AGA: EUFMD 19/7
AGA 1972/1

REPORT

of the

NINETEENTH SESSION OF THE

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

held in

Rome, Italy

11-14 April 1972

Food and Agriculture Organization of the United Nations, Rome, Italy

April 1972

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APPENDIX V

INTRODUCTION

The XIXth Session of the European Commission for the Control of Foot-and-Mouth Disease was held from 11 to 14 April 1972 under the Chairmanship of Mr. A.G. Beynon. Dr. O.E. Fischnich, Assistant Director-General of the Agriculture Department, FAO, welcomed on behalf of the Director-General the representatives of member countries, international organizations and institutions, and observers attending the Session.

He said that attendance at the Session by representatives from the Office International des Epizooties, the European Economic Community and the World Veterinary Asseciation was evidence of increased mutual collaboration in common objectives and interests.

He extended a special welcome to those who participated for the first time in a meeting of the Commission and particularly to the delegate of the new member country, Bulgaria. Twentyone countries were now regular members of the Commission and there was a good prospect of a further increase in the near future. The presence of so many distinguished men of science and veterinary administrators emphasized once again the significance of FMD in the economy of Europe and in the world trade of animal products.

There were three main problems before the Commission. Firstly the consolidation of the favourable disease position on the continent of Europe; secondly, the protection of Europe from infections which might arrive in the south-eastern region through the Near East; and thirdly the prevention of new introductions of the virus from overseas through the movement of animals or animal products. The original objective of the Commission seemed now to be within the reach of all the countries of Europe, following the extension of systematic prophylatic action to the Iberian peninsula. Twenty years ago the continent was still suffering from the consequences of a real "panzootic". At that time some countries, by their adherence to the Commission, undertook to control FMD with the aim of its ultimate eradication. The proposed policy was both far-sighted and realistic.

There was good reason, therefore, to note with pleasure the presence of Sir Thomas Dalling, who was not only the pioneer of the concept but was the architect of the Commission. We were honoured and happy, said Dr. Fischnich, at his presence. FAO congratulated the Commission on the achievement of such a good sanitary position in a relatively short time and hoped that FMD would be soon eradicated from the entire continent.

However, the good results and the enormous financial expenditure necessary to secure them, were jeopardized by the situation in other continents. There was the possibility of a reappearance of the disease at any time conveyed by land, sea or even air. The experience of the last few years in the Near East, where there have been major epizootics - the latest one was pleuropneumonia - was a warning to Europe. The experience with the SAT1 and A_{22} epizootics may be repeated with other viruses. The outcome in Europe might not be as favourable as it was in the case of the former epizootics.

Unfortunately trade continues in the Near East which freely accepts animals from Africa and Asia. It was regrettable that some countries still ignored the imperative need of precautions in the general interest.

Meat imports from overseas were another potential source of infection; the efforts already being made, and the initiatives taken by the Commission to reduce further the risks of infection through a more efficient and unified discipline on such imports, were appreciated.

FAO was also pursuing similar objectives by encouraging the establishment of disease-free zones, where prospects for important developments in livestock production could be associated with programmes of disease control. The purpose was to create favourable conditions for the export of safe meat from well-defined areas.

In this respect the Organization followed with great interest the action developed for the setting up of disease-free zones in Thrace, within the framework of the SAT1/A_{22} campaigns, and also in Patagonia. A valuable contribution was made by the Commission at the meeting of a joint FAO/OIE working group, convened last September in Paris, to review the criteria governing the importation of beef into Europe from countries not entirely free from exotic virus diseases.

This was not only an advance in the search for a realistic solution to technical problems but also a demonstration of goodwill supporting attempts aimed at facilitating international trade. It was felt that it was our responsibility at this time, said Dr. Fischnich, to assist countries in exploiting their potential for meat production and trade which will facilitate earning of the foreign exchange necessary for further progress towards a modern and competitive animal industry. The attainment of an acceptable animal health situation was a pre-requisite for any country wishing to enter the international market. For this reason in particular, FAO would follow with great interest the progress of the deliberations.

The Chairman thanked Dr. O.E. Fischnich for his welcome to the participants and said that he had summarized correctly the work of the Commission in the past and that which lay ahead. He warmly endorsed the welcome to Sir Thomas, the architect of the Commission. He congratulated Dr. Björkman on his new assignment in Sweden and welcomed Dr. Henricson as his successor as a delegate to the Commission.

The Chairman reported with deep regret the death of Dr. Ervin A. Eichhorn who for many years had been an outstanding figure in the fight against many diseases including foot-and-mouth disease. As a mark of respect the meeting observed a few minutes silence in memory of Dr. Eichhorn.

The Chairman was very pleased also to welcome the delegate from Bulgaria the newest country to adhere to the Constitution of the Commission.

The Chairman then invited Sir Thomas Dalling to address the meeting. Sir Thomas reminded the delegates that 20 years ago Europe was overrun by foot-and-mouth disease and that very few countries were free from infection. He took pride in the fact that he was one of a small group of people given the task of organizing the Commission which had grown in stature from representatives from 6 countries to an impressive total of 21.

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I. ADOPTION OF AGENDA

The following agenda was approved without modifications:

1. Adoption of Agenda
2. Position and control of foot-and-mouth disease in Europe since the last Session, with particular reference to:
   (a) incidence and origin of the outbreaks;
   (b) strains of virus involved;
   (c) control measures applied and prophylactic campaigns;
   (d) preventive measures and import policies.
3. Position of foot-and-mouth disease in the Near East and other regions of epizootiological importance to the European continent.
4. Report of the Executive Committee on the Commission's activities:
   (a) general activities;
   (b) activities connected with the disease-free zone concept; Italo-Latin American cross immunity trials; travel reports of the Secretary, etc.
   (c) reports and conclusions of the Commission's Committees
      (i) Research Group Meeting, Tübingen
      (ii) Executive Committee Meeting, Cyprus
   (d) future activities
5. Administrative accounts and budgets
6. Election of the Chairman, Vice-Chairmen and Members of the Executive Committee
7. Approval of the draft report of the Session
8. Any other business.

II. THE POSITION AND CONTROL OF FOOT-AND-MOUTH DISEASE SINCE THE LAST SESSION

1. Position in Europe

The Chairman in introducing the first paper on "Introduction to the position of FMD in Europe, Near East and South America" (Appendix I), said that all delegates should be agreeably satisfied with the position in Europe even though some sporadic outbreaks must give cause for concern. The position was very favourable when all

countries were in a position to protect themselves but if new strains were encountered then there was positive danger. It was important in all new outbreaks, to type and subtype strains whenever possible. He did not propose to ask countries, in which there had been no outbreaks of disease in 1971, to report individually their position believing that the meeting should concentrate on reports from countries where there had been outbreaks during the past year. These are given in Table I, Appendix I. Table II of the same appendix gives detailed information on the present position of prophylactic schemes in Europe.

Belgium

There was a single outbreak on 13 August 1971 involving one pig-fattening farm. All animals were slaughtered. Ring vaccination was carried out which included vaccination of adult bovines in the area. Young calves within the ring were vaccinated twice, 14 days apart, with trivalent vaccine. The outbreak was successfully controlled. The focus was due to the feeding of swill, coming from the meat supplied to an international organization which was not subject to Belgian regulations applying to the importations and did not conform to the regulations concerning the treatment of swill. The strain involved was A69 Greece.

Netherlands

The country was free from disease from 1967 until June 1971 when an outbreak of type C occurred in pigs. This was followed in November 1971 by an outbreak of type O_1 also in pigs. The source of infection could not be traced in either case; up until the end of January 1972, there had been 27 foci. Immediately following an outbreak, there was an automatic ban on the movement of livestock over a radius of 8 km from the centre of the foci. All pigs were vaccinated and a stamping out policy imposed. Due to the excellent cooperation by veterinarians, over 300,000 pigs in 6 areas were vaccinated in a few days; type O_1 vaccine in 5 cc doses (4 times the cattle dose) was used. Calves in fattening yards in the zone received the same vaccination. Total cost to the Netherlands, as a result of the epizootics, was 800,000 Dutch Guilders half of which was paid by the Government and half by the Farmers' Organization.

In the Dutch experience the vaccine gave very good results in pigs and there were no serious post-vaccination reactions. The conventional Frenkel vaccine was used.

France

In 1971 eight farms involving six villages in four departments suffered from primary outbreaks. All infected cattle, sheep and pigs were slaughtered. The strains were typed but did not disclose any particular characteristics. Virus types C and O were involved.

Federal Republic of Germany

In outbreaks of foot-and-mouth disease in the Federal Republic of Germany affected herds were slaughtered and all necessary protective measures taken; ring vaccination was practised. In a few special cases, when only single animals were found to be infected and the others were covered by vaccination, the stamping-out policy may be dispensed with.

Outbreaks of disease occurred during the period March to May 1971 involving animals housed in stables. Only cattle were involved and the disease appeared 10 to 20 days following vaccination. Successful innocuity tests had been carried out but, as a new production method was used, it could not be excluded that the outbreaks might have been due to the vaccine. In December a further outbreak was detected in "pudus" (small antelopes) in a zoological garden. All the animals involved died. Type C was isolated but there was no evidence to indicate the source of infection. All susceptible animals in the zoo, with the exception of the antelopes had been vaccinated. As the antelopes were

a particularly rare species and were used for breeding they were exempted from vaccination. The origin of this outbreak could not be detected, but after a careful investigation human introduction of the disease was regarded as a theoretical possibility.

Beginning on December 29, two outbreaks involving type C were reported in Baden-Württemberg. 7 out of 26 cattle and 7 out of 35 sheep were detected with foot-and-mouth disease approximately 10 days after vaccination. Because the outbreaks were detected 10 to 11 days after vaccination, the residue of the vaccine used in the area amounting to 240 ml, was concentrated with polyethelene-glycol to 5 ml and was injected intradermolingually into susceptible cattle for innocuity testing. Seven days later generalized lesions of foot-and-mouth disease appeared and the same type as involved in the outbreak was isolated. Although the evidence was not good, it was thought that the foci were due to a vaccination breakdown. However, 900,000 cattle had been vaccinated with this vaccine without incident.

Referring to vaccination against foot-and-mouth disease in general, the Chairman said that in his view, these findings were of the utmost importance, especially in relation to animals for export. He believed that consideration should be given to holding vaccinated animals under observation for a suitable time to ensure that they were not carriers of the virus. In fact, this issue was of international importance.

In reply to a question, the delegate of the Federal Republic of Germany said that in all outbreaks there had been no secondary spread.

Investigations into an outbreak of type C infection in the first months of 1972, in pigs in Bavaria (Federal Republic of Germany) did not disclose the source of infection. Cattle had been vaccinated with the same vaccine but there was no evidence of disease. Two litres of the suspect vaccine were concentrated to 60 ml but no virus was found in the concentrate.

