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Wednesday, 18 January 1967, at 2.30 p.m.

CHAIRMAN: Dr J.-C. HAPPI
later: Dr J. WATT

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Dr A. R. M. AL-ADWANI, Rapporteur	Kuwait
Dr A. BENYAKHLEF, Rapporteur	Morocco
Dr A. ABDULHADI	Libya
Mr A. F. ABRAR	Somalia
Dr T. ALAN (alternate to Professor N. H. Fişek)	Turkey
Professor E. AUJALEU	France
Dr J. C. AZURIN	Philippines
Dr D. BADAROU	Dahomey
Sir George GODBER	United Kingdom of Great Britain and Northern Ireland
Professor D. M. GONZÁLEZ TORRES	Paraguay
Dr L. W. JAYESURIA (alternate to Dr M. Din bin Ahmad)	Malaysia
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Dr P. D. MARTÍNEZ	Mexico
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Dr M. P. OTOLORIN	Nigeria

Present	Designating Country
Dr C. QUIRÓS	Peru
Dr K. N. RAO	India
Dr D. D. VENEDIKTOV	Union of Soviet Socialist Republics
Dr M. K. EL WASSY	Yemen

Secretary: Dr M. G. CANDAU
Director-General

Representatives of Intergovernmental Organizations

United Nations	Mr A. DOLLINGER
United Nations Children's Fund	Sir Herbert BROADLEY
Food and Agriculture Organization	Mr G. DELALANDE
Intergovernmental Committee for European Migration	Dr C. SCHOU
League of Arab States	Mr M. AZIZ HETATA

Representatives of Non-governmental Organizations

Council for International Organizations of Medical Sciences	Dr V. FATTORUSSO
International Committee of Catholic Nurses	Miss L. CHARLES-ROQUES
International Pharmaceutical Federation	Dr E. LANG
International Society for Rehabilitation of the Disabled	Miss A. E. MOSER
International Union for Child Welfare	Miss A. E. MOSER
League of Red Cross Societies	Professor A. LIBOV

3. SMALLPOX ERADICATION PROGRAMME: Item 2.6 of the Agenda (Document EB39/12)

Dr PAYNE, Assistant Director-General, said that information on the status and development of the smallpox eradication programme had been compiled by the Director-General in compliance with resolution WHA19.16, and was presented in the report (document EB39/12). Details of the 1968 programme were contained in Official Records No. 154, and were indicated in the programme index on page XLVII. Since the plans for the implementation or acceleration of smallpox eradication activities in many of

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[1] Resolution EB39.R8.

the endemic countries were in process of active evolution, the report necessarily represented a summary based on the best available information on programmes formally approved and programmes planned or approved in principle.

Since the start of the world smallpox eradication programme in 1959 the annual reported incidence of the disease had declined. Asia and the Americas accounted for most of the decrease; the reported incidence in Africa had shown little change, but during the past three years the total of reported cases had remained constant, which suggested that a plateau had been reached. Similarly, there had been little change in the number of endemic countries over the past three years. Tables 1 to 7 (pages 24 to 30 of document EB39/12) contained summaries of the incidence from 1959 to 1966 and also of past and anticipated activities from 1964 to 1968. For the year 1966 information was given up to 3 November, but figures were available up to 31 December.

The action of the Nineteenth World Health Assembly in appropriating special funds for smallpox had given a timely impetus to the programme as a whole, and the response had been gratifying. All the Regional Committees had adopted special resolutions of support. In the Americas a regional plan had been developed calling for completion of the task within five years. In Africa it was anticipated that by the end of 1967 at least twenty-two countries would have embarked on systematic eradication efforts. Most Asian countries envisaged an intensification of effort or at least the initiation of systematic vaccination programmes during 1967. The United States of America had offered substantial bilateral technical and material assistance for programmes in nineteen west and central African countries, and the

Union of Soviet Socialist Republics had offered seventy-five million doses of vaccine to WHO and was providing large amounts bilaterally to several major endemic countries. Offers of vaccine had also been received from a number of other countries.

During 1966 WHO staff and consultants had visited most of the endemic countries, to assess the current status of smallpox and vaccination activities and to initiate planning for the intensified global eradication effort. Emphasis had been placed on regional co-ordination, on careful national planning to ensure participation of the basic health services, on the adequate supervision and assessment of the programme, on the creation or strengthening of surveillance programmes and the development of a maintenance vaccination and surveillance scheme to be implemented when the country achieved smallpox-free status. The principal considerations were discussed briefly in the report. However, despite generous donations of vaccine, the provision of adequate quantities of fully potent freeze-dried vaccine continued to be a problem. Large amounts of vaccine were required from external sources by many of the countries embarking on eradication programmes; vaccines being produced in several countries did not meet WHO standards; consultants to help in improving the quality of vaccine and increasing production were few and could normally be made available only for brief periods.

Several steps were being taken to meet the problems. In the first place, assistance was being given, in co-operation with UNICEF, to help endemic countries to expand or develop vaccine production facilities. Secondly, a special contractual arrangement had been made with an experienced Canadian vaccine producer to provide

continuing technical assistance and support to laboratories in the Americas; and similar arrangements were being explored to help producing laboratories in other parts of the world. Thirdly, the Director-General had appealed to Member countries to increase their donations of vaccine.

