public vaccinators to visit the homes of the children. The proportion of infants vaccinated rose and remained above 70% for seven years. A further softening of the compulsion was effected by an Act which came into force in 1908, and by 1913 the proportion was about 50%. In 1937 the number successfully vaccinated was 34% of the births and 35.4% of that number *less* the number of deaths of unvaccinated infants. Over a period of 60 years more than half the infants born who survived to the age of 4-6 months were vaccinated; even now the proportion is likely to be about a third.

Between 1851 and 1880 more than 130,000 persons died of smallpox in England and Wales; in the next 30 years a few more than 20,000, and then only 407: of these only 21 were in the decennium 1931-40. Very few practitioners under the age of 60 whose experience has been confined to England and Wales have seen an epidemic of "classical" smallpox. In 1901-2, our most recent "classical" epidemic, there were 2,820 deaths in England and Wales; of these more than half (1,642) were deaths of Londoners. That epidemic accounted for more than half the total mortality from smallpox in the decennium 1901-10.

These are some of the facts *not* disputed; their orthodox interpretation is contained in the following extract from a report issued by the Ministry of Health in 1921:

"We know that the mortality from smallpox is much less now than in pre-vaccination times, that the greatest diminution in the smallpox mortality is found in the early years of life, in which there is most vaccination; that in countries in which there is much vaccination and revaccination relatively to the population there is little smallpox; that in places where smallpox prevails it attacks a much greater proportion of the unvaccinated than the vaccinated, especially where the vaccinations are comparatively recent; that in houses invaded by smallpox in the course of an outbreak not nearly so many of the vaccinated inmates are attacked as of the unvaccinated in proportion to their numbers; that the fatality among persons attacked by smallpox is much greater age for age among the unvaccinated than among the vaccinated; that the degree of protection conferred by vaccination corresponds to the thoroughness with which the operation has been performed, four marks affording much better protection than one or two; that the protection afforded by vaccination wanes with lapse of time; that improved sanitation, however beneficial in itself, cannot account for these facts; and that though early diagnosis, prompt isolation of smallpox patients in suitable hospitals, effective disinfection, supervision of contacts, and other such public health measures are invaluable they are no substitute for vaccination."

I think the first sentence of this passage might be improved by substituting for "pre-vaccination times" "seventeenth to nineteenth centuries"; otherwise, so far as it relates to matters of fact, it is in my opinion accurate and, so far as it consists of inferences from facts, reasonable; provided, of course, that one is satisfied that, biologically speaking, vaccination is a rational procedure. The vast majority of our profession are so satisfied, and I am a unit of that great majority. Sixty or seventy years ago this opinion would have been expressed by a large majority with even greater confidence but with less justification than can now be claimed, because from the biological point of view the final confirmation has been obtained within the last 50 years.

A young man who turns over the earlier controversial literature of the subject can hardly fail to be, I will not say shocked, but surprised that men of first-rate ability should draw such wildly different conclusions from evidence available to them equally. We shall find Simon putting Jenner on an equality with Newton, and Creighton describing him as a shuffling rogue who first attracted attention by telling lies about the habits of the cuckoo (the "tissue of inconsistencies and absurdities" Jenner described have been photographed from nature in our time). Yet Simon had himself done scientific research and Creighton was the best descriptive epidemiologist of the nineteenth century.

The explanation is, I think, this. When Simon wrote, thirty years before Creighton, the statistical evidence in favour of vaccination was certainly not impeccable but it was substantial, and Simon believed that many lives would be saved if vaccination were widely used. He wished to strengthen public faith in vaccination; he was a propagandist, and, as we have excellent reason to know, it is hard

to combine scientific accuracy with propaganda. Simon knew that the case for vaccination was empirical, as was the case for using Jesuit's bark in ague in the seventeenth century, but he was an opportunist in the good sense of the word, a pioneer of social medicine. Creighton was a scholar and logician; he simply could not stomach the absurdity, as he thought it, of preventing one disease by inoculating a different disease. Just as providence permitted bird watchers to photograph what Creighton attributed to Jenner's imagination, S. M. Copeman was permitted in 1902 to derive vaccinia from variola by passage of variola virus through the monkey, and M. Gordon (1925) and Burgess, Craigie, and Tulloch (1929) established a biochemical affinity between the two viruses.

