THE END OF COMPULSORY VACCINATION

BY

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The year 1948 will ever be memorable in the history of vaccination in this country as seeing the end of compulsory vaccination of infants, a measure which has been the subject of such acute and bitter controversy for so many years. Having regard to the great importance attached to universal vaccination of infants as our "first line of defence," and to the firm belief that only by compulsion could this be secured, it is rather surprising that the proposal to abolish compulsion did not arouse more opposition. In the event the opposition was almost negligible.

History of Compulsory Vaccination

Jenner's great discovery was made just at the end of the eighteenth century, and the practice of vaccination gradually came into favour in the early part of the nineteenth. In 1840 an Act was passed providing for free vaccination by public vaccinators, to be appointed for the purpose by Boards of Guardians, but this was only permissive.

It was in 1853 that vaccination of infants was first made compulsory. By an Act passed in that year every parent who refused or neglected to have his child vaccinated within three months of birth was made liable to a fine of 20s. and costs. Thus compulsion was in force (theoretically) for 95 years, but it was only really in operation for part of that time. The Act provided no machinery for enforcing the law, but this omission was remedied to some extent in 1861, when Boards of Guardians were empowered to appoint vaccination officers for the express purpose of instituting legal proceedings against defaulters. Six years later, in 1867, a further Act was passed consolidating previous Acts and making the penal clauses more stringent. In the debate on the third reading Sir Thomas Chambers, in opposing it, made this prophetic utterance: "I am persuaded that when the Bill is passed an agitation will commence which will never cease until the Act is repealed." It has taken 81 years for the prophecy to be fulfilled.

Opposition to Compulsion

The Leicester Revolt.—With the passing of this Act active opposition began. An Anti-compulsory Vaccination League was formed in London, and branches soon followed in a number of provincial towns. The movement was greatly stimulated by the numerous prosecutions for default which took place. Fines were imposed, and, as many refused to pay, distraints on goods or imprisonment followed. The first parent to go to prison was a William Johnson, of Leicester. At a public meeting after his release he was presented by his admirers with a silver watch. This meeting may be regarded as the beginning of the movement against vaccination in Leicester, which became so strong that it led to the town being regarded as the "Mecca" of the antivaccination movement throughout the country.

After the serious smallpox epidemic of 1870–1, part of the pandemic which swept over Europe, the appointment of vaccination officers was made compulsory, and the authorities in Leicester, as elsewhere, attempted to enforce vaccination more rigorously. Prosecutions in the town increased from two in 1869 to over 1,100 in 1881, the total for the twelve years being over 6,000. Of these, 64 had involved imprisonment and 193 distraints upon goods, the latter often being effected with much difficulty owing to popular sympathy with the defendants. All classes of the community were represented among those who set the law at defiance, and those who were prosecuted were regarded as martyrs. Ultimately, in 1886, the Guardians decided by an overwhelming majority to cease prosecuting for vaccination default, and thereafter the vaccination laws became a "dead letter" in Leicester. As a result the number of vaccinations rapidly fell off, and for the past 40 years have averaged only about 5% of the births.

Why Vaccination was Objected to.—It would be a mistake to regard this widespread hostility to vaccination as merely the result of organized agitation. Primarily it was due to the serious after-effects and injury to health of which many people had had personal experience in their own families, or believed that they had had, and which undoubtedly were much more common in those days of arm-to-arm vaccination, when the importance of asepsis was unknown or little understood. Even after glycerinated calf lymph had replaced the use of lymph taken direct from another infant's arm public vaccinators were required to do the operation much more "thoroughly" (four "good" marks) than is the case to-day, and "bad arms" were not uncommon. To be compelled to have a healthy and beloved child vaccinated when it was sincerely believed that injury to health might follow seemed to many parents to constitute an intolerable interference with individual liberty.