Despite the generous assistance in supplies of vaccine by a number of countries, it was obvious that additional supplies would be required during 1967 and throughout the programme. Precise estimates were being prepared.

In several regions special training courses for national programme staff were being planned for 1967, to deal with operational methods and problems, assessment, surveillance and laboratory procedures. A scientific group was to be convened to deal with technical matters relating to the programme as a whole. A regional smallpox virus reference centre had been established in Moscow in 1966 and others were planned. The testing of vaccines from producers in various countries was continuing in Denmark and the Netherlands, and Canada would join in the activity during 1967. The League of Red Cross Societies had made a formal offer of assistance for the programme, and discussions had been held at headquarters level to consider the best approach for utilizing that assistance. The World Food Programme had offered help in the form of foodstuffs, and ways of using such assistance were still being studied.

In the light of the response to the Assembly resolution, there was every reason for at least cautious optimism as to the future progress of the eradication programme. The difficulties of the task should not be under-estimated: a concerted effort on the part of endemic and non-endemic countries would be required over many years. But the beginning augured well for the future.

Dr VENEDIKTOV said that the smallpox eradication programme warranted very careful attention and as much time as was needed should be given to it.

Although he was present in his personal capacity, he wished to stress his country's interest in the programme - which was well known - so that his remarks should not be taken as being against it. It was important, however, that the smallpox eradication programme should avoid the difficulties and disillusionments of the malaria eradication programme. It was not enough to say that a disease must be eradicated: the possibility of doing so must exist, and there seemed no justification for over-optimism. He would like to ask a number of questions which experts in his own country had been unable to answer, but which perhaps WHO's experts might be able to.

In the first place, what was global smallpox eradication? Some experts thought that it was interruption of morbidity or its reduction to a given level; others that it was a complete elimination of the smallpox virus from the world; and others again had different definitions. Was there a universally accepted meaning of "global eradication"? The second question was that, if global eradication meant the elimination of the smallpox virus from the world, then could that be done? Would it not happen that after a certain period the virus was found, say, in monkeys under tropical conditions? An example of such a situation had occurred with malaria. Thirdly, what was the global strategy of the programme? Had an

international global plan been worked out, or was one being prepared, for implementing the programme? A mimeographed report of some twenty-five pages, produced after an interval of eighteen months, seemed inadequate to convince world experts that all problems had been solved and that WHO knew exactly how to proceed. The smallpox eradication programme surely warranted a document as big as the proposed programme and budget estimates. Fourthly, what was the present situation as regards government promises of support for smallpox eradication? The Organization could not carry out the work alone; the major effort had to be made by governments. And, unless the situation was clarified at the outset, the Organization might later find itself in a very difficult position.

With regard to the cautious optimism referred to by the Assistant Director-General, he would like to know whether the programme was developing satisfactorily in the sense that eradication might be expected within ten years, or merely in the sense that something was being done. He wanted to know whether there was really any conviction that eradication could be achieved within the time limit. He had already made similar remarks at the Nineteenth World Health Assembly and had been told that there was no particular reason for concern. In that connexion he recalled document A19/P&B/2,[1] which had been discussed at the Nineteenth World Health Assembly. On the last pages it was stated that the programme was to last ten years, during which time 1790 million vaccinations were to be carried out, that the

[1] Reproduced in Off. Rec. Wld Hlth Org. 151, Annex 15.

programme would cost $ 180 million, thirty per cent. to be borne by the Organization and seventy per cent. by the countries in which the programme was to be carried out or by other countries in the form of bilateral assistance. In the final paragraph of the document it was stated that any delay or prolongation of the programme would result in a further increase of the over-all costs.

He felt that before proceeding any further with smallpox eradication a serious attempt must be made to answer the questions he had formulated. If they could not be answered then there were bound to be disappointments - not after ten years, but within two or three years; money and efforts would have been wasted and the enthusiasm of a large number of countries would prove to have been unfounded. He thought that the Secretariat should be asked to study all those questions with the help, not only of those experts that had always viewed the programme with enthusiasm, but also of interested countries, and then to prepare a reliable document.

He could not help commenting on a certain lack of care in the preparation of the documentation. For example, it was stated in the report on the smallpox eradication programme (document EB39/12, page 8) that the Union of Soviet Socialist Republics had contributed seventy-five million doses of vaccine to the programme. At the rate of ten cents per vaccination the contribution amounted to $ 7.5 million; yet no figures for the Special Account for Smallpox Eradication were given for 1968 in the Proposed Programme and Budget Estimates for that year. Again, in a footnote

to Table 5 on page 28 of the report on the smallpox eradication programme, reference was made to anticipated USSR bilateral assistance for vaccine supply, but he knew of no government statement on which such anticipation could be based. It was important to check with governments before including such statements. Those were two examples of the kind of thing that detracted somewhat from the quality of some of the WHO documentation, and lessened the value of the Organization's planning.

Dr PAYNE, replying to Dr Venediktov, read out the definition of smallpox eradication produced by the Expert Committee on Smallpox in its first report (Technical Report Series No. 283, page 24):

> "The Committee considers that the term 'smallpox eradication' implies the elimination of the disease the world over. It may also be applied to the elimination of the disease from continents or large regional areas. It is not applicable to individual countries, especially if they are contiguous with countries where the disease is endemic. For these countries the term 'national smallpox control' should be used.
>
> Successful national smallpox control may be said to have been achieved if no indigenous disease has occurred for three successive years and if such local outbreaks as may have occurred from imported cases have been rapidly controlled.
>
> Countries which have succeeded in controlling smallpox have to maintain an effective control programme until the disease has been eliminated from that region.
>
> 'Regional eradication' will be reached when all the countries in the region have achieved successful national control.
>
> 'Global eradication' will be reached only when the disease is shown to be absent from all countries of the world."