Italy

In 1971 there were only 14 outbreaks. Those in the period from January to March involved type C and the primary foci were due to infections introduced from abroad. In a second outbreak type O was isolated but the source could not be traced. This occurred in a mountainous area where the usual compulsory vaccination programme could not be carried out in October to December because of severe weather conditions and was postponed until the spring of 1971. The animals involved were in an area close to the main highway through the Brenner Pass and it was known that this highway carried heavy traffic from several European countries. In October an outbreak due to type C was encountered near an institute where the virus was used and it was possible that there was an escape of the virus from the institute.

Italy had introduced a policy of slaughtering all infected animals.

Annual vaccination was also carried out, in the autumn, in calves more than three months old, approximated 7,500,000 head of cattle were vaccinated.

The cost of vaccination was borne entirely by the Government as provided for in the ministerial order of 3 April 1971.

Spain

The situation in Spain in 1971 remained very much the same as in the previous year. The majority of the outbreaks were recorded in the first months of the year and the numbers declined rapidly to July; by October several areas had ceased to report foci.

Although the reduction in numbers of outbreaks could be attributed to seasonal factors, it was believed that the successful outcome was materially aided by the policy of ring vaccination around infected areas, compulsory vaccination campaigns and strict sanitary control.

There was a small reduction in the number of infected foci involving cattle and a reduction in the number of infected bovines, especially in young, non-vaccinated animals, in the seven months following May.

There was a sharp rise in the number of outbreaks involving sheep and goats, especially at the beginning of the year, but the number of outbreaks tended to decrease in the latter half of 1971; this situation was due to the fact that compulsory vaccination had been extended to include sheep passing through (transhumance) infected areas and in the ring zones around outbreaks.

The appreciable reduction in the number of outbreaks in pigs was basically due to a rigorous vaccination policy using BHK cell vaccine.

There were 508 foci involving over 2,000 cattle, 17,000 sheep, 3,000 goats and 12,000 pigs.

Twentynine type O and 3 type C strains were identified.

Portugal

Outbreaks of the disease were common from September 1970 until the end of November 1971 when the incidence declined progressively until December 1971 when there were no outbreaks. Since then no outbreaks had been recorded. Generally type O virus was involved. The disease in Portugal was usually benign, and the slaughter policy was not, therefore, apporpriate. It was believed that vaccination campaigns would ultimately bring the disease under control.

Poland

There was only one outbreak in 1971 near the German border. All animals involved were slaughtered and the origin was not determined. Poland adopted the stamping out policy and only cattle for export were vaccinated.

Romania

The Romanian delegate reported that the last outbreak occurred in his country in December 1968. There was no general vaccination policy.

U.S.S.R.

The position improved significantly in 1971 when there were 374 outbreaks of foot-and-mouth disease in comparison with 573 in 1970. A favourable situation has now been maintained for a long time in the northern areas, in the extreme East and in Bielorussia, Moldavia, Ukraine and the Baltic Soviet Republics.

In the Asiatic part of the country, the number of outbreaks fell in 1971 to 176 compared with 326 in the previous year; figures for the Caucasian republics were 61 outbreaks in 1971 and 171 in 1970. Types A_{22} and O_1 were isolated.

The disease was generally benign among young animals. Compulsory, large scale vaccination was enforced in areas subject to infection and in buffer zones along the frontiers. A concentrated vaccine containing 12 percent virus, and saponin, based

on lapinized strains was used. Constant efforts were made to improve technical methods especially in relation to typing and subtyping. In zones of primary outbreaks the slaughter policy was used. Animals were only exported from foot-and-mouth disease free areas.

In reply to the Secretary, the delegate said that the A_{22} outbreaks in the Ukraine affected the eastern part of the republic, and in the south, the region of Crimea. The outbreaks were rapidly localized.

Greece

In the absence of the Greek delegation the Secretary gave the following information:

There were three primary outbreaks, all involving pigs, in 1971.

Type A virus was responsible for the first outbreak, in February, in Alicarnassos near Heraklion, on the island of Crete. There was no secondary spread.

At the beginning of October Type O appeared in Diavolitsi in the Department of Messinia; twelve secondary outbreaks were detected almost simultaneously, in cattle, in neighbouring areas; one of the secondary foci was responsible for a further single outbreak in cattle due to movement of stock before the outbreak was recognized.

Type C also appeared in October on the island of Salamis and there were three secondary foci, all involving cattle.

In each case sanitary measures, including stamping out and ring vaccination brought the outbreaks under control. It was believed that all three primary outbreaks were caused by feeding swill containing residues of imported frozen meat.

IFFA reported that the 1971 A strain differed from the usual European, including the strain A Greece 1969, but up to the moment this had not been confirmed by the World Reference Laboratory.

More than 48,000 cattle, 119, 000 sheep and goats and 27,000 pigs were vaccinated in 1971 in the buffer zone of Evros and in ring zones around infected foci.

At the beginning of 1972 there were five additional outbreaks in Evros near the Turkish-Bulgarian frontier. The origin had not been determined and it was believed the outbreaks were not due to the feeding of swill. The type of the virus was O_1.

Turkey

There were no outbreaks in Thrace (European Turkey) in the past four years. This was a buffer zone, established in 1962, where all ruminants numbering more than $1\frac{1}{2}$ million were subject to annual vaccination against O_1 and A_{22} subtypes. The buffer zone will be maintained in 1972.

In Anatolia there were 369 outbreaks in 1971 this being an 80 percent decrease compared with 1969 and 66 percent decrease compared with 1970. The disease position was therefore the best for the past ten years.

Outbreaks were sporadic at the beginning of the year, tended to increase in number between July and November, and then decreased in December. The disease was mild and appeared mainly in unvaccinated animals. Of the 489 samples received for typing 266 yielded type O_1 and 52 type A_{22}. No virus was recovered from the remaining 171 samples. During 1971 more than $2\frac{1}{2}$ million cattle doses of vaccine were prepared. These included 1,800,000 type O_1; 664,000 type A_{22}; and over 100,000 of bivalent O-A. The O vaccine was prepared from a Turkish strain and the A from A_{22} Mahmatli.

Active steps were being taken to increase vaccine production by adding new tongue epithelial collecting centres. Government approval had been given for the field use of vaccines prepared from BHK cells in suspension; it was anticipated that vaccine production in 1972 would exceed 6,000,000 cattle doses.

The Chairman congratulated the delegate on the good work being accomplished in his country, which is a key to the successful protection of European livestock. European countries should therefore be very grateful for the work accomplished in Turkey.

2. Strains of Virus involved

(a) Types and subtypes. Attention was drawn to Table I of Appendix I reporting the typing results in Europe during 1971.

(b) World Reference Laboratory, Pirbright. The Chairman asked Dr. Brooksby of the World Reference Laboratory to explain to the delegates the role the laboratory played, and could play, in the work of the Commission.

Dr. Brooksby said that some 15 years ago his laboratory advised interested institutes of the work which was being done at Pirbright and outlined the aid they were prepared to render in campaigns to combat foot-and-mouth disease.

The first aim was to prepare a world-wide map of outbreaks; they therefore asked overseas laboratories to send strains for typing. In recent years between 300-350 samples from 20-30 countries were submitted annually; in years of severe outbreaks the number of samples sent for identification reached 750. This was considered a primary and important role; data resulting from the work were published each year in the FAO/WHO/OIE Animal Health Yearbook. Many countries had, however, developed satisfactory typing facilities of their own and there was a tendency therefore to receive fewer samples from East Africa and the Far East; the supply of samples from Latin America had almost ceased. It was as a result of this work that SAT1 was first detected and its spread mapped through the Mesopotamian basin via Turkey and into Thrace.

The second important service offered by the laboratory was subtyping; in general strains were only received from western Europe although a small number from other sources were also handled. This work could not be carried out on a world-wide basis because of insufficient staff.

In Dr. Brooksby's view European countries should initially identify strains resulting from outbreaks to ensure that vaccines in use were appropriate. The World Reference Laboratory, for their part, would confine their work to the taxonomy of any unusual strain in an attempt to trace the origin, based on their collection of world-wide information. The history of A_{22} strain was a good example of this service; its passage from country to country was mapped in collaboration with the French Institutes.

As there are, for example, more than 30 A subtypes, precise subtyping became more and more difficult and time-consuming. Several months were required for accurate subtyping. This was an essential service because it was necessary to know if subtypes were in fact new and not a revival of an old strain.

Work on subtype determination had advanced recently because of the use of antisera prepared in rabbits.

The recent work carried out at Pirbright on the serological relationship of some FMD strains employed in vaccine production in Europe was reported in Appendix II. The serological relationship of type A and O strains isolated from the field in

Romania, Bulgaria, Greece and Belgium is tabulated in Appendices III (WRL Information Sheet 11) and IV (WRL Information Sheet 12).

Finally, the Pirbright Laboratory maintained a stock of type sera covering seven types and as many subtypes as possible. Sets of standard reagents were available.

The delegate from Denmark proposed that the World Reference Laboratory should help countries, where vaccination was not practised, in an emergency to type unknown strains so that a rapid decision could be made on the appropriate vaccine to use.

Dr. Brooksby replied that this was possible and while they might not be able to give an accurate subtype immediately (this would depend on the availability of corresponding sera), nevertheless the nearest appropriate vaccine could be selected on the basis of tests against available subtype anti sera.

Dr. Brooksby emphasized that in countries where vaccination schemes were applied, revaccination might help considerably in overcoming problems connected with strain differences.

III. POSITION OF FMD IN THE NEAR EAST AND OTHER REGIONS OF IMPORTANCE TO EUROPE

1. Near East

Dr. Boldrini, at the invitation of the Chairman reviewed the position in the Near East.

He said that the document "Position of FMD since the last Session" (Appendix I) included some remarks on the disease position in the Near East and Table Ia of the same document gave available statistical information on the disease in various countries of the region including Israel. Although some countries only gave occasional information on the disease position, it could be assumed that in 1971 FMD did not spread extensively in the region, except in some areas of Iran; Israel had had no outbreaks since the vaccination accidents of January and February 1971, following the use of imported vaccine.

The fact that the disease position on the whole was favourable should not induce optimistic expectations as to the future. Indiscriminate importation of live animals into some countries, especially those in the Persian Gulf, which could well afford supplies from safe sources, continued to endanger the Near East region, posing threats in turn to Turkey and south-eastern Europe. The recent introduction of contagious pleuropneumonia was an example of what could happen any time, unless all countries in the region agreed to a common policy of disease prevention and control.

The disease intelligence section of the Animal Health Service of FAO had recently prepared a very comprehensive document containing detailed proposals for multilateral and bilateral veterinary agreements in the Near East region. If implemented, the proposals could bring about considerable progress in the situation and help to avert the ever impending danger of exotic strains of FMD entering Europe.

In the meantime, and perhaps for many years to come, it would be imperative to maintain and strengthen prophylactic action not only in Thrace but also in the frontier areas between Turkey, Syria, Iraq and Iran. In the strategy of FMD, these were the very frontiers of Europe.