It is, I think, impossible now to doubt that Jenner's guess—or happy intuition—that cowpox and smallpox were closely akin was right. Jenner's story retains its human interest, perhaps even a scientific interest, as a further illustration of the fact that a student of natural history with enthusiasm and imagination may reach truth hidden from book-learned men, but his virtues or vices are quite irrelevant to a judgment on vaccination to be pronounced now.

I do not think that the waning resort to vaccination is a consequence of the propaganda of the anti-vaccinists, but due primarily to two facts. The first is that very few persons under 60 who have never left England have any experience of deadly smallpox; the second that it has been proved that vaccination may have mortal consequences. The whole number of deaths from post-vaccinal encephalitis has been very small—utterly negligible—statistically speaking, in comparison with the "normal" deaths from smallpox a generation ago, but they *are* facts. As Farr said when making one of those calculations of the pecuniary value of a human life which some economists enjoy making, "This valuation of life differs from that of the mother to whom her helpless child is inestimably precious." Nothing short of an epidemic at least as serious as that of 1901-2 would bring up the national percentage of infant vaccinations to what it was two generations ago. Governments, however, grow more authoritarian daily; we are compelled to do or abstain from doing things in a way which would have shocked our grandparents. If our profession could make it probable that neglect of vaccination would be followed by an epidemic of classical smallpox within a politically important interval—say, within the lifetime of a sitting Parliament—we *might* bring back compulsory vaccination and introduce compulsory revaccination. I do not think we can make it probable. Experience at home (in Leicester) and in the Dominions suggests that the introduction of classical smallpox into a community poorly protected does not automatically produce a devastating epidemic, provided there are adequate facilities for the immediate vaccination of those willing to be vaccinated.

Dr. Killick Millard's experience in Leicester will be well known to readers; Australian experience is perhaps less familiar. The great cities of Sydney and Melbourne contrasted in vaccinal states. In the ten years before the most serious outbreak of smallpox in Sydney recorded vaccinations were only 30.1% of registered births in New South Wales; the corresponding figure for Victoria was 81.2%. In 1881-2 Sydney had a considerable prevalence—154 cases of smallpox widely disseminated; in 1884-5 Melbourne had 56 cases. The fatality in the Sydney experience was 25.9%, which is a "normal" fatality for classical smallpox; of the 56 patients in Melbourne only 4 died. Clearly Melbourne came off better than Sydney, a fact I should attribute to better use made of infant vaccination. But it is equally clear that the experience of Sydney was not devastating, that the disease did not spread like wildfire.

I note that in 1881 more than 61,000 persons were vaccinated in New South Wales. The presence within a community of smallpox is very good propaganda for vaccination.

If, of course, the supply of vaccine became restricted or facilities for its distribution to medical practitioners were curtailed, then I think we might fairly say that sooner or later an epidemic *was* probable. The fact that very few cases of classical or, as some say, African smallpox have come to notice in this country for many years may mean, perhaps *must* mean, that the virus has changed its type and fulfilled Sydenham's saying that epidemic diseases like empires rise, decline, and fall, giving place to others. But the history of scarlet fever warns us to be cautious in prophecy. We had better not boast that deadly smallpox is as extinct as bubonic plague in England.

THE ROLE OF THE PART-TIME CONSULTANT

BY

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This paper seeks to set out the present position of part-time consultants and to discuss the advantages and disadvantages of their present position, with a view to deciding what part, if any, they should play in the medical service of the future.