It was clear that the Expert Committee regarded the absence of the disease as an essential criterion; but no reference was made to the absence of the virus, because in countries where smallpox had been eliminated, once a country had been

free from the disease for three years there had been no recurrence unless the disease were introduced from outside. Consequently it was unnecessary to define eradication in terms of the virus.

Replying to Dr Venediktov's second question, it was necessary always to be prepared for surprises. However, up to the present time, there were no known instances of recurrence of smallpox through monkeys and no cases of smallpox among human beings handling monkeys. No cases of smallpox among the indigenous population in contact with monkeys had been documented; rumours of such occurrences in the 1920's and 1930's had never been confirmed.

Over-all strategy was based on development at the regional level. Each of the regions was now preparing its programme so that development could as nearly as practicable proceed at a similar pace throughout the region.

As regards the adequacy of the report, the regional offices were at present engaged, under the guidance of headquarters, in developing detailed country plans, embodying all the administrative and logistic factors involved. A document containing all those detailed plans would indeed be the size of Official Records No. 154. Dr Venediktov was right in saying that the major part must be done by countries; the problems involved were similar to those which had been so ably described by members of the Board during the discussion of the malaria eradication programme.

With regard to Dr Venediktov's question as to whether the programme was developing satisfactorily and eradication was likely to be achieved within ten years, no one would dare to give a firm answer. There were several intangible and unforeseeable elements which might prevent achievement of the objective but, if the necessary effort were put into the programme and if the intangibles did not prove too serious, it was his personal belief that there was a reasonable prospect of success. But, as the Director-General had remarked at an earlier meeting, it would be better not to tie the programme too strictly to the ten-year period. It must be seen how the programme developed and it must be recognized that the faster it could be carried out the cheaper and more effective it would be. It was vital to avoid a repetition of what had happened in some countries with malaria eradication programmes, where, when the final phase had been reached, efforts had been relaxed, there had been recrudescence of the disease and whole programmes had had to be repeated. He could assure the Board that the work put into the design of the programme was such that he had every confidence that the objectives set out in the proposed programme and budget estimates would be approached. It must be admitted that such an achievement would need the additional support referred to in the report.

With regard to the cost of ten cents per dose of vaccine mentioned by Dr Venediktov, the costing used in WHO was one cent a dose, representing the bare cost of production. It was used for bulk packages of the vaccine and the cost would be higher for vaccine packaged in smaller amounts.

Finally, the footnote on page 28 of the report was the result of a communication from a producing laboratory in the USSR asking when requests for the vaccine would be received. That had been taken to mean that the laboratory was about to produce the vaccine. He apologized if the assumption had been incorrect.

Dr VENEDIKTOV said that he had obtained the figure of ten cents from the report itself. As to the letter received from the laboratory, information for the report should be taken from government and not private sources - but that was a minor point.

He welcomed the cautious attitude taken towards the programme - an attitude which contrasted favourably with that expressed in the previous year's document. In that document it was stated that a plan had been made for the eradication of smallpox within ten years (1967 to 1976) which implied that, in the absence of war or natural disaster, the plan could be fulfilled. He asked the Assistant Director-General whether the formula discussed at the Nineteenth World Health Assembly (which, roughly speaking, amounted to $ 180 000 000, thirty per cent. of which would come from the regular budget, and ten years' work, for the eradication of smallpox from the world) needed re-examination. He himself thought that it did, and if so, now was the time. If it were discovered only after six or seven years that the formula was not valid, it would be too late to take corrective action.

The DIRECTOR-GENERAL pointed out that the figure of ten cents applied to each vaccination and not each dose of vaccine.

He also pointed out that the word "formula" had not been used in document A19/P&B/2 (reproduced in Official Records No. 151, Annex 15). It was stated in section 5.3 of that document:

> "Several attempts have been made to obtain specific information on the cost of the programme. This includes theoretical assumption of the cost in African countries, revised information regarding the support proposed from the present programme in such countries as Afghanistan, Burma, India and Nepal, and also a review of the past experience of the programmes of several countries in Latin America and parts of Africa. It is reaffirmed that the cost of the campaign should be broadly estimated on the basis of US$ 0.10 per vaccination; seventy per cent. of the general cost for each campaign would be covered from national sources and thirty per cent. from external technical assistance (vaccine, transport, supplies and equipment)."

There was a difference from the mathematical point of view between a formula and a broad estimate; only experience would show how far from reality an estimate was. As a broad estimate, it was believed that the campaign could be carried out with thirty per cent. of funds from external sources and seventy per cent. from national sources. But that was not a formula and could not be taken as mathematical information from WHO. It was practically impossible to use a formula at the world level. There were some countries where accurate information was available; there were others where guesswork had to be used. It was only by analysing the situation in each country that a final figure could be obtained.