2. Northern Africa

As far as Northern Africa was concerned, the situation was favourable in Tunisia, a country supplying information regularly, and relatively favourable also in the Arab Republic of Egypt where an FMD Institute was being established. Studies conducted last year, under the direction of Dr. Böhm (FAO expert) in the Abassia (Cairo) laboratory showed that the O subtype existing in the Arab Republic of Egypt was the same as O_1 Europe. When sufficient vaccine was available, it was the intention of the Government to vaccinate annually all cattle and buffaloes of the Nile delta.

The Arab Republic of Egypt was exposed more than other countries in northern Africa to infection by exotic viruses, especially SAT1 from the south.

3. South America

The disease situation and subtype position of some South American countries was given and appears in Table 1b of Appendix I.

IV. REPORT OF THE EXECUTIVE COMMITTEE

1. Activities of the Secretariat

Dr. Boldrini in introducing the Report of the Executive Committee (Appendix V) emphasized several important points.

The World Reference Laboratory holds stocks of seed virus including many types exotic to Europe; these were available and are listed in Annex I, Appendix V.

Visit to Argentina Attention was drawn to the successful outcome of the vaccine trials carried out jointly by the Argentinian and Italian authorities. In reply to a delegate the Italian representative stated that Italy did not yet import livestock from Argentina. Problems involved in such trade were still under consideration.

Continuing the Secretary informed the Commission of advances by Argentina in the prepacked, partly cooked meat trade and emphasized the fact that the Argentinians were now producing substantial quantities of both Frenkel and tissue culture vaccines.

Referring to his visit to Spain, the Secretary stated that it was gratifying to see the substantial progress made in that country in vaccine production and expressed sincere thanks to the Spanish authorities for the cooperation extended to him during his visit. He had recommended that the Central Veterinary Laboratory should become increasingly involved in the official testing of vaccine but he recognized that this might take some further time because of other pressing veterinary commitments.

The Spanish delegate reported that his Government was now setting up a new Central Laboratory for vaccine control. When finished, the Luoam method would be adopted. One problem in Spain was the scarcity of unvaccinated bovines for testing purposes and investigations might have to be carried out to discover if sheep could be used instead.

Many Eastern-European countries were anxious to improve their methods of vaccine production and abandon the Waldman method. The Yugoslavian delegate said that his country would establish two new vaccine production plants this year but if there was a serious invasion of the disease there might be some difficulty in meeting total demands.

The Hungarian delegate reported that his country hoped to establish a Frenkel plant next year.

The Chairman, in reviewing the work of the Secretariat, felt sure that delegates would regret that the World Reference Laboratory did not continue to receive strains from the Latin American area for typing and subtyping. It was recognized that the Pan-American Foot-and-Mouth Disease Center (PAHO) was doing very valuable work in this field, but unless the World Reference Laboratory continued to receive samples from that Continent a serious position would arise because those concerned with the control of foot-and-mouth disease would be faced with two lists of types and subtypes, one prepared by the World Reference Laboratory and the second by the Pan-American Foot-and-Mouth Disease Center (PAHO), which would not necessarily correspond.

It was gratifying to know that the Secretary kept closely in touch with the position throughout Europe; he was to be congratulated, as were other workers from Europe, in presenting to the world at the Mexican Conference the results of the efforts made in Europe to control the disease.

2. Report on the XIIIth Conference of the OIE Permanent Commission on Foot-and-Mouth Disease

Dr. Brooksby introduced the report following the meeting held in Paris in February 1972. This report appears in part II, section 8 of Appendix V.

In discussing this report the Chairman raised the important question of the standardization of vaccines. There were many problems involved; should a minimum standard be set and should the PD_{50} policy be adopted? There was a divergence of scientific opinion. Those who wished to do so might well use the PD_{50} method as it was a quantitative one.

Dr. Lucam said that this question had been studied at the last session of the OIE Permanent Commission on Foot-and-Mouth Disease. The main problem had been to fix a minimum standard of potency and avoid officially recommending the acceptance of one method of testing in preference to another. The 70 percent protection rate could be measured by various methods using cattle, mice, guineapigs or sheep. The recommendation adopted by OIE left the door open for the selection of a method, provided a correlation had previously been established between the method of choice and the protection rate obtained in cattle.

3. Report of the Research Group

Dr. van Bekkum introduced and reviewed the conclusions of the meeting held by the Research Group at the Federal Research Institute for Animal Virus Diseases, Tübingen, Federal Republic of Germany, from 22-24 October 1971 (part 3 Appendix V). Of particular interest was the information from France that 3 ml of a trivalent vaccine gave good protection in pigs. Similarly, there was evidence that the German type vaccine used in Spain showed promising results in protecting this species. It was obvious that the work of vaccination of pigs against foot-and-mouth disease was not yet finalized but substantial progress had been made. He drew particular attention to sections of the report in which the Research Group had reviewed virus subtypes used for vaccine production in Europe. The Group concluded that the differences shown by the work were not sufficiently important to necessitate changes of strains used for the production of vaccine at the present time.

The full report of the Tübingen Meeting was distributed to all delegates at the Session.

4. FAO/OIE Working Group on Importation of Beef from countries not entirely free from virus diseases exotic for Europe

The Chairman, in asking Dr. Nabholz to introduce part 2, section 7 of the Executive Committee Report (Appendix V) said that, if it were approved by the Commission, it would then go to the annual session of OIE for approval.

Dr. Nabholz said that he visited Kenya with Dr. Boldrini. The authorities accepted that diseases exotic to Europe were present in their country. They were, however, going forward with a plan to establish disease-free zones. These would either take the form of feedlot operations, fattening zones, quarantine areas or even farms. Stock would go straight from the farm to an abattoir which would be allowed to slaughter meat for export only. This position was regarded as acceptable and, based on the information so obtained, the representatives of the Commission on the Working Group assisted to draw up the regulations which the delegates were asked to approve and which appear as Annex 2, to Appendix V.

The Dutch delegate asked if it were possible to include a recommendation that one or more veterinary officers representing the importing countries be permanently stationed in the exporting country.

Dr. Griffiths replied that in an ad hoc meeting of OAU/FAO/OIE held in Khartoum in December 1971, this possibility was discussed (see Annex III to Appendix V). It was felt then that the matter raised by the Dutch Delegation was one which should be taken care of under bilateral agreements between importing and exporting countries. When countries have established such zones, they may apply to the OIE for an inspection team to give approval. FAO could help in the establishment of such zones but could not assist in providing a continuing inspection.

In reply to a question from the observers of the Federal Republic of Germany on the role played by game species in the spread of FMD, Dr. Brooksby stated that whilst knowledge was not as good as it should be, considerable data have been accumulated in recent years. It was now known that at least 30 game species were hosts of the virus, but only 3 or 4 had been studied in depth. Species of antelopes generally grouped as "plains game" may not pose such a difficult problem as the buffaloes.

In reply to a further question from the observer from the Federal Republic of Germany the Secretary clarified the position regarding vaccination of animals in the fattening areas. Animals would be vaccinated upon entry into the feedlots where they would remain at least three months before slaughter. They would not be re-vaccinated during the fattening process.

The Danish delegate recommended the acceptance of the report. He believed that the safeguards were adequate although they could never be absolutely sure that there were no risks involved. The important points seemed to be that the beef for export should not contain bone and no offal should be imported.

The delegates accepted the report but the Dutch delegate said that he would reserve his position regarding the stationing of a permanent veterinary representative at the country of origin because his delegation to OIE might reopen this question.

5. Proposed conditions for importation of beef into Europe from countries where foot-and-mouth disease is endemic and is caused by viruses not considered exotic to Europe

The Chairman in introducing the topic said that eradication of foot-and-mouth disease would be useless if countries continued to import meat containing the virus. The proposed conditions for import had been drafted, therefore, to prevent as far as possible the re-introduction of foot-and-mouth disease into Europe while allowing international trade to continue.

In reply to the delegate of OIE, who suggested that attention should also be paid to the cleanliness and to the hygienic precautions taken by personnel of the meat packing plants, the delegate from the United Kingdom stated that a Codex Committee considering this point was meeting in London at the present time. It would not be correct, in his view, to include in the present proposals recommendations which the Codex Committee might make and which would entail a very long and complex document.

On behalf of the Director of the Animal Production and Health Division, Dr. Griffiths told the meeting that there was an increasing gap between beef produced and consumed in western Europe. It was estimated that by 1980, only approximately one third of the difference between supply and demand could be made good by supplies from eastern European countries; the remainder would have to be imported from abroad. This emphasized the importance of the matter under discussion.

Referring to point 4, Appendix VI, the Turkish delegate drew attention of the Commission to the fact that in Thrace all ruminants had been vaccinated at least once a year for the last 10 years.

Following extensive discussions the proposed conditions were approved and appear as Appendix VI.

6. Trade in illegal meat through Free Port Facilities

The Swiss delegate stated that he was very glad to accept the recommendations which concerned essentially the importation of meat from Africa and he also strongly supported the second proposal relating to the importation of meat from countries where FMD was endemic.

He wished to take the opportunity to join in the discussion of both reports because he had evidence of a substantial illegal trade in Europe of meat from Africa; this was potentially very dangerous. Every action should be taken to ensure that legal imports, irrespective of the country of origin, should be facilitated and that the illegal trade in meat should be stopped. He wished to report three specific instances of illegal importation into his country.

The first concerned 60 tons of meat from a bonded warehouse in Rotterdam carrying a certificate in German certifying that the meat came from a French export abattoir. Neither the boxes nor the meat were marked. Subsequently an export stamp was illegally obtained from France and false certificates prepared. Enquiries revealed that the meat came from Ethiopia, the false certificates were probably prepared in Austria and the ultimate destination of the meat was Bulgaria. The meat was sent back to Rotterdam and the Netherlands Director of Veterinary Services informed.

In the second instance 30 tons of meat arrived by train from Amsterdam for the same Swiss warehouse. The country of origin was Ethiopia. The meat was loaded directly from the train into trucks. The ostensible route of the trucks was through Italy, Yugoslavia and Czechoslovakia to the Democratic Republic of Germany. The Italian authorities were alerted but the consignment did not cross the frontiers. The meat was eventually returned by train to Amsterdam.

In the third instance a Swiss importer informed the Swiss authorities that Ethiopian meat was offered to him under certificates of origin specifying a European country; each certificate was to cost U.S.$ 80. The same importer was aware that meat from China, certified as Australian, was being offered in Europe.

These incidents, said the Swiss delegate, occurred becuase the bonded warehouses in the free ports of Rotterdam, Amsterdam and Hamburg were not under strict veterinary supervision.

Under Swiss regulations the only meat which may be stored in such warehouse was of a quality which could be used for sale in Switzerland. Warehouses were under strict Swiss veterinary supervision. In ending his submission the delegate said that if steps were not taken to regulate this trade any discussions on import regulations would be in vain.

The delegate from the Netherlands reported that serious attempts to obtain veterinary supervision in the free ports had not been successful. Changes which would give the veterinary services the control they desire in these zones, were difficult to achieve because of long-standing trade practises.

The Bulgarian delegate reported that the last importation of meat was in 1965.