The "Conscience Clause."—In 1897, in consequence of persistent and growing agitation and following the strong recommendation of the Royal Commission, new legislation was passed which included the famous "conscience clause." This enabled parents who could satisfy two justices in court that they "conscientiously believed that vaccination would be prejudicial to the health of their child" to obtain exemption from the law. Nine years later the obtaining of exemption was made much easier by substituting the making of a statutory declaration before a magistrate or commissioner of oaths for having to go into court. The effect of this loop-hole, which was very largely taken advantage of, together with the fact that by this time smallpox had greatly decreased, led to a steady and continued fall in the percentage of children vaccinated.

Warnings of Disaster to Come

Naturally, grave warnings were uttered regarding the great risk which the country, in particular the town of Leicester, was running. The then M.O.H. for Leicester, Dr. Tomkins, in his annual report for 1888, wrote as follows:

> "The sad feature about the whole business is that it is the young children of the town who are growing up in thousands unprotected and are running a risk to their lives. They have but to come in contact with the least breath of infection of smallpox to at once catch this loathsome disease."

No doubt, had I been M.O.H. for Leicester at that period, without the experience since obtained, I should have been as much alarmed as Dr. Tomkins was.

Similar warnings were re-echoed by medical experts throughout the country. Dr. J. C. McVail (1886), a recognized authority, wrote:

> "The antivaccinators of Leicester . . . having to a great extent thrown off the armour of vaccination, are waging a desperate and gallant, though misguided, conflict against the enemy. . . . But in Leicester, when its time arrives, we shall not fail to see a repetition of last century's experiences, and certainly there will afterwards be fewer children left to die from diarrhoea. It is to be hoped that, when the catastrophe does come, the Government will see that its teachings are duly studied and recorded. . . . Leicester has had little chance of getting its immunity tested."

The Leicester "Experiment"

Was it Ever Really Put to the Test?—It is now 62 years since those words by Dr. McVail were written. During this period smallpox has on many occasions been introduced into the town and three times it has attained to epidemic prevalence. When the first epidemic occurred in 1893 the outbreak was duly reported upon for the Government by Dr. S. Coupland, and he was constrained to admit that "the facts would seem to show that in this epidemic at least the natural liability to smallpox, unaffected by vaccination, was not so great as has been supposed." There have been two subsequent epidemics—which I reported upon—but nothing in the nature of disaster has occurred, although on one occasion a sudden outburst took place without warning, when 53 cases occurred in one week, followed by 21, 34, and 48 in the next three weeks. Then the outburst subsided almost as quickly as it had arisen, and six weeks later only one case occurred. The remarkable feature of this outburst was that no clue whatever could be obtained to its cause. For the first fortnight, until secondary cases arose, none of the cases could be traced. No link between any of them was discovered. They were scattered over the greater part of the town, regardless of age, sex, or occupation,

as indiscriminately as if the infection had literally dropped from the clouds—which indeed it may have done if there is anything in the theory of "aerial convection," for there were a few cases of smallpox in the hospital prior to the outburst. But at least it afforded the "chance of testing Leicester's immunity" called for by Dr. McVail. At that time infant vaccination had been abandoned for 17 years and at least 90% of the child population were unvaccinated. A certain number of school-children were attacked, as of persons in other age periods, but no school outbreak occurred nor were any schools closed.

Its Lessons.—The abandonment of infant vaccination in a large town like Leicester over a long period of years has undoubtedly provided that "control experiment" which is so necessary if any theory is to be really tested. It is worth while, therefore, to consider what lessons are to be learnt from it. The two most important lessons are:

(1) That mentioned by Dr. Coupland and referred to above—viz., that the natural liability to smallpox is not so great as has been supposed. This is not to say that smallpox is not a highly infectious disease; it is probably the most infectious of all zymotic diseases, and very few persons are naturally immune to it. But there is a limit to its infectiousness, and it has been shown in Leicester that it does not "pick out" the unvaccinated persons in a community to nearly so great an extent as has often been alleged. It was quite expected that when smallpox did visit Leicester it would fall with special severity upon the unvaccinated children. McVail expressly prophesied this. Yet during the 34 years that I was M.O.H. for Leicester, over which period more than 700 cases of smallpox (major and minor) occurred in the town, only 12 infants under 1 year of age were attacked, of whom three died. Incidentally, some of these cases, including all the deaths, were under the age limit for vaccination, so that they cannot all be fairly attributed to neglect of vaccination.