Dr VENEDIKTOV thanked the Director-General for his explanation concerning the figure of ten cents. The estimate contained in the preliminary report, if not a mathematical formula, was nevertheless the result of an analysis. It would be understandable if the final cost differed from the estimate even by as much as fifty per cent. But if, as in the case of malaria, it was several times the estimate, then what would happen? Could the Director-General now say, one year after the preparatory work, to what extent the preliminary estimates were likely to need revision?

Dr PAYNE replied that at the present time the estimates in document A19/P&B/2 were the best that could be made. By the end of the current year the Secretariat could be in a position to make revisions.

He also drew attention to two smaller points which might result in a revision of the estimates. In the first place, the trend was to try to combine smallpox vaccination with other programmes like BCG vaccination and so decrease the cost of the smallpox programme. Secondly, there was still some uncertainty over the cost estimates for the African Region, which might prove to be higher than anticipated. It would be possible to report more accurately in 1968.

Dr VENEDIKTOV asked if the Rapporteurs could include in the report the Assistant Director-General's statement that the previous year's figures were the most accurate obtainable at present. It would be interesting to make a comparison in a year's time.

Professor AUJALEU said he would like to introduce a more optimistic note into the discussion. While appreciating Dr Venediktov's concern, he felt there was a sounder basis for smallpox eradication than there had been for malaria. For one thing, experience would ensure that past mistakes were not repeated. For another, smallpox was a less complicated disease than malaria and the measures for dealing with it were simpler. Obviously, costs must be estimated and the programme reviewed from time to time; but there was still room for optimism even if great progress had not been achieved by the second year. He himself did not feel too pessimistic and neither should Dr Venediktov.

Sir George GODBER said that he shared the previous speaker's qualified optimism about the success of the smallpox campaign. He considered, however, that the campaign had been somewhat precipitately launched; any pointers indicating how progress could be made as rapid as possible must therefore be carefully studied. The document before the Board was the first really scientific approach to the problem of the control of smallpox as a human disease, but it none the less raised certain questions. Why, for example, had the 1962-1963 vaccination campaigns in Pakistan been followed by higher incidence of the disease in 1964, 1965 and 1966? How and in whom had that increase been manifested? Had it occurred in people believed to have been vaccinated before or had it developed in non-immune persons, whether children born after the vaccination campaign or people who had not been covered by it?

Looking at the figures for 1964 and 1965, it appeared that thirty-two million and thirty-four million persons had been vaccinated in those years, respectively, which meant that, unless the same people had been revaccinated, two-thirds of the country's population should have been immunized. In order to find out what was really happening, figures such as those given in Table 6 in document EB39/12 had to be carefully checked and vaccination campaigns must be followed up with effective control of any cases occurring afterwards.

The suggestion that successive revaccination campaigns might be necessary was very disturbing; it led him to wonder whether the vaccine used conferred immunity for a reasonable period. It was clear that before the campaign was over much work would have to be done in connexion with the study of vaccines. For countries, freed from smallpox, that must continue vaccination as long as the disease remained in existence in other parts of the world, a killed smallpox antigen would be most useful.

The CHAIRMAN said that in spite of the unfortunate experience with malaria, members were beginning to be convinced of the possibility of the successful eradication of smallpox. Document EB39/12 mentioned two factors essential for the success of the campaign, namely, health education and supplies.

Smallpox was, like leprosy, a disease that was most prevalent in the poorer sectors of the population, where hygiene and education were deficient. Education could help the people in those sectors to understand the importance of vaccination and remove their fear of it. Failing such education, a certain percentage of the population would always escape vaccination and remain a

reservoir for the virus, preventing the successful completion of the eradication campaign. The vaccination of children also called for special attention. While it was easy for children born in towns to be taken to the hospital for vaccination at the age of seven or eight months, babies in rural areas had to wait until vaccination teams came to their area and in the meanwhile they too were a potential danger to the success of the campaign.

The question of supplies was also important. The developing countries often had the necessary personnel to carry out vaccination campaigns but if they were not provided not only with vaccines but also with appropriate equipment, eradication would undoubtedly take longer than ten years. Measures of a practical nature were necessary for the successful implementation of theoretical plans prepared by the Organization. Education in rural areas involved the solution of difficulties such as access to the people and the best teaching methods to employ.

The question of the duration of immunity also required consideration. If immunity only lasted three years, the need for successive revaccination cycles would represent a very serious problem in the case of a large population. On page 2 of document EB39/12 mention was made of the assistance WHO could give to States to help them with such vaccination programmes. It would be interesting to have fuller information about the nature of that assistance; the aid in personnel currently given appeared to him quite ineffectual. Assistance in the form of supplies was what was really needed. He hoped that the Organization would give careful consideration to the question of assistance, which was essential to the success of the eradication programme.

Dr WILLIAMS, alternate to Dr Watt, said he still believed that smallpox could be eradicated and was convinced of the competence of the WHO teams selected to carry out the programme.

In replying to a question from Dr Venediktov, who had asked for a definition of the word "eradication", Dr Payne had differentiated between the word "eradication" which was only applied to regions, that is to say to units larger than a single country, and the word "control" applied in the case of a single country. Such a distinction was not normally made by epidemiologists: nevertheless it had certain advantages if only because it prevented countries from considering that smallpox had been eradicated once they were free of it within their own frontiers. He suggested that the terminology used by the Organization be studied with a view to establishing uniformity.