The Yugoslav delegate welcomed the information provided by Switzerland. Regulations in the Federal Republic of Yugoslavia expressly forbade trade in meat from suspect sources. The Yugoslav authorities will undoubtedly strengthen their control measures in view of the Swiss report.

The Italian delegate supported the views of the Swiss delegate and added that not only were free ports and bonded warehouses sources of danger, but also custom zones where meat could be transshipped for catering on ships causing similar problems. The danger was largely due to the absence of, or insufficiency of, strict veterinary control of meat and meat products in those places. In his opinion only meat should be admitted whatever the destination, which did not pose a threat to European livestock.

The Chairman summarized the discussion and the following resolution was agreed to:

"The European Commission for the Control of Foot-and-Mouth Disease, meeting in Rome from 11-14 April 1972, noted with grave concern the disclosures of the Swiss delegate of the role played by some European free ports and bonded warehouses in the international meat trade. The Commission was particularly disturbed by the disclosure that several lots of up to 60 tons of meat crossed international frontiers, accompanied by documents, including certificates of country of origin which were false. The Commission acknowledged with appreciation the action of the authorities of those countries which have imposed rigorous veterinary supervision on bonded warehouses handling meat supplies, and strongly recommends all Governments to take similar action on free ports and bonded warehouses."

V. FUTURE ACTIVITIES OF THE COMMISSION

The Chairman in introducing the working paper (Appendix VII) said that the aim would be to consolidate the favourable condition now gained in Europe through the control of foot-and-mouth disease. This would not be the time to relax work. It was possible that vaccines could be improved and that better inactivation could be achieved. He considered the two documents on the importation of meat into Europe of primary importance.

1. Meetings of the Commission

The Chairman reported that, following a meeting of the Executive Committee in Cyprus, where the question of frequency of meetings was discussed (see Appendix V, part 3B), the matter had been again considered in detail by the Executive Committee. It was agreed to recommend that the session of the Commission should now be held every two years, except in times of emergency; the Executive Committee should meet every six months. As additional responsibilities would, therefore, be placed on the shoulders of the Executive Committee, it would be appropriate to increase the numbers from 6 to 8. It was also proposed that a rotation system of membership should be evolved so that an increased number of countries may be actively associated with the work of the Committee.

The proposals were accepted. The Executive Committee was asked to consider them in detail at their next meeting in October 1972 and to prepare the necessary constitutional amendments for consideration and approval by the Commission at its next Session in April 1973.

2. Activities of the Research Group

The Chairman reported that the work of the Research Group had been considered by the Executive Committee and the following recommendations were made:

(i) the group should remain small having not more than six members;

(ii) Dr. van Bekkum should become Chairman;

(iii) the remaining members should continue in office;

(iv) the Group would meet once a year at laboratories in Europe. It was possible that they would meet at a laboratory or laboratories overseas under the proposed joint auspices of FAO and the Commission.

It was essential that the Research Group should be involved in the practical work concerned with foot-and-mouth disease control from the laboratory angle; their meetings should take place in laboratories actively engaged in foot-and-mouth disease research. One of the principal functions of the Group would be to advise the Commission. Members assured the Chairman that the work they envisaged doing would not in any way duplicate the work of the OIE Permanent Commission on Foot-and-Mouth Disease. The Chairman of the Group would attend meetings of the Executive Committee.

The Danish delegate strongly supported the recommendations outlined by the Chairman and these were agreed to by the Session.

3. Association with other European Commissions

The Chairman reported that the Commission had been invited to consider its relationship with other similar commissions operating in FAO for the benefit of agricultural advancement in Europe. This matter had been fully discussed and he invited the Commission to give approval to the following resolution:

"The XIXth Session of the European Commission for the Control of Foot-and-Mouth Disease, meeting in Rome from 11-14 April 1972 reviewed its policy of cooperation with other agencies and, in particular, its relationship with the three Commissions operating in the European region under the aegis of FAO. The Session considered that only the European Commission on Agriculture performs functions which were of mutual interest.

The work of the European Commission for the Control of foot-and-mouth Disease was confined to a narrow and highly specialized field within the framework of animal production and health which was only one of the many facets of the work of the European Commission on Agriculture.

In view of the European Commission for the Control of Foot-and-Mouth Diesease, no advantage would be gained from its merger with the European Commission on Agriculture even if it were constitutionally possible. Such a merger could adversely affect the efficiency of foot-and-mouth disease control campaigns which have shown such satisfactory progress in Europe. Nevertheless, both Commissions should be kept informed of the work and future plans of each other. This could best be achieved by contacts between the Secretariats and the Chairmen whenever necessary."

The delegate from Malta, in strongly supporting the resolution, said that he believed because of the different legal status of the European Commission for the Control of Foot-and-Mouth Disease and the European Commission on Agriculture, that it seemed impossible to merge the two Commissions without substantially modifying the convention under which the European Commission for the Control of Foot-and-Mouth Disease had been established. He also drew attention to the fact that the European Commission for the Control of Foot-and-Mouth Disease was in the favourable possition of being able to attract member countries who were not necessarily members of the Food and Agriculture Organization.

The resolution was approved by the meeting.

VI. ADMINISTRATIVE ACCOUNTS AND BUDGETS

The Chairman in introducing the accounts for the year ending 31 December 1971 (Appendix VIII) and the budgets for 1972 and 1973 (Appendix IX) said that it should be noted that interest accruing to both accounts was credited to the Special Account. The Special Account was the reserve fund to be used in emergencies and for the Special Activities listed under point V of the Constitution.

In relation to the proposed budget the Chairman stated that the position appeared to be satisfactory; as far as could be seen expenditure over the next one or two years could be met from income. The Executive Committee would keep the question of finance constantly under review.

The accounts for 1971 as presented were approved subject to audit. The budgets for 1972 and 1973 were also approved.

VII. ELECTIONS

Mr. A.G. Beynon, United Kingdom, proposed by the delegate from Austria and seconded by that of Ireland was unanimously elected to continue in office as Chairman.

Professor A. Nabholz, Switzerland, and Dr. C. Werdelin, Denmark, were unanimously elected Vice-Chairmen on the proposal of the Norwegian delegate supported by the delegate from Yugoslavia.

On the proposal of the Bulgarian delegate seconded by the delegate of Portugal, Dr. L. Bellani, Italy, Dr. R.P. Gaier, Austria and Dr. J.M. van den Born, Netherlands were re-elected as Members of the Executive Committee.

VIII. ADOPTION OF THE REPORT

The draft report of the Nineteenth Session was approved as presented subject to the amendments made at the meeting and to any necessary editorial changes.

IX. ANY OTHER BUSINESS

The observer from New Zealand paid tribute to the success of the Commission's work and said some evidence of this success could be found in the fact that his country had, for the first time, permitted the importation of cattle from continental Europe.

The Secretary thanked the Directors of public and private institutes and Chief Veterinary Officers in Member Governments for the excellent support which they had given over many years in making staff available both for consultant and long-term assistance projects supported by FAO in the field of foot-and-mouth disease. He was also particularly glad that many centres engaged in foot-and-mouth disease research received overseas students for short visits and fellowship training.

In reply to a question raised by the observer of the Federal Republic of Germany, the Chairman stated that, in his view, the financial contributions would not be altered in the near future and, if an increase was required, timely notice would be given.

Sir Thomas Dalling responding to the Chairman's invitation to close the meeting, said that the proceedings had been a wonderful stimulus to a person like himself who had been for so many years closely associated with the work of the Commission. The Commission had almost arrived at the end of Phase I of its main object which was to eradicate the disease from Europe. The second phase was equally important and that was to prevent the re-introduction of infection. In this respect, he believed

that the Commission was laying down future policy in the correct manner.

The Italian delegate, at the conclusion of the Session, expressed his appreciation for the excellent work of the Secretariat in preparing the draft report which underlined, once more, the value of the work of the Commission. He also expressed satisfaction, on behalf of the Delegates, that the People's Republic of Bulgaria had become a Member and welcomed the information that the Federal Republic of Germany would probably adhere to the Commission in the near future.

Because of the importance the Italian authorities attached to the Commission, the delegate asked the Chairman and the Secretariat to make every effort, to obtain adherence of all those European countries which have not yet joined the Commission.

It was finally agreed that the next Session would be held from 10 to 13 April 1973.

APPENDIX I

POSITION OF FOOT-AND-MOUTH DISEASE IN EUROPE SINCE THE LAST SESSION

Introduction

The following introductory note will be mainly concerned with the evolution of foot-and-mouth disease in the European continent. As usual, some information and statistical data will also refer to other regions of the world such as the Near East and South America, which may have been, or may become significant in explaining the epizootiology and position of the disease in Europe itself.

1971 marked a further step forward in the progress of FMD control and eradication in many European countries, in spite of some deterioration as to the geographical distribution of infection foci. The number of disease-free countries has slightly decreased during the year, and the total number of outbreaks in the continent as a whole, has significantly decreased.

Infected areas have been remarkedly reduced in size and number on the Iberian peninsula, a region where in recent years foot-and-mouth disease occurred endemically. The intensified programme of prophylactic campaigns now being conducted in Spain is evidently bearing fruit, and stimulates further achievements.

In western Europe some changes in the situation are noteworthy. In Italy further progress towards disease eradication has been scored, with more specific foci instead of the previous endemic situations. The Netherlands experienced a return of the disease due to two different types of virus after four years of freedom.

The disease position has been favourable on the whole in France, Germany and Belgium, despite the few outbreaks which had occurred.

In Greece relatively few outbreaks have been recorded. However, they were caused by three different types of virus, all related most probably to imports from overseas.

In the rest of Europe, excluding the USSR and Turkey, the favourable situation of 1970 was further consolidated with only one outbreak being recorded in Poland and a few in the Democratic Republic of Germany.

In Turkey the disease position has also improved as shown by statistical information reflecting the situation both in the European and in the Asian part of the country. Thrace had no outbreaks whatsoever for the fourth consecutive year, but in Anatolia virus type A_{22} continued to appear, although sporadically, in various areas of the peninsula.

Virus type A22 also reappeared in 1971 in eastern Ukraine but not in the two other Republics, Bielorussia and Moldavia which experienced the same virus two years ago. On the whole the situation remained very satisfactory also in the USSR.

Table I indicates the outbreaks reported in 1971, the types and the dates of the last outbreak, where appropriate.

The origin of the outbreaks, especially in countries where only sporadic foci had been reported, was always investigated but in many instances could not be traced. In particular cases, outbreaks had some relation to insufficient inactivation of vaccines, in others to deficiencies in the system of safety measures applied in and around foot-and-mouth disease institutes. Disease latency may explain other isolated foci in countries where disease is just under good control but not completely eradicated.

Finally, in some cases, the origin of outbreaks could only be attributed to importation of meat. As in the past the epizootiological picture was: distribution of imported carcass meat, inadequate measures for garbage decontamination and disposal, appearance of disease in piggeries receiving garbage.

The stamping-out policy together with, on occasions, repeated ring vaccination has been used with great success, thus preventing the disease from becoming endemic. This policy was applied under the cover of general vaccination in almost all countries: the consequences of single episodes might have been quite different, had new virus strains, types A and C, spread among a fully susceptible animal population.