(2) The second important lesson to be learnt is the efficacy of modern methods of prevention in controlling the spread of smallpox irrespective of the vaccinal condition of the population. This again is quite contrary to formerly accepted teaching. It does not mean, of course, that smallpox will never spread in an unvaccinated community: it will do so even in a so-called well-vaccinated one. The fact is that it is not possible in practice to maintain any general population in a really well-vaccinated condition—at least not in a democratic country. To do so would entail the repeated vaccination of every individual several times during his lifetime, and this is clearly impracticable. In the British Army the rule now is for each man to be revaccinated every five years when on home service and every two years when abroad.

Why the Prophets were Wrong

Looking back it is interesting to consider why medical experts were so mistaken in their prophecies of disaster to come if universal vaccination of infants were abandoned. It was probably due to the belief, then so strongly held, that it was infant vaccination, and that alone, which had brought about the great diminution of smallpox mortality that followed upon the introduction of vaccination. That this was clearly a case of cause and effect was reiterated in every textbook and in every course of lectures on public health. It was hailed, indeed, as the outstanding triumph of preventive medicine. No wonder that medical students accepted it as an incontrovertible scientific fact. Dr. McVail in his book, which was recognized as the standard work proving the case for vaccination, made use of a very "telling" diagram with which, by judiciously selecting the periods, it was possible to show a progressive decrease in smallpox mortality *pari passu* with an increasing efficiency in the enforcement of vaccination. Other authorities made use of similar diagrams, and the apparent correlation, inversely proportional, between smallpox mortality and the amount of infant vaccination was at that time one of the principal arguments in support of the belief. We now know that this apparent correlation must have been a coincidence, because smallpox mortality continued to decrease even after vaccination was decreasing also, and this has now gone on for over 60 years. Obviously there must have been other causes at work which brought about the dramatic fall in smallpox mortality since the beginning of the nineteenth century,* and to that extent vaccination has for so many years been receiving more credit—perhaps much more—than it was entitled to.

It is not contended that infant vaccination had no effect in hastening the fall. The extent to which it did so is arguable. It would practically abolish mortality among vaccinated children; but against this it may have increased it in those children remaining unvaccinated and in persons at older age periods, owing to the detrimental effect of incomplete protection in encouraging the spread of infection by "carriers" (missed cases), which is one of the principal means, as is now realized, by which smallpox is disseminated. Considerations of space make it impossible to pursue this further here. The point it is wished to make is that the fall in smallpox mortality which followed the introduction of vaccination would have occurred sooner or later even if vaccination had never been discovered.

The Future of Vaccination

The official view is that, having regard to the great success which has attended voluntary methods in the case of immunization against diphtheria, infant vaccination will increase with the substitution of persuasion for compulsion. That this will actually happen, however, seems doubtful for two reasons: (1) In the case of immunization we are able to point out that diphtheria is a serious menace to child life, while smallpox has ceased to be a menace, at least for the present. (2) With immunization we can truthfully say that it is "very safe": ill effects are negligible and "bad arms" practically unknown. Dare we say as much for vaccination?

Not so many years ago a married couple living on the outskirts of Leicester, acting on advice, had their two children vaccinated. Both developed post-vaccinal encephalitis and both died, leaving that married couple childless: rather unpleasant for those who gave the advice! Admittedly this case was very exceptional, and the danger of developing encephalitis is less after vaccination in infancy than when the operation is performed for the first time at a later age. But other injuries to health are less uncommon. Having regard to these facts it will be difficult to work up much enthusiasm for active propaganda in favour of vaccination, and without propaganda infant vaccination will almost certainly go. Unless smallpox should return and again become a menace it seems likely that in the future vaccination will be reserved for doctors, nurses, and sanitary staffs (and all these should be revaccinated much more often than is the case at present), for Service personnel, for persons going out to the East, and for the vaccination of contacts.