Sir George Godber had asked why the two well-organized and energetic vaccine campaigns carried out in Pakistan and India had produced results that fell short of what had been desired. The situation in Pakistan and India should be carefully studied because the answer to Sir George's question might well reveal some of the surprises and possible pitfalls that could be met with in carrying out the campaign.

Dr KEITA said that his criticisms, like those of Dr Venediktov, were constructive and should not be interpreted as hostile to the programme. New contributions had constantly to be made to the common effort. For example, following the definition of eradication given by Dr Payne, the term was now understood to mean the disappearance of cases of the disease but not of the virus, and that was a satisfactory development.

Smallpox presented a very different and much less complex problem than malaria. In the African countries, the incidence, morbidity, and the economic consequences of smallpox were not serious and the disease had been kept at a respectably low level without aid from the Organization. Malaria was another matter altogether and WHO assistance was really needed to keep it under control. It was, therefore, reasonable to be more optimistic about the success of the smallpox campaign. Furthermore, substantial aid for smallpox eradication had been received from many countries; in addition to WHO assistance, it was provided under bilateral agreements and for certain African countries by the United States of America. People were much less forthcoming when it came to providing aid for the eradication of malaria, perhaps on account of the difficulties involved.

Earlier, the Director-General had mentioned his concern about certain countries such as Portugal, Mozambique and Angola, which being temporarily outside the Organization were not receiving its assistance. He recalled that those countries had not succeeded in eradicating smallpox when they were in receipt of WHO aid, which was not therefore sufficient in any case to solve the problem there.

Reference had been made to the use of aid becoming available for smallpox eradication in areas where malaria eradication had been successful. He suggested that any unused allocations for the smallpox eradication programme be diverted to malaria eradication where, in the African countries at least, they were much more necessary.

Dr Watt took the Chair.

Dr VENEDIKTOV said that his earlier remarks had perhaps been misunderstood. He agreed with Dr Williams that smallpox could be eradicated, and with Professor Aujaleu that it would be easier to eradicate than malaria. He had never had any doubt on either score. A study of the discussions since 1958 would show that his country's experts had always stressed the difference between malaria eradication and smallpox eradication, expressing their conviction that smallpox could and should be eradicated. He had referred to the malaria programme only as an example of earlier errors not to be repeated. He himself, and all the specialists in his country were most eager that the smallpox eradication programme should be successful. Every means must be brought to bear to that end, including a certain measure of anxiety. The concern he had expressed should not be interpreted as an attack. But he thought that all members of the Board should - and indeed did - feel a certain apprehension as to the fate of the programme.

First, the programme should be clearly defined. For example, Dr Williams had said that the word "eradication" was interpreted differently by the Organization and by epidemiologists. The definition adopted would necessarily affect the strategy and scope of the programme. Secondly, when the plan had been drawn up, it should be carefully studied by the Board, with the advice of specialists. Progress made must also be examined to see whether it was satisfactory, and, if not, remedial action must be taken in time.

He was anxious not to give the impression that he opposed the programme; his concern was indeed a consequence of his desire to see it fully and successfully carried out in the time allotted.

Dr HENDERSON (Smallpox Eradication) said that he was confident that smallpox could be eradicated and did not think he was over-optimistic about the success of the programme. He was, however, healthily concerned about it and hoped he would remain so until it was completed.

He agreed that it was necessary to analyse the results of the Pakistan smallpox eradication campaign, but the necessary data from the field to enable conclusions to be drawn were not yet available. A large number of vaccinations had been performed, corresponding to a significant proportion of the population. Indian evaluations had, however, shown that in some cases the same people had been vaccinated several times. Field surveys would have to be carried out to reveal the proportion of people vaccinated as well as the number of successful vaccinations. The reduction in the number of cases of the disease must be made the ultimate criterion in assessing the progress of the campaign. Recent Indian surveys had shown that the majority of cases currently occurring had been people who had not been previously vaccinated; outbreaks occurred because there had been an accumulation of people who had not been vaccinated or had only been vaccinated a long time before, rather than because of any waning in the immunity of vaccinated persons.

The comment in the report on the possibility of successive vaccination campaigns pointed out the fact that smallpox eradication programmes would have to be conducted in different ways in different parts of the world. The same methods were obviously not applicable in every region. In several countries of Africa, mobile teams had been used, making complete tours of the country once in every three years. By vaccinating new-born children and migrants who had entered the area since the previous tour, the level of immunity was raised. In some countries, thanks to that method, smallpox-free status had been obtained.

He was also in agreement with the need for the study of the killed antigen problem; investigation had already begun but was still in the early stages.

With regard to the questions raised by Dr Happi, he wished to point out that the Organization provided many supplies, such as refrigerators, vehicles and equipment, in addition to vaccine. The importance of supplying vaccine had been stressed because it had been a critical problem at the time. The need for health education had also been emphasized as a means of inducing people to come forward for vaccination, but there was room for further work in that field. With regard to the statement that the success of the campaign depended on the vaccination of the total population in order to avoid propagation of the disease by the unvaccinated sector, he pointed out that one hundred per cent. vaccination had never been achieved. Since the objective was to stop the transmission of the disease, the percentage of the population to be vaccinated in more densely crowded urban areas would have to be higher than that in rural areas. While it could safely be said that vaccination of the entire

population was not necessary, it would not be possible to stipulate an exact percentage. Research, however, was currently being carried out in that connexion. In any case, three years would have to be allowed to elapse after the occurrence of the last case of smallpox before transmission could be considered to have been terminated. It was difficult to say when a country could claim to have eradicated smallpox because the disease was carried by human beings and easily transmitted in areas where there were constant population movements across national frontiers. A country could be described as smallpox-free when the transmission of the disease had ceased within its frontiers, but the term eradication could only be safely used when regions comprising several countries had been similarly cleared.