Systematic vaccination once or twice a year has been applied as in the previous year to cattle and in some areas also to the pig population. The entire cattle population in nine countries of western and central Europe has been submitted to trivalent or bivalent vaccination. In a number of other countries in the eastern and south-eastern region of the continent and Anatolia, large areas have been covered by bivalent or monovalent vaccination according to local needs and situations.

Table II shows the position of prophylaxis in Europe. It is gratifying to note that the Commission's resolution of the previous year, in which the need for continuation of vaccination campaigns had been stressed, was satisfactorily implemented.

Near East and Northern Africa

The disease incidence in the Near East has not changed significantly in 1971; fortunately, virus Type C was not found and subtype A22 occurred only sporadically or, in the case of Israel, in January and February 1971 as a result of vaccination accidents.

Virus type O was dominant in the area, including the Arab Republic of Egypt where a new FMD laboratory is being set up with UNDP/FAO assistance at Abassia, Cairo. Vaccine production is scheduled to start late in 1972.

Table Ia gives some statistical information on FMD in this region.

South America

Table Ib gives some statistical data on disease incidence and virus types and subtypes in the South-American countries, which are particularly important for international trade.

It should be noted that type O was dominant in a number of countries and moving southward from Brazil, caused a deterioration in the situation in Argentina. Type A occurred frequently, while type C was sporadic in the southern countries and absent, as in previous years, from Colombia and Venezuela. In Argentina, progress was made in the organization and implementation of control and prophylactic schemes. Disease freedom was re-established with a vigorous stamping-out action in Patagonia where outbreaks were discovered. Legislation was passed which provided for a new system of official controls of vaccine production: potency requirements are now expressed in PD_{50} values.

Important prophylactic schemes are being developed in Uruguay, Chile, Southern Brazil and Paraguay where vaccine production is now undertaken on an industrial scale.

As indicated in the table, four new subtypes of type A have been classified by the World Reference Laboratory, Pirbright.

TABLE I

Outbreaks of foot-and-mouth disease and virus types recorded in Europe during 1971
(Dates in brackets relate to the last outbreak recorded.)

EUROPE	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Iceland never had FMD												
Norway(1952) Sweden(1966) Finland(1959) Ireland(1941)												
Denmark (April)												
U.K. Great Britain (1968) North.Ireland (1941)												
Belgium								1 A**				
Netherlands						1 C					2 O	18 O
Luxembourg (1963)												
France	3 O C	1 O	3 O C									1 C
Fed. Rep. of Germany			5 C	1 O	1 A							2 C
Italy	3 C	3 O C	4 C		1 O					2 C	1	
Malta (1946)												
Switzerland (April 1969)												
Austria (May 1966)												

Notes: A blank indicates no outbreak recorded

Subtypes: A = A_7 A ** = A Greece 1969 A* = A_{22} or A_{28} O = O_1

Table I (continued)

EUROPE	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Spain	83 O C	109 O	101 O C	88 O	53 O C	36 O	18 O	4 O	2 O	-	4 O	10 O C
Portugal	235 O	287 O	260 O	114 O	56 O	56 O	28 O	12 O	4 O	2 O	1 O	-
Albania (1959)												
Yugoslavia (Nov. 1968)												
Hungary (Nov. 1968)												
Czechoslovakia (Dec.1969)												
German Dem. Republic						1	2					
Poland							1 O					
Romania (Jan. 1969)												
Bulgaria (June 1966)												
U.S.S.R.	69 O A*	44 O A*	19 O A*	22 O A*	20 O A*	29 O A*	30 O A*	37 O A*	29 O A*	21 O A*	29 O A*	25 O A*
Greece		2 A**								17 O C	4 C	
Cyprus (1964)												
Turkey	3 O	4 O	3 O	10 O A*	18 O	26 O A*	35 O A*	49 O	50 O A*	79 O A*	53 O	11 O

Notes: A blank indicates no outbreak recorded

A* indicates A_{22} A** indicates A Greece 1969 O Indicates O_1

U.S.S.R.: Soviet Republics of Lithuania, Lettonia and Estonia are disease free since 1966.
Last record of A_{22} in Bielorussia and Moldavia: March 1969

Turkey: Last record of SAT1: Thrace, October 1963, Anatolia, June 1965
Thrace: no FMD recorded since November 1967
Typing results: O_1 = 266 samples A_{22} = 52 samples Received: 489 samples

TABLE Ia

Outbreaks and Virus Types recorded in the Near East and Northern Africa during 1971

NEAR EAST	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Lebanon	3	11	8	10	9	3	-	9	-	1	2	-
Jordan							?	?				
Syria								-			-	-
Irak	-	1	-	2	-	1	3	-	1	1	2	4
Iran	31	14	13	14	42	45		20	7	16	17	20
Kuwait, Bahrein, Saudi-Arabia, Aden			+ 0	+ 0	+ 0							
Israel	11 A*	3 A*	-	-	-	-	-	-	-	-	-	-

Notes: A blank indicates no information received

Types and subtypes: O type dominant (positive samples from Lebanon, Jordan, Iran, Aden, Kuwait, Bahrein, Saudi Arabia)
A_{22} found in Iran and Israel (post vaccination accidents) Type C: not found

NORTHERN AFRICA												
Egypt (Arab Republic)	-	5	-	9	-	-	-	-	-	-	-	-
Lybia												
Tunisia	-	1	-	-	-	-	-	-	-	-	-	-
Algeria												
Morocco												

Notes: Egypt: sporadic outbreaks in the delta region
Typing results: O type in the Arab Republic of Egypt (W.R.L.)
A blank indicates no information received

TABLE Ib

Outbreaks recorded in some countries of South-America in 1971
Types and subtypes of the FMD virus

Country	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Types
Argentina	71	71	65	140	249	405	251	111	220	202	357	87	O (domin.) A C (sporad.)
Chile	2	5	2	1	6	8	8	6	4	1	-	2	O (sporad.) A (domin.) C (sporad.)
Uruguay	10	2	36	19	13	10	7	10	-	-	3		O (domin.) A C (sporad.)
Paraguay	-	19	23	-	4	15	17	2	-	3	-	8	O C (sporad.)
Rio Grande do Sul	3	27	62	67	47	52	34	14	11	12	16	60	O A C (sporad.)
Colombia	12		11	17	7	6	27	33	20	12	21	20	O A (domin.)
Venezuela			1	3	1	3	8	14	25	12	10	12	O A

Notes:

Subtypes: In the southern countries - A_{24}, A_{26}, A Arg 68, A_{30} (A Uruguay 68)

In the northern countries - A_{27}, A_{31} (A Colombia 69), A_{32} (A Venezuela 70), O_1

Disease free areas in the Argentine: Tierra del Fuego and the provinces of Santa Cruz and Chubut (Patagonia)

TABLE II

Position of Foot-and-Mouth Disease Prophylaxis in Europe 1970-1971

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated and age	Period of vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required results
Netherlands	A. All cattle above four months (vacc.td 3,500,000)	From 1 Feb. to 15 April	The entire country since 1953	Triv. OAC ($O_1 A_{10} C$) cattle: 15cc 1.50 D. fl. Vaccine + injection: D.fl. 3.45(1)	At least 5 cattle PD_{50}. Resistance to generalization after intradermo-lingual challenge with 10,000 cattle ID_{50}. PD_{50}s are calculated from three groups of 5 cattle. Average results of state controls: between 6 and 10 cattle PD_{50}
	B. All cattle born after 1 Oct. of previous year (vacc.td 850,000)	From 1 Sept. to 15 Dec.	The entire country since 1967		
Belgium	All cattle above three months of age The maximal interval between two consecutive vaccinations is 13 months	From 1 Dec. to 31 March	The entire country since 1962	Triv. OAC ($O_1 A_5 C_2$) cattle: 10cc sheep: 5 cc 20 B. Frs.(2)	more than 5 cattle PD_{50} the challenge being 10,000 PD_{50} intralingually (pigs: twice the cattle dose)
Luxembourg	All domestic ruminants	From 11 Jan. to 6 Feb.	The entire country since 1966 (178,905 cattle vaccinated in 1971)	Triv. OAC ($O_1 A_5 C_2$) cattle: 5 cc sheep: 3 cc 25 B. Frs. incl. injection (3)	More than 5 cattle PD_{50} the challenge being 10,000 ID_{50} intralingually

Notes: (1) vaccine and vaccination cost borne by the owner.

(2) vaccine and vaccination cost i.e. 50 B.Frs. for the first and 35 B.Frs. for the following animal, is entirely borne by the owner.

(3) vaccine free of charge; vaccination cost borne by the owner.

TABLE II (contd.)

Position of foot-and-mouth disease prophylaxis in Europe 1970-1971

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated and age	Period of Vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required results
France	A. All cattle above six months approx. 18 million animals	All the year round but mainly from Nov. to May	A. The entire country since 1962	Triv. OAC (O Allier 1960, O_1 Lausanne, A_5, C Vosges 1960) cattle 5 cc sheep 1.7 cc 2,12 FF (1)	Principle: 85% protection rate in cattle against generalization by intralingual challenge. Methods and minimums: Index K (Lucam) = 1.2 Index C = 10^2 Index S = $10^{1.5}$
	B. sheep and goats above 3 months 1,2 million animals	Before transhumance	B. the frontier departements of the Pyrenees from which transhumance takes place towards other departements (2)		
Switzerland	All cattle born before 1 Jan. (1971: 1,655.729)	From 15 Feb. to 15 May	The entire country	Trivalent O_1A_5C S.Fr. 1.6 (3)	Vaccines almost entirely imported from France
Federal Republic of Germany	All cattle above 4 months	Late in winter before admission to pasture	The entire country since 1965	Triv. OAC (O_1A_5C) 5 cc DM 3 (4)	Three cattle per type are challenged by rubbing a virus suspension on the tongue. No generalization admitted.
German Democratic Republ	All cattle above 5 months	From 1 Oct. to 31 Dec.	The entire country	Trivalent OAC	

Notes: (1) The Government contributes 1 FF. for each vaccinated animal; (2) Compulsory vaccination of all sheep and goats of the "departement Pyrenées Atlantiques; (3) Vaccine and injection (total cost: S.Fr. 3.30) free of charge to owner; (4) In some "Länder" vaccination is free of charge, in others the owner is charged 50% of the cost.

TABLE II (contd.)