The Outlook Regarding Smallpox

And lastly, what about smallpox? What are the prospects of the disease returning if infant vaccination does fall into disuse? Shall we see a repetition of the ravages in pre-vaccination times? It is doubtful if any authority really expects this to-day in spite of the prophecies made so confidently in the past.

Briefly the position is this: in Leicester during the 62 years since infant vaccination was abandoned there have been only 53 deaths from smallpox, and in the past 40 years only two deaths. Moreover, the experience of Leicester is confirmed, and strongly confirmed, by that of the whole country. Vaccination has been steadily declining ever since the "conscience clause" was introduced, until now nearly two-thirds of the children born are not vaccinated. Yet smallpox mortality has also declined until now it is quite negligible. In the fourteen years 1933–46 there were only 28 deaths in a population of some 40 millions, and among these 28 *there was not one single death of an infant under 1 year of age.* In passing it is to be noted that during the same period there were, it is officially admitted, no fewer than 51 deaths of infants from "vaccinia, other sequelae of vaccination, and post-vaccinal encephalitis." Had all the children born been vaccinated these figures would obviously have been much higher.

It certainly appears that the conditions of life in this country —"public health," "sanitation," "standard of living," call them what we will—have so changed, quite apart from vaccination, that they are no longer congenial to the spread of major smallpox. Incidentally it may be observed that other zymotic diseases which once caused a very heavy mortality in this

*I am not alone in taking this view. Major Greenwood (1930) wrote: "(3) . . . the use of this instrument (vaccination) has been one of the factors but not the sole, perhaps not the most important, factor in modifying the epidemiological history of smallpox during the last hundred years."

country—e.g., scarlet fever, enteric fever, and typhus—have shown a decline in mortality as dramatic as that of smallpox, yet no one is alarmed lest these diseases should revert to their old-time mortality, and certainly there was no vaccination to bring about their decline.

For those who still have misgivings about what may be in store now that compulsory vaccination has gone there is always this comforting thought: should major smallpox again invade this country and ever really get out of hand, we have one trump card to play which we have not got in the case of other epidemic diseases—viz., emergency mass vaccination of the whole population in the affected areas. Such a measure admittedly would be a very drastic one, and should certainly not be adopted except as a last resource. It is not a step to be taken in a moment of panic merely because a handful of cases of smallpox have occurred in a great city, but it would save the situation if effectually carried out, as it could be if the situation were serious enough. For there is one remaining position in the provaccinist line of defence which is quite impregnable in spite of all the onslaughts which have been made upon it by the other side—viz., that *a recently vaccinated person does not take smallpox no matter how much he may be exposed to infection* (this does not include a person vaccinated during the incubation period). The exceptions to this law are so rare that for practical purposes they may be ignored.

Conclusion

We suggest, then, that the abolition of compulsory vaccination is likely to be followed by a still further decline in the number of children vaccinated, until in the course of a few years the child population of this country will be almost unprotected against smallpox so far as vaccination is concerned. The adult population of course never has been really protected.

As for smallpox, no one can foretell the future. Importations of the disease from abroad may occur at any time, as has always been the case; and there is also the possibility that some day a serious epidemic may occur, as in the past. I suggest, however, that in view of the experience of the unvaccinated town of Leicester, and indeed of the whole country, during the past 60 years there is no real cause for alarm.

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THE ROYAL DENTAL HOSPITAL OF LONDON

The Royal Dental Hospital of London and School of Dental Surgery held its thirty-second annual "Clinical At Home" on Nov. 27, when many past students and visitors attended. The hospital, which now has 180 students, was extensively damaged during the war but has now been repaired, and several new departments and additions have been made, including a junior conservation department fitted with a number of manikin heads and drills for students and a new photographic department, the first of its kind in a dental hospital in this country. One of the most interesting demonstrations was in the speech therapy department. This department was established twenty-seven years ago, particularly for patients with cleft palate, but with the vast improvements brought about by plastic surgery the cases that come under this heading now are only late or second operation patients, and the work on speech therapy has been linked up with the orthodontics department. Orthodontists have felt that so long as their small patients continue to go about open-mouthed and sucking their lips their work is largely thrown away. The speech therapy department therefore gives the patients exercises with a view to getting better muscular co-ordination.