Dr RAO said that experience in India should be useful for the evaluation of the present state of the programme and in the preparation of plans for campaigns elsewhere. India had first given its attention to smallpox eradication in 1958; later, a number of pilot projects, one in each of the seventeen states, had been launched, and in 1962 the Government had adopted the national eradication programme, largely owing to the high mortality and morbidity caused by smallpox.

The programme had been fairly successful up to the present; the main problems to be solved were the maintenance of the vaccination state of the population and the vaccination of children below the age of six or seven, who comprised the most important group difficult to approach in both accessible and inaccessible areas. Since the initiation of the programme in 1962, 66.5 million primary vaccinations had been effected and 418 million revaccinations. Since India had a birth-rate of

nineteen million per annum, if it was assumed that four million children died every year before reaching the age of one, the number of children born during the past four years who had to be vaccinated was sixty million. If the higher age-groups in rural areas that still had to be vaccinated were included, the total requiring primary vaccination was probably in the region of 100-120 million persons - which compared with the 66.5 million who had in fact been vaccinated since 1962.

It was difficult to conduct a campaign without reliable statistics but without proper organization such statistics were unobtainable, which was generally the case in the developing countries. Plans had therefore to be based on the statistics that were available. In 1966, smallpox cases in India had totalled 28 000 and had caused 7400 deaths; the trend was downwards, but since the figures were unreliable they might have to be doubled. Whenever the vaccination state fell below eighty to eighty-five per cent. of the population, sporadic outbreaks of the disease had to be expected.

With regard to finance, the smallpox eradication programme had first been introduced into the 1967 regular budget and then only in the amount of $ 2 500 000, which meant that for every dollar provided by the Organization four more would have to be found by the receiving country. Under those conditions it was difficult to see how the registration of births and vaccination could be properly carried out. Nevertheless the improvement of the statistical services was a problem that had to be tackled.

No mention had been made of jet injectors which, together with transport and freeze-dried vaccine, could be very helpful in the conduct of mass campaigns, making vaccination both more efficient and cheaper.

He wished to thank the USSR for 690 million doses of vaccine and hoped that more would be made available during the next two or three years, pending the expansion of production by India's own institutes. UNICEF had been of great assistance in the organization of basic health services, the supply of transport and the vaccination campaign. Help had also been received from the United States AID programme. Thanks to the aid received, the Indian Ministry of Health hoped to set up services for the control of all communicable diseases in time to take over the work left to be done on the conclusion of the mass campaign. Its success in so doing would, of course, depend on the co-operation it received from the people and on the effectiveness of the health education programme.

Dr OTOLORIN said he had found the discussion most refreshing and enlightening. Reference had been made to the severe recrudescence of smallpox in Pakistan; in some urban areas of his own country, despite repeated vaccination campaigns, cases of the disease were still occurring. One explanation of the failure might lie in the potency of the vaccine used. In that connexion, he thought the time had come for WHO to come out categorically against the use of calf lymph.

Secondly, he wondered whether, under the Health Assembly resolution on smallpox eradication, WHO could not endeavour to enlist or direct bilateral assistance to appropriate areas, in supplement to its own efforts. In Africa, the

United States of America was generously assisting governments in the campaigns and in South-East Asia the USSR was doing likewise. Other countries in a position to do so might be encouraged to go to the help of the remaining regions.

Thirdly, he would like some information as to probable duration of campaigns, although he realized that the point was a knotty one. The report before the Board rightly stressed that health education must figure prominently in any programme undertaken; in that work, the health authorities would be put in the position of promising immunity to the population. He would therefore like to know whether it was possible to claim that, after two repeated vaccination campaigns covering the whole population, transmission of the disease would definitely be interrupted.

Professor GONZÁLEZ TORRES remarked that a number of points he had wished to raise had already been dealt with by other speakers. Reference had been made to the similarity between the malaria and smallpox eradication campaigns. Undoubtedly the two had much in common as to tactics and logistics, but many factors militated in favour of the smallpox eradication campaign, such as its lower cost and the availability of adequate supplies of low-cost vaccine.

Nevertheless, from the standpoint of co-operation there were a number of points on which stress must be laid. He was firmly convinced of the need for health education to ensure the success of vaccination and revaccination campaigns. There was no point in frightening people but, in some cases, unless the population could be brought to realize the serious nature of the disease, they would refuse to be vaccinated against it. Accordingly, the internal and external work of health centres

in the various countries must be given greater emphasis, as well as the control of certain indigenous and nomadic peoples living in outlying and inaccessible areas: such groups were often primary foci of the disease and responsible for its spread to neighbouring areas.

Furthermore, possession of a vaccination certificate should be an indispensable requirement for every person travelling from one country to another, whether or not crossing by an open frontier. Possession of such a certificate should also be a requirement for the exercise of certain civil and political rights. In his own country, for example, no one could be a salaried employee without possessing a smallpox vaccination certificate.