Position of foot-and-mouth disease prophylaxis in Europe (1970-1971)

VACCINATION PROGRAMMES				VACCINES	
Country	Species vaccinated and age	Period of Vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required results
Italy	All cattle above three months approx. 7 million animals	From 1 Oct. to 31 Dec.	The entire country since 1968, the Po Valley since 1964	Triv. OAC (O_1A_7C) 5 cc. Lit. 180 (1)	Principle: 80% protection in cattle by intralingual challenge
Czecho-slovakia	Cattle above three months 2,106,284 animals	In Spring and Autumn	The frontier areas in a depth of 15-20 km; around FMD Institute and all other areas exposed to infection	Biv. O A (O_1A_5), occasionally monov. C Cz. Kr. 5,60 (1)	Five cattle per type are challenged by rubbing a virus suspension on the tongue. One generalization tolerated.
Austria	Cattle, sheep and goats and pigs	A. Autumn	Around the FMD Institute (Vienna and part of Lower Austria.)	OAC cattle 25cc sheep 12 cc 15 Aust. Sh. (1)	6 cattle are vaccinated with 8 cc of 1 : 8 dilution of monovalent vaccine and challenged intradermolingually with 10,000 ID_{50}. Maximum number of generalizations admitted : 3. Before vaccination and challenge all animals are tested for neutralizing antibodies.
		B. Spring	Animals to be sent to mountain pastures at the border areas with Italy and Germany		
U.S.S.R.	All cattle above three months. (85 million) sheep, goats, pigs	Any time of the year according to local needs	Frontier areas and all other territories of the Union exposed to infection.	Monovalent O or A_{22} or A_7 cattle=5 cc sheep= 5 cc 33 Kop. (1)	5 cc of monovalent O protects 5 out of 6 cattle against generalization; 5 cc of monovalent A_{22} protects 6 out of 6. PD_{50} value for guinea pig: lower than 0,35 cc.

Notes: (1) Vaccine and vaccination programme paid by Government.

TABLE II(contd.)

Position of foot-and-mouth disease prophylaxis in Europe (1970-1971)

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated and age	Period of vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required and results
Turkey	All cattle, sheep and goats	From April to July	A. The entire Turk. Thrace including Istanbul province (since 1962)	Biv. O,A_{22} cattle = 5 cc 30 Kurus (1)	3 cattle per type are challenged intralingually (2 controls).
			B. Frontier areas in eastern and southern Anatolia (since 1968)		
Greece	All cattle, sheep and pigs	one campaign in May-June	A buffer zone 180 km long, 30 km wide in Greek Thrace (since 1962)	Monovalent O, cattle: 5 cc sheep: 2 cc pigs: 15-20 cc (1)	3-4 cattle challenged intralingually with 10,000 ID_{50}. No generalization admitted.
Spain	A. Cattle above six months; sheep and goats in special areas	Spring and Autumn	The entire country cattle: 3,857,137 sheep and goats: 3,087,211	Bival. O/C (BHK) concent. cattle: 4 cc	Willems method.
	B. Pigs above 30kg (pigs vaccinated : 665,550)	All year round	The entire country. Compulsory for adult breeding animals. 25% subvention for fatteners	Bivalent o/C BHK concent. 1st vacc.: 8cc following vacc. 4 cc (2)	
Cyprus	All cattle above 6 months, sheep and goats	Spring and Autumn	Cattle: the country. Sheep and goats around airport and harbour (12 miles)	Triv. OAC (1)	

Notes: (1) Vaccine and vaccination free of charge to owner; (2) vaccine free of charge; vaccination costs borne by owner.

TABLE II (contd.)
Position of Foot-and-Mouth Disease Prophylaxis in Europe 1970-1971

Country	VACCINATION PROGRAMMES			VACCINES	
	Species vaccinated and age	Period of vaccination	Territory covered by vaccination	Valencies cattle dose cost	Potency required results
Denmark	Cattle, sheep and goats (18,000 animals)	Autumn and Spring	Within a 25 km radius around the FMD Institute (Lindholm)	Trivalent OAC 30 cc (1)	2 cattle challenged intralingually with 20,000 mice ID_{50} and 2 cattle challenged by friction on the tongue. Neutralization test. In tubes: minimum titre 1/32. in mice, minimum titre 1/128.
Hungary	Cattle above three months of age	One program: 1 March to 30 April	60% of the national territory	T_{riv}. OAC (1)	80 - 85% protection rate in cattle cattle against generalization by intralingual challenge.
Yugoslavia	Cattle above three months, sheep, pigs	Varies according to the epizootiological situation	Frontier areas and ring vaccination	Mono- or bivalent OC dose: 15 cc Yug. Dinar 3,70 for vaccine 5 Din. for injection (1)	Potency is tested on 2-4 adult cattle per valency. the challenge being 5,000 ID_{50}, at least intralingually.
Bulgaria	Cattle and goats above three months	Spring and autumn	30 km buffer zone along frontiers with Turkey and Greece	OAC (1)	A. 100% protection against generalization in 4 cattle intralingual challenge with 20,000 PD_{50}. B. seroneutraliz. index above 3

Note: (1) vaccine and vaccination free of charge to the owner.
POLAND and ROMANIA vaccinate only in case of outbreaks (ring vaccination).
Potency requirements in Romania: 2 ml of the ordinary dose must contain 8 cattle PD_{50} as a minimum.

APPENDIX II

SEROLOGICAL RELATIONSHIP OF SOME FOOT-AND-MOUTH DISEASE STRAINS EMPLOYED IN VACCINES IN EUROPE

Epidemiology Department

Animal Virus Research Institute, Pirbright, England

This paper continues the observations made at the 1971 meeting of the Technical Group of the European Commission at Tübingen. The survey of strains has been continued and extended to include a number of strains which had not been received at the time of the last paper. The additional information on this occasion is derived from serum neutralization tests, since the time taken to prepare the necessary antisera for complement fixation has been too great to allow the inclusion of results here. The correlation which exists between the neutralization test and complement fixation test is reasonably close; discrepancies between the two results will be further investigated.

In general, the observations made at the Tübingen meeting have been confirmed and valuable data are being accumulated on the reproducibility of the results. In order to simplify reference, the list of strains examined is repeated even when the data have already been given in the previous paper. Similarly, in the tables of results, the new data are presented alongside the old.

STRAINS RECEIVED

France (received from I.F.F.A., Lyon)

A - Valais, isolated in Valais, 1968
O - Hautes Alpes, isolated in 1969
C - Haute Loire, isolated in 1969
} received 5 November 1969

A - Allier, isolated in Toulon/Allier in 1960 (received 3 June 1971)

O - Lausanne 65
C - Vosges 60
} received 10 February 1972

Belgium (received 19 October 1970 from Dr. Leunen of Institut National de Recherches Vétérinaires, Brussels)

O - Bruges, isolated in 1963
A - Keliterman, isolated in 1959
C - Loupoigne, isolated in 1953

Holland (received 28 October 1970 from Dr. Terpstra, Centraal Diergeneskundig Institut, Amsterdam)

O - Holland
O - Brugge
A - Holland
C - Detnold

Italy (received 1970 from Dr. Nardelli, Brescia)

O - Swiss 65
A - PR 1962
C - Brescia
} received 3 September 1971

C - Peru (vaccine strain developed for Peruvian Government)

Denmark (received 1 April 1971 from Dr. Schjerning- Thiesen, State Veterinary Institute for Virus Research, Lindholm)

O - Kalvehave

A - Vadum

C - Turup

Switzerland (received 20 May 1971 from Dr. Spuhler, Institut Vaccinal Basle)

O - Brent

A - Eystrup

C - Noville

Spain

Group 1 received 22 June 1971 from Dr. Vilanova, Laboratorios Sobrino:

O - Spa 3/71 (Sobrino)

C - Spa 2/71 (Sobrino)

Group 2 received 20 July 1971 from the Director, Laboratorios Beca, Seville:

O - Spa 4/71 (Beca)

A - Spa 5/71 (Beca)

C - Spa 6/71 (Beca)

World Reference Laboratory

O_1 - Lombardy

A_5 - Westerwald

A_{10} - Kemron

CGC Original stock C guinea-pig strain from Insel Riems, 1933

C997 British field strain, 1953

SEROLOGICAL TESTS

The neutralization test on microtitre plates with BHK 21 cells was used to obtain R values calculated according to the formula:

$$R = 100\sqrt{r_1 r_2}$$

where r_1 and r_2 are:

$$\frac{\text{Serum titre against heterologous virus}}{\text{Serum titre against homologous virus}}$$

for each of a pair of sera.

The antisera were prepared against high-titred live virus in rabbits and stored in 2 ml. aliquots at -20°, while the challenge viruses for the test were obtained by between 2 and 7 passages on BHK monolayers and stored in 4 ml. glycerinated aliquots also at -20°.

The technique used for the complement fixation tests in Tables 1, 3 and 5 was described in the Tübingen paper and, as no further results are included, the description has not been repeated here.

RESULTS

The results now available are given in Tables 1-6 attached. No further tests have been carried out on the three field strains from France, A-Valais, O-Hautes Alpes and C-Haute Loire, and the Peruvian strain has also been omitted from the further work. Conclusions in relation to the strains of the three types are not widely different from those given at Tübingen.

Type A

It is confirmed that there is a close identity between A-Holland and A_{10} Kemron. The other A strains differ from these two but would appear to form a loosely-knit group. In one particular case there is a discrepancy of some magnitude between the result on complement fixation and that on serum neutralization. The R. value between the strains A-Vadum (Denmark) and A-Keliterman in the case of C.F. is 19, while in serum neutralization it is 67. This situation is being further investigated. If the complement fixation result proves to be correct, there is some justification for suggesting that the Danish strain, A-Vadum, is less closely related to the other A's than they are to each other.

Type O

In general, the type O differences appear to be less than those in type A. The closest relationship found has been between O-Holland and O_1 Lombardy but the other strains are not in any case widely different. Agreement between complement fixation and neutralization for the strains for which results are available is on the whole reasonably good.

Type C

The strains CGC, C-997 and Beca are clearly different from each other and the rest of the strains in the group. The only exception to this rule is the R value of 80 found between C-Loupoigne and C-997, which requires further investigation. The remaining C viruses - Sobrino, Turup, Detmold, Noville, Brescia, Loupoigne and Vosges - are quite closely related.