Some definition of a "consultant" (this word being used in this discussion as synonymous with the term "specialist") is required. Three requisites of consultant status are apparent: (1) specialist experience in the department concerned; (2) postgraduate qualification of recognized standard in the specialty concerned; (3) recognition by other practitioners as being a specialist: a hospital appointment in his branch of medicine will usually be implied. All three criteria should ordinarily be fulfilled, though in certain cases the possession of a postgraduate specialist qualification might be waived. Satisfaction of all three criteria is not inconsistent with the work of a general practitioner.

Outside the largest centres the widespread development of specialization, carried out by full-time consultants, is of very recent development. Even in some large cities it is still found that some hospital consultants practise also as G.P.s; fifteen years ago the custom was more widespread. A large number of medical men with specialist experience and qualifications are at present employed in general practice, the great majority holding hospital appointments and carrying out a consultant or specialist function in the neighbourhood. The bulk of the work they do is very considerable. Their specialist experience is invaluable, and any satisfactory medical service must utilize them fully. This can be done (a) by maintaining their status as part-time consultants, with an assured "place in the sun," or (b) by employing them only as full-time specialists, the use of part-time consultants being stopped. The pros and cons of each alternative are discussed below.

Reasons for Entering General Practice

Why do young specialists (or young men with unusual postgraduate experience) enter general practice? Some of

the reasons, which are many, can be set out as follows: (1) Financial. The doctor, aged 26-30, wishes to marry, and requires a larger income than he can obtain while waiting for a highly paid full-time post or for the development of a remunerative consulting practice. (2) Personal. Not every doctor anxious to do specializing in medicine wishes to devote his life to a city centre, nor does his position as a family man always allow him to do so. (3) The area in which he wishes to practise, or the hospital to which he is appointed, may not be large enough to support a full-time consultant. The specialist experience may be adequate, but the financial returns will not support him unless he undertakes other medical work. This applies particularly to anaesthetists, but to a lesser degree also to physicians and surgeons.

Scope of the Work of a Part-time Consultant

This varies considerably in different centres throughout the country. In surgical practice, in the smaller centres, adequately experienced emergency surgeons may confine themselves to acute abdominal emergencies and a restricted list of routine (set) operations. At the other end of the scale, in the largest centres, part-time consulting surgeons undertake all set operations, with the exception of such special departments as cranial and thoracic surgery. These surgeons devote a diminishing portion of their time to general practice, and many of them as they reach seniority in their hospitals ultimately relinquish general practice for full-time consulting work. But, however much or however little surgery any part-time surgeon may undertake, it will be readily agreed that the total volume of work undertaken by a specialist of this type is very considerable, and also that the qualities he requires for successful practice (i.e., professional excellence, based on training and experience, and a high standard of professional honour limiting him to those procedures within his ability to perform) are precisely those necessary for his full-time colleague.

As the volume of work carried out by part-time consultants is too great for it to be done elsewhere than at present arranged, the next highest medical centres being already worked to capacity, only two alternative futures can be envisaged for them: (1) that they continue to function in their present appointments; or (2) that they enter full-time hospital or consultant practice, replacing hospital consultants of part-time basis.

Supply of Further Full-time Consultants

There is an acknowledged shortage of specialists in all departments of medicine, though this shortage is often masked by bad distribution and shortage of hospital accommodation. Junior consultants waiting for vacancies on the staffs of teaching and non-teaching hospitals throng the large centres. Few hospitals can afford to maintain adequate medical staffs owing to deficient bed and out-patient accommodation. If they expanded sufficiently to deal with their long waiting lists an increase in staff appointments by as much as 30% might be required. The real shortage would then at once become apparent. The medical schools cannot be expected to correct this shortage for at least ten years, and it would seem that the main source of further full-time consultants would be the ranks of their part-time colleagues. If the consultant service is to be widened, as it must be, then either greater use must be made of the part-time consultant or, if part-time specialization is to be discouraged, present-day specialists in part-time practice must be induced to enter the consultant service in a full-time capacity.

Seen from the point of view of patients in rural areas centred on smaller hospitals, three alternative forms of