Dr MONDET said that since 1903 vaccination against smallpox had been compulsory in his country, which merely went to show that legislation alone did not suffice for the eradication of the disease. Up till 1946, when an epidemic outbreak had occurred, the incidence of the disease had gradually declined; and once again at the present time Argentina was suffering from a second epidemic outbreak, reaching for the first time into the centre of the country. Obviously, the advances in air transport played a part in that development.

One complication had been that doctors in his country were no longer alert for the presence of smallpox and were apt to mistake the disease for chickenpox. The same was probably true of other countries, so that statistics on the incidence of the disease were probably far from covering all the cases that existed.

One of the most serious problems to be faced was quality control of the vaccine used. In 1956, an experiment had been carried out on a sizeable population group in Argentina, supposedly already vaccinated against smallpox, and it had been found that some eighty per cent. had no immunity. The question that arose was whether that situation was due to poor quality and type of vaccine or to distribution difficulties. Transport of the glycerinated vaccine for long distances to areas lacking refrigeration facilities was of course inadvisable, if good results were to be obtained.

Thirdly, there was the problem of how the vaccine was applied. There was need for strict training of vaccinators in the necessary techniques, in terms understandable even to the illiterate. Also, the quantity of vaccine to be prepared and distributed by dose depended on the application technique being used.

Lastly, to give an assurance of ultimate success it was essential that vaccination should be renewed every three years in order to build up the necessary immunity in the population. That meant that, instead of declining, the cost of the campaign would gradually rise with the increase in population.

Despite his country's unhappy experience under compulsory legislation over the past sixty-three years, there were real hopes for advancement now, as a result of arrangements having been made with neighbouring countries to initiate simultaneous campaigns, beginning at the borders and spreading out to cover their whole territories.

Professor MACÚCH remarked that those who remembered the enthusiastic reception given to WHO's plans for a worldwide campaign to eradicate smallpox would understand the concern experienced about defects to be perceived now that a start

on the work had been made. Various difficulties had been mentioned during the discussion, including the possibility that some countries had no interest in actively helping on the programme. At the outset, it had been assumed that the programme would be a worldwide one supported by all Member States of WHO; indeed that had been a prerequisite for its inclusion under the WHO regular budget. The position now, such a short time after those developments, was such as to give rise to a certain concern. If all Member States did not take part in the programme, the resources being expended by WHO would simply be wasted. Every effort must be made to insure against any such development. Everyone would be anxious to avoid in the case of smallpox eradication the disappointment that had resulted from the excessive optimism with which the malaria eradication campaign had been greeted. The Director-General should draw the attention of the World Health Assembly to the risks entailed by inadequate support on the part of Member States. Despite what he had said, he too shared the degree of optimism expressed by Dr Payne; the experience gained in carrying out the malaria and other WHO campaigns could certainly be useful in respect to smallpox.

Dr PAYNE thanked members of the Board for their valuable comments.

Answering points raised, he said that the Secretariat had no doubt whatever that a close study of the Indian experience in smallpox eradication would be immensely valuable from the standpoint of avoiding mistakes elsewhere.

Jet injectors were in use in Brazil and in some West African countries and also in India, the latter on a pilot basis. Their value, however, depended largely on the way in which the campaign was organized, on personnel resources and on logistics. Their use was advantageous in areas where it was possible to assemble

the population at collecting points, but was of little advantage in campaigns conducted on a house-to-house basis. Another aspect to be taken into account was that great care needed to be exercised about the bacterial content of the vaccine when jet injectors were used, because the injection was made below the skin. The vaccine should contain no pathogens at all and a very low bacterial count and that made for production difficulties; there were not many laboratories in the world capable of producing a vaccine of sufficient purity. On the other hand, since the vaccine used in injectors could be diluted by one in ten, supplies went further.

It was plainly stated in the report before the Board (section 3.2) that the use of glycerinated lymph was specifically discouraged for the endemic countries because of the problem in storage and transport. He would point out in addition that even freeze-dried lymph, after reconstitution, was no longer as stable as before and, if mishandled, by leaving in the sun for instance, its potency would deteriorate rapidly.

On the question of campaign duration, it was impossible to predict how long a particular national programme might take. That was a matter to be examined in preparing the national programme and the duration would depend on the plan of campaign.

As to health education, its importance was fully recognized, but methods would have to be adapted to the needs of the particular country; no general blueprint could be laid down by WHO.

Transmission of smallpox resulting from the extension of air traffic and the increased size and speed of jet aircraft was going to be increasingly a problem. At the moment, the smallpox virus could be carried from one end of the world to

the other within the incubation period. As had been remarked, too, recognition of the disease in areas where it had long been absent was causing difficulties.

Lastly, the Secretariat was fully aware of the need for meticulous training of vaccinators and plans were being made to provide the kind of instruction envisaged by Dr Mondet.

The DIRECTOR-GENERAL, answering the point raised by Dr Otolorin, said that great efforts had been made to ensure that WHO was informed of activities to be undertaken under bilateral aid programmes; in certain cases excellent collaboration had been built up, with WHO furnishing assistance to complement the bilateral aid. However, as the Board would recognize, influencing the direction of bilateral aid to any particular area was a matter beyond his competence. What the Board might do would be to press for more information to be provided on plans for such assistance in order to improve co-ordination of assistance to the developing countries.

Dr Mondet had made an important point in stressing the need for co-operation in smallpox work between neighbouring countries. Efforts toward eradication in one particular country would be cancelled out unless similar endeavours were made in contiguous areas. Ways and means must be found to stimulate integrated activities.