****

April, 1972

TABLE 1. Type A strain relationships by complement fixation (R values)

Strain	Holland	Valais	Allier	Vadum	Keliterman	Eystrup	A_5	A_{10}
A-Holland (Netherlands)	100	15		25	22	26	13	>100
A-Valais (France)		100		19	10	23	10	29
A-Allier (France)			100			100	95	
A-Vadum (Denmark)				100	19	31	27	34
A-Keliterman (Belgium)					100	63	28	
A-Eystrup (Switzerland)						100	82	28
A_5 Westerwald							100	12
A_{10} Konron								100

TABLE 2. Type A strain relationships by neutralization (R values)

Strain	Holland	Allier	Vadum	Kelit'n	Eystrup	A_5	A_{10}	Beca	PR 1962
A-Holland	100		20	29	(34)	9	100		52
A-Allier		100	69	54	>100				67
A-Vadum			100	69	68	39	25		32
A-Keliterman				100	67	41	41		83
A-Eystrup					100	83	26		67
A_5 Westerwald						100	12		
A_{10} Konron							100		49
A-Beca (Spain)								100	
A-Pr 1962 (Italy)									100

The values in brackets were available at Tübingen in October 1971

TABLE 3. Type O strain relationships by complement fixation (R values)

Strain	Holland	Brugge	H-Alpes	Kalvehave	Bruges	Brent	Sobrino	Lombardy
O-Holland (Netherlands)	100	37	98	55		40		100
Brugge (Netherlands)		100	54	95		76		70
O-Hautes Alpes (France)			100	63		52	49	82
O-Kalvehave (Denmark)				100		⩾100	80	59
O-Bruges (Belgium)					100			
O-Brent (Switzerland)						100	51	67
O-Sobrino (Spain)							100	40
O_1 Lombardy								100

TABLE 4. Type O strain relationships by neutralization (R values)

Strain	Holland	Brugge	Kalve	Bruges	Brent	Sobrino	Lomb[y]	Beca	Swiss 1965	Lau-sanne
O-Holland	100	41	(23)	51	(55)	(68)	(⩾100)	52	43	
Brugge		100	89	>100	>100	67	75	48	78	
O-Kalvehave			100	79	(⩾100)	(82)	(67)	90	85	
O-Bruges				100	70	88	76		>100	
O-Brent					100	96	(50)	100	88	
O-Sobrino						100	(65)	86	82	
O_1-Lombardy							100	60	41	67
Beca (Spain)								100	60	
Swiss 1965 (Italy)									100	
Lausanne										100

The values in brackets were available at Tübingen in October 1971

TABLE 5. Type C strain relationships by complement fixation (R values)

Strain	Detmold	H.Loire	Turup	Loupoigne	Peru	Brescia	Noville	CGC
C-Detmold (Netherlands)	100	68	92	60	78	80	92	53
C-Haute Loire (France)		100	67	44	70	81	74	
C-Turup (Denmark)			100	49	62	100	100	45
C-Loupoigne (Belgium)				100	50	64	55	60
C-Peru (Italy)					100	54	75	53
C-Brescia (Italy)						100	99	52
C-Noville (Switzerland)							100	54
CGC								100

TABLE 6. Type C strain relationships by Neutralization (R values)

Strain	Detmold	Turup	Loupº	Brescia	Noville	CGC	C-997	Vosges	Sobrino	Beca
C-Detmold	100	(100)	(51)	(92)	(92)	(27)	51		89	29
C-Turup		100	64	(82)	83	(45)	41	>100	>100	21
C-Loupoigne			100	(66)	64	(29)	80	91	75	26
C-Brescia				100	(>100)	(49)	7		54	37
C-Noville					100	(38)	21	100	79	41
CGC						100	15	36	27	19
C 997							100	40	42	
Vosges								100	>100	
Sobrino									100	36
Beca										100

The values in brackets were available at Tübingen in October 1971

THE ANIMAL VIRUS RESEARCH INSTITUTE

APPENDIX III

W.R.L. INFORMATION SHEET NO.11.

RELATIONSHIP OF STRAINS FROM RUMANIA AND BULGARIA

Rum 1/71 - O Grabat, Strain 1968

Isolated from the village of Grabat in Judet (district) Timis in June 1968.

Bul 1/70 - O Polyana 1960

Isolated in Bulgaria in 1960 and passaged in guinea pigs 56 times; a sample was submitted from the last passage.

The relationships of these strains to existing subtypes of type O viruses have been compared by complement fixation (R values).

R values

Viruses							
O_1 Lombardy	100						
O_2 Brescia	54	100					
O_7 Poland 1/59	59	N.R.	100				
O_1 BFS 1860	N.R.	N.R.	N.R.	100			
O_1 Swiss 1/66	62	N.R.	N.R.	96	100		
O Bul 1/70	63	52	83	N.T.	37	100	
O Rum 1/71	54	41	100	78	72	100	100
	O_1 Lombardy	O_2 Brescia	O_7 Poland	O_1 BFS 1860	O_1 Swiss	O Bul 1/70	O Rum 1/71

N.R. = Not repeated
N.T. = Not tested

"r" values

Serum \ Virus	O_1 Lombardy	O_2 Brescia	O_7 Poland	O_1 BFS 1860	O_1 Swiss 1/66	O Bul 1/70	O Rum 1/71
O_1 Lombardy	1.00	0.570	0.681	N.R.		0.267	0.385
O_2 Brescia	0.510	1.00	N.R.	N.R.	N.R.	0.197	0.204
O_7 Poland 1/59	0.502	N.R.	1.00	N.R.	N.R.	0.678	0.947
O_1 BFS 1860	N.R.	N.R.	N.R.	1.00	0.950	N.R.	0.883
O_1 Swiss 1/66	N.R.	N.R.	N.R.	0.964	1.00	0.262	0.655
O Bul 1/70	1.482	1.383	1.03	N.T.	0.532	1.00	1.438
O Rum 1/71	0.755	0.836	1.06	0.683	0.799	0.795	1.00

5th April 1972 A.E.M. Arrowsmith

Note: the information sheets from 1 to 10 have been published in the reports of the 16th, 17th and 18th Session of the European Commission.

APPENDIX IV

THE ANIMAL VIRUS RESEARCH INSTITUTE

W.R.L. INFORMATION SHEET NO. 12

RELATIONSHIP OF A STRAIN FROM GREECE AND BELGIUM

A Gre 2/69. Isolated in Serres, Macedonia in December 1969.

A Bel 1/71. Isolated in Obourg, Belgium in August 1971.

The relationships of these strains to existing subtypes of type A viruses have been compared by complement fixation (R values).

R values

Viruses								
A_5 Westerwald	100							
A_{22} Iraq 24/64	21	100						
A_{25} Argentine/59	N.R.	N.R.	100					
A_{28} Turkey 1/69	N.R.	N.R.	N.R.	100				
A_{29} Peru	N.R.	N.R.	N.R.	N.R.	100			
A_{32} Ven 1/70	N.R.	N.R.	N.R.	N.R.	46	100		
Gre 2/69	38	23	35	11	33	43	100	
Bel 1/71	36	24	N.T.	28	46	40	71	100
	A_5	A_{22}	A_{25}	A_{28}	A_{29}	A_{32}	Gre 2/69	Bel 1/71

N.R. = Not repeated

N.T. = Not tested

The above results indicate the affinity between Greece 2/69 and Belgium 1/71. Unfortunately it has not been possible so far to extend the comparison to a sufficiently wide range of A strains to come to a conclusion on the relationship to other numbered A subtypes.

"r" values

Virus / Serum	A_5	A_{22}	A_{25}	A_{28}	A_{29}	A_{32}	Gre 2/69	Bel 1/71
A_5 Westerwald	1.00	0.272					0.405	0.329
A_{22} Iraq 24/64	0.165	1.00					0.342	0.257
A_{25} Argentine/59			1.00				0.612	N.T.
A_{28} Turkey 1/69				1.00			0.206	0.392
A_{29} Peru					1.00	0.286	0.345	0.704
A_{32} Ven 1/70					0.745	1.00	0.663	0.616
Gre 2/69	0.355	0.155	0.195	0.057	0.318	0.281	1.00	0.724
Bel 1/71	0.400	0.229	N.T.	0.194	0.304	0.261	0.693	1.00

5th April 1972

A.E.M. Arrowsmith

Note: the information sheets from 1 to 10 have been published in the reports of the 16th, 17th and 18th Session of the European Commission.

APPENDIX V

REPORT OF THE EXECUTIVE COMMITTEE

I. GENERAL ACTIVITIES

The activities of the European Commission and its Secretariat since the XVIIIth Session have followed much the same pattern as in the previous years. As a result of the improved disease situation in south-eastern Europe, largely due to the successful prophylactic campaigns carried out each year by Turkey in Anatolia and especially in Thrace, it has become possible to shift attention and efforts in other directions including areas of concern outside Europe.

In conformity with the provisions of the Constitution and following the lines of action suggested by the Executive Committee at Malta (February 1971) and approved by the Commission at its XVIIIth Session, contacts were maintained with Member and non-Member Governments in Europe in order to follow as closely as possible any new development in the disease situation and to become acquainted with any important measures adopted to control and prevent new outbreaks. Focal points for this activity were the few areas in Europe and Anatolia where the disease is still endemic.

Problems connected with virus identification and subtyping were dealt with on various occasions. Particular attention was paid to new foci of infection suspected to have been due to the introduction of animals or animal products from overseas. As in the past, invaluable cooperation was given by the Animal Virus Research Institute, Pirbright. Activities included:-

(a) the serological study and classification of production strains used in European laboratories (see "Meeting of the Research Group, Tübingen")

(b) the examination of strains of virus collected from new outbreaks in Europe

(c) the maintenance of seed virus stock (Annex 1)

(d) the epizootiological investigations on domestic and wild species of animals in Africa

(e) technical assistance to laboratories and training of personnel in developing institutes.

The disease situation of countries from which the infection may be introduced into Europe, especially by meat, was kept under observation and the efforts aimed at re-establishing disease freedom in Patagonia were followed with great interest as were the programmes of countries in Africa from which the disease can spread into the Near East and thence to Europe.

The possibility that the disease situation may deteriorate in south-eastern and eastern Europe has always been kept in mind, especially following the sporadic reappearance of foci of A_{22} virus. Information was regularly obtained from the Turkish and Greek authorities regarding annual vaccination in the buffer zones and measures to consolidate the satisfactory position achieved in controlling indigenous and exotic strains of foot-and-mouth disease virus. The Veterinary Services of these two countries are generously maintaining the buffer zones in Thrace with their own resources, which is essential for the protection of Europe as long as A_{22} virus persists in Anatolia; in fact, vaccination was extended to large areas of their respective territories in addition to frontier areas in Thrace.

The participation of the Commission's Secretariat in the activities of the Animal Production and Health Division of FAO has increased during 1971, especially in connection with projects designed to strengthen or establish new laboratory facilities and field control services. Reports from experts engaged in foot-and-mouth disease work in various FAO assisted countries were received and commented on; action was taken to approach, recruit and brief FMD experts assigned to new projects in South America and Asia. Assistance was given in procuring equipment for developing laboratories and placing trainees in foreign institutes. Projects for the financing of several new FMD institutes were submitted to the Industry Cooperative Programme (FAO) for discussion with donor countries.

Further efforts have been made to increase the membership of the Commission and yielded very promising results.

II. PARTICULAR ACTIVITIES AND TRAVEL REPORTS OF THE SECRETARIAT

1. Activities in connection with world trade problems and disease-free zones and attendance of Joint FAO/OIE meetings in Paris and Khartoum

Since the last session of the Commission, at which reports of missions to African countries were discussed, the Secretary has become involved in other problems of meat production and export in the developing world. He has participated in the work of the FAO Inter-Divisional-Working Group on Non-Tariff Trade Barriers against meat. The Group began its work by studying the bilateral conventions and agreements in the veterinary field, statistics on trading partners in animals, meat and meat products and the veterinary import regulations of the major meat importing countries.

In addition, the Secretary had meetings with the officers of the FAO Industry Cooperative Programme and visitors particularly interested in setting up enterprises or opening trade channels with African areas where export potentials do exist, but health barriers or inadequate veterinary infrastructure still constitute obstacles.