At the annual dinner which followed the "At Home" the Dean of the School, Mr. H. L. Hardwick, said that it had been felt for a long time past that the interests of students would be best served if the hospital were associated with a leading hospital and medical school, and through the National Health Service such a fusion had now been brought about, the hospital and school being in the St. George's Hospital group. Mr. Hardwick described the setting up of the new Fellowship in Dental Surgery by the Royal College of Surgeons as the most stimulating thing which had happened to the dental profession since the institution of the L.D.S. During the past year 32 former students had received the Fellowship. In the course of the evening the presentation of a cheque for over £500 was made to Miss H. M. Duncan on her retirement from the school after thirty-three years' service. Lord Webb-Johnson and Dr. E. W. Fish replied to the toast of "The Visitors."

TRYPANOSOMIASIS IN TROPICAL AFRICA

At a press conference held recently at the Colonial Office certain reports on trypanosomiasis and on the combating of the tsetse fly in East and West Africa were presented. Three of them have already been published by H.M. Stationery Office—namely, one on trypanosomiasis in British West Africa, by Professor T. H. Davey, of the Liverpool School of Tropical Medicine; a second dealing with Eastern Africa, by Professor T. A. Buxton, of the London School; and a third describing the rural development and settlement scheme at Anchau (Zaria province, Northern Nigeria), by Dr. T. A. M. Nash, Government entomologist, Nigeria. A fourth and more extensive report by Dr. Nash, on tsetse in British West Africa, is to be published shortly. Dr. Nash and Professor Buxton were present at the conference to answer questions. It was stated that the ravages of the tsetse in Nigeria are so severe that only one-fifth of the country is really safe for man and cattle. One-third of the country is an endemic sleeping sickness area. The same is true of the Gold Coast. The whole of Sierra Leone is subject to tsetse, and endemic sleeping sickness occurs in one-tenth of that country. In the Gambia the conditions are similar. As for East Africa and the Rhodesias, Professor Buxton stated that the types of fly which inhabit narrow strips beside water have been controllable for a number of years, though often at undue cost; and in certain environments, though not in all, those which inhabit belts of bush can now be expelled. He did not hold the view that tsetse is everywhere on the advance. Where it is advancing, of course, the fact is known, but the many areas in which it is retreating may not be as fully appreciated and may only be discovered by research. Dr. Nash spoke of the Anchau scheme, in which a corridor 70 miles long and 10 miles wide has been cleared and under the direction of the Sleeping Sickness Service of the Nigerian Medical Department 5,000 people have been moved from 45 hamlets and housed in 16 new villages and one town, while a further 60,000 people have been assisted by freeing areas of tsetse and providing good wells, schools, and marketing facilities. This has been paid for by a £95,000 grant under the Colonial Development and Welfare Scheme. The name of the new town is an African word meaning "Walk in Health." The prices of the reports on the Anchau scheme, on trypanosomiasis in British West Africa, and on trypanosomiasis in Eastern Africa are respectively 3s. 6d., 2s., and 3s., and that of the more voluminous report on tsetse in British West Africa is 30s.

TRAFFIC IN DANGEROUS DRUGS

HOME OFFICE REPORT

The British Government has made a report to United Nations on the traffic in opium and dangerous drugs in Great Britain and Northern Ireland in 1947. The report, which is issued under the auspices of the Home Office, states that in this country known addicts number 164 men and 219 women and include 82 doctors, one dentist, one veterinary surgeon, and three pharmacists; 10 doctors were convicted during the year for violation of the narcotic laws. Morphine and diacetylmorphine are the principal drugs of addiction; a few addicts use cocaine, but the number addicted to this drug tends to diminish, and fresh cases of addiction to cocaine are rare. It has become evident that pethidine must be regarded as a more usual drug of addiction than cocaine. Particular mention is made of two drugs. "Metopon" (methyldihydromorphinone) was shown to be of medical value, and the Relaxation Order was invoked last year to permit of its