The CHAIRMAN suggested that time be given to the Rapporteurs for study of the minutes of the discussion, in order that the draft resolution to be prepared should be certain of covering all the valuable points made, for the information of the Health Assembly. The draft resolution would be considered at a later meeting.

He thanked the Director-General and his staff for the part they had taken in the discussion.

(For consideration of draft resolution, see minutes of the tenth meeting, section 1

WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTÉ

EXECUTIVE BOARD

Thirty-ninth Session

EB39/Min/10 Rev.1
28 February 1967

ORIGINAL: ENGLISH

MINUTES OF THE TENTH MEETING

WHO Headquarters, Geneva
Monday, 23 January 1967, at 9 a.m.

CHAIRMAN: Dr J. WATT

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Tenth Meeting

Monday, 23 January 1967, at 9 a.m.

Present	Designating Country
Dr J. WATT, Chairman	United States of America
Professor R. GERIĆ, Vice-Chairman	Yugoslavia
Dr A. R. M. AL-ADWANI, Rapporteur	Kuwait
Dr A. BENYAKHLEF, Rapporteur	Morocco
Dr A. ABDULHADI	Libya
Mr A. F. ABRAR	Somalia
Dr T. ALAN (alternate to Professor N. H. Fişek)	Turkey
Professor E. AUJALEU	France
Dr J. C. AZURIN	Philippines
Dr D. BADAROU	Dahomey
Sir George GODBER	United Kingdom of Great Britain and Northern Ireland
Professor D. M. GONZÁLEZ TORRES	Paraguay
Dr L. W. JAYESURIA (alternate to Dr M. Din bin Ahmad)	Malaysia
Dr O. KEITA	Guinea
Dr PE KYIN	Burma
Professor P. MACÚCH	Czechoslovakia
Dr P. D. MARTÍNEZ	Mexico
Dr A. F. MONDET	Argentina
Dr T. C. NCHINDA (adviser to Dr J.-C. Happi)	Cameroon
Dr M. P. OTOLORIN	Nigeria

Present	Designating Country
Dr C. QUIRÓS	Peru
Dr K. N. RAO	India
Dr D. D. VENEDIKTOV	Union of Soviet Socialist Republics
Dr M. K. EL WASSY	Yemen

Secretary: Dr M. G. CANDAU
Director-General

Representatives of Intergovernmental Organizations

United Nations	Mr A. DOLLINGER
United Nations Children's Fund	Sir Herbert BROADLEY
Office of the High Commissioner for Refugees	Mr A. KHAN SADRY
United Nations Relief and Works Agency for Palestine Refugees in the Near East	Mr R. COURVOISIER
International Labour Organisation	Mr D. FARMAN-FARMAIAN
Intergovernmental Committee for European Migration	Dr C. SCHOU
League of Arab States	Mr M. AZIZ HETATA

Representatives of Non-governmental Organizations

Council for International Organizations of Medical Sciences	Dr V. FATTORUSSO
International Committee of Catholic Nurses	Miss L. CHARLES-ROQUES
International Dental Federation	Dr C. L. BOUVIER
International Diabetes Federation	Dr B. RILLIET
International Federation of Gynecology and Obstetrics	Dr R. BORTH
International Society of Blood Transfusion	Professor R. FISCHER

Representatives of Non-governmental Organizations (continued)

International Union of Local Authorities	Mr F. COTTIER
International Union against Tuberculosis	Dr J. HOLM
Medical Women's International Association	Dr Anne AUDÉOUD-NAVILLE
World Federation for Mental Health	Dr Anne AUDÉOUD-NAVILLE
World Federation of Occupational Therapists	Miss C. LOMBARD
World Medical Association	Dr J. MAYSTRE

1. SMALLPOX ERADICATION PROGRAMME: Item 2.6 of the Agenda (Document EB39/12, and EB39/Conf.Doc. No. 5 Rev.1) (continued from the fourth meeting, section 3)

The CHAIRMAN invited attention to the following draft resolution (EB39/Conf.Doc. No.5 Rev.1) presented by the Rapporteurs:

The Executive Board,

Having considered the report of the Director-General on the smallpox eradication programme,

1. THANKS the Director-General for this report and invites him, in conformity with resolution WHA19.16, to bring it up to date for presentation to the Twentieth World Health Assembly; and

2. RECOMMENDS to the Twentieth World Health Assembly the adoption of the following resolution:

"The Twentieth World Health Assembly,

Having considered the report of the Director-General on the smallpox eradication programme; and

Noting that smallpox continues to represent a serious world health problem notwithstanding the progress being made in the global eradication programme,

1. INVITES countries where the disease is still present to initiate or intensify their programmes leading to the eradication of smallpox as soon as possible;

2. REQUESTS Member States and multilateral and bilateral agencies to provide technical, financial and other support for programmes in endemic countries, particularly in the form of freeze-dried vaccine, transport, and equipment; and

3. REQUESTS the Director-General:

(a) to continue to elaborate and implement the detailed plan, including the co-ordination of all international, bilateral and national efforts, with the objective of achieving global smallpox eradication in a predetermined time, and

(b) to report further to the Executive Board and the World Health Assembly."

Decision: The draft resolution was adopted.[1]

[1] Resolution EB39.R20.