As agreed at the XVIIIth Session of the Commission, steps were taken to organize a joint FAO/OIE meeting in the course of the year to establish uniform criteria for the importation of beef from countries not entirely free from virus diseases exotic to Europe. In May the Secretary contacted the authorities of OIE and EEC, and experts designated by the Commission's Executive Committee to serve as FAO experts at the meeting. In collaboration with the Animal Virus Research Institute, Pirbright, the Secretary collected and distributed relevant papers, field reports and documents, special attention being given to the disease position and virus carrier state in wild animals. The meeting took place in Paris from 14-16 September 1971, under the chairmanship of Dr. Beynon and a report was

issued which contains the points of view of the participants, summaries of discussions and recommendations (Annex 2). This document replaces the recommendations made jointly by the FAO and OIE Commissions on FMD in Brussels in 1960.

The concept of disease-free areas was again dealt with at the meeting held by the Commission of OIE for Africa in Khartoum on 7-12 December 1971. After discussing the disease position and control in different countries, an FAO/OIE consultative session was held at which FAO was represented by the Chief of the Animal Health Service, the Director of the Near East Animal Health Coordinating Unit and the Secretary of the European Commission. As anticipated, the representatives of the African countries were very disturbed by the condition set at Paris by the joint FAO/OIE Group for the export of beef from Africa. In particular, the policy which precludes the export of meat derived from animals vaccinated with live rinderpest vaccine was termed excessive, technically unjustified and likely to jeopardize the successful follow up of the joint campaigns (J.P. 15) against rinderpest in Africa. The conditions regarding foot-and-mouth disease control and prevention, on the other hand, did not give rise to serious objections. Discussions took place on the use of modified live virus vaccines, official testing and standardization of FMD vaccines and on the delimitation of the disease-free zones. The Secretary outlined the position and policy of the Commission on these points. From the conclusions of the joint meeting (Annex 3) it appears that further consultations between FAO and OIE on this issue are necessary, and that assistance may soon be required from FAO by countries desirous to establish disease-free zones.

Kenya's immediate aim is to export quality beef to Europe while the Sudan has defined an area situated north and north-east of Khartoum from which animals and meat could be exported to the Near East or other African countries with satisfactory health guarantees. The administration of this latter country offered FAO and OIE representatives as well as other delegates, the possibility of obtaining an impression of the area from the air. During a seven hour flight, the places where fencing or check points will be provided to ensure control of animal movements around and into the disease-free zone were seen. Animal movement is most frequent in the vicinity of cultivated areas near Khartoum and along the Nile. However, movements of sheep and goats do take place in the less inhospitable areas of the desert which makes up the main part of the planned disease-free zone.

2. Travel to Latin America and Activities connected with the Italo-Argentinian Cross Immunity Trials

In the report of the previous session of the Commission information was given on cattle tests designed to evaluate the degree of immunological relationship between the prevalent European and South American strains of foot-and-mouth disease virus. These trials began in Italy in autumn 1970. The Commission had agreed that the Secretary should participate as observer in all the experiments to be carried out both at Brescia in Italy and in Argentina.

(a) Trials in Italy

The first step was to establish the PD_{50} value of the Italian vaccine which had been produced for the 1970-71 vaccination campaign. Dilutions of 1 : 4, 1 : 16 and 1 : 64 of the OAC vaccine (in buffer solution without addition of adjuvants) were inoculated in doses of 5 cc into groups of antibody-free Austrian steers about 20-24 months old. Challenge doses of 10,000 ID_{50} intradermolingually gave the following results: 23 PD_{50} (lower statistical value = 10) for the O valency; and 14 PD_{50} (lower value = 6) for both the A and C valencies.

(b) Trials in Argentina

The same Italian vaccine was tested in Argentina on groups of 8 cattle 18 to 24 months old.

The animals had been selected and vaccinated in the disease-free area of Patagonia. the vaccine was inoculated as a 5 cc dose undiluted and in dilutions of 1 : 4 and 1 : 16. Challenge was carried out 21 days later in Buenos Aires against O_1, A_{24}, and C_3, each group being kept in an isolation barn.

One extra group of 8 animals per challenge strain received a second injection of undiluted vaccine, three weeks after the first and were challenged after a further three weeks.

The results of the challenge were: 11 PD_{50} (lower statistical value = 4) for valency O_1, 7 PD_{50} (lower value = 3) for valency A_{24}; 1.7 PD_{50} (lower value = 0.8) for valency A_{26}; and 5 PD_{50} (lower value = 2) for valency C_3. The results of challenge in the revaccinated animals were very favourable with only a few reactions being recorded at the inoculation point in the tongue and generalization on one foot only in the group tested against A_{26}.

In Argentina the trials were carried out by the staff of the State Control Laboratories (SENASA) under the supervision of Dr. Garcia Pirazzi, Director of the State Laboratories and Dr. S. Barei from Italy.

The Secretary of the European Commission and Dr. A. Alonso Fernandez (Pan American Foot-and-Mouth Disease Center) formed part of the team which checked the first and second post-infection readings (5 and 10 days, respectively, after challenge) of each one of the 160 animals under test. All 32 controls showed obvious signs of generalization.

Virus specimens were collected from the infected animals and taken to the Pan American Center for identification of the strains recovered.

The pre- and post vaccination sera, collected in Argentina, were examined both in Buenos Aires and Brescia to check the immunological status and response of the individual animals. To sum up, everything possible was done to ensure reliable conclusions.

It should be noted in this connection that in Italy the test animals went through the experiment with no remarkable loss of condition, except for the infected controls, whereas in Argentina all animals lost weight, because they had to be obtained from the range and, after vaccination, transported the long distance from Patagonia to Buenos Aires and put for the first time in barns. Most of them refused food for several days, which added to the stress of the challenge conditions.

(c) Trials in Uruguay

The Secretary was not in a position to observe the cross-immunity trials in Uruguay, but was kept informed of the results.

The trivalent Italian vaccine was challenged in cattle against three strains of virus, classified in Uruguay as O_1, A_{24} and C_2. As in Argentina, the vaccine was inoculated undiluted as a 5 cc dose and in dilutions of 1 : 4 and 1 : 16. Revaccination at three weeks' interval was also applied, in three additional groups of animals before challenge against each of the mentioned local strains.

The results after a single vaccination were comparable to those obtained in Argentina only as far as virus type C was concerned; less protection was found against O and A strains. On the other hand, revaccination results, as measured in groups of 8 cattle per virus type, indicated very good protection against all three types.

Since conditions of the experiments in Argentina and Uruguay were comparable and the vaccine was the same, it was concluded that differences existed between challenge strains O_1 and A_{24} in the two countries.

Such cross immunity trials and their results were discussed at the Meeting of the Research Group of the European Commission, held at Tübingen from 20-22 October 1971 (see Report of the Research Group) and at the XVIIIth Conference of the OIE Permanent Commission of Foot-and-Mouth Disease (Paris 22-25 February 1972).

(d) Other visits in South America

Buenos Aires. In spite of his very short stay in Argentina, the Secretary was given an opportunity to visit a new installation for vaccine production and a special department in a frigorifico, for the preparation of quick frozen cooked meat for export.

The first is a laboratory producing foot-and-mouth disease virus on tissue culture by applying the cell suspension technique on an industrial scale (capacity: 1,000,000 doses per week). Inactivation of the FMD virus is carried out with acethylethylene-imine (AEI) which permits checking the inactivation process and carrying out innocuity testing in vitro prior to the adsorption of the virus by aluminium hydroxide. Potency is deduced from antibody levels measured on serum pools from groups of young and adult animals examined 1 to 4 months after vaccination.

The second plant is a department of the "Frigorifico Wilson", where quick frozen, semi-cooked meat is being produced for export to the U.S.A. The Secretary, who was accompanied by the Director-General of Veterinary Services, was able to follow the special measures designed to exclude any possibility of FMD virus in the export meat.

The department is composed of the two main sections entirely separated by a wall. In the potentially infected or contaminated part the boned carcass is prepared for cooking and conveyed in special metal baskets into the external openings of stainless steel ovens which are built into the dividing wall like double-door autoclaves. The body and exit doors of these ovens are located in the virus-free section and this door opens automatically when the heating operation (about 3 hours at 90-92°C) is complete, meanwhile the loading door remains locked. The meat is then packaged in plastic bags, heated for a further hour, cooled in a water bath and, finally, deep frozen in the packages on a plate freezer. The finished product, packed in cartons, is kept in the cold storage compartments of the isolated section which open directly on to an adjoining embarkation pier.

The installations of the plant are excellent both from the technical and sanitary points of view and include a laboratory for chemical and bacteriological analysis. Personnel and visitors can only have access to the isolation section by undergoing the same security measures as are required in a modern virus laboratory.

The plant could very well serve as a model for similar installations in countries affected by exotic viruses transmissable through meat. The main problem would be that of finding a sufficiently remunerative outlet for deep-frozen meat to justify the very high investment involved. North American supermarkets have been using Argentinian deep-frozen cooked meat for the preparation of so-called "TV dinners" and the like.

Rio de Janeiro. During a visit to the Pan American Foot-and-Mouth Disease Center the Secretary discussed with Dr. Federer, Acting Director, Dr. Monaco and other officers, the disease position on the South American continent with particular reference to the more recent results on subtype identification and classification.

3. Visit to veterinary institutions in Spain (29 May - 5 June 1971)

Accepting the invitation extended by the Veterinary Directorate and two vaccine producers in Spain, the Secretary paid a visit to the Official Veterinary Services in Madrid and the laboratoties of the Sobrino Institute, Olot and, accompanied by Dr. Compairé Fernandez,

the Cooper-Zeltia Institute, Porriño.

In Madrid discussions took place with the Deputy Director of Animal Health and other officers of the veterinary services and the Patronato de Biologia Animal on the disease position, control campaigns in cattle and pigs, and methods of innocuity and potency testing of FMD vaccines.

As to vaccine production it was gratifying to note the progress made in Spain in the industrial production of tissue culture both at Olot, in primary cell cultures using the Rome method, and at Porriño by cultivating BHK cells in suspension.

In both institutes the organization of the laboratories and the quality of work carried out were found to be excellent. While the annual production capacity of FMD vaccine of the Institute at Sobrino is rather limited, the Cooper-Zeltia Institute can already produce substantial quantities of trivalent vaccine and with the addition of a new line for industrial cell cultures in suspension, which is under construction, may soon reach a throughput of 2,000,000 trivalent doses a month. At both institutes the vaccines are tested on cattle under the supervision of a government officer.

Problems connected with official vaccine testing and prophylactic campaigns were discussed at Madrid. The Secretary took note of the promising results obtained following vaccination twice a year of all cattle and of nearly one million pigs. Vaccination with concentrated vaccines is being intensively promoted in this latter species, in an attempt to eliminate the main source of infection, especially as far as the C virus is concerned.

The advisability of providing the central laboratory in Madrid with the necessary installations to carry out vaccine testing in cattle was pointed out by the Secretary. In discussing the position of Spain within the context of control and prevention of FMD in Europe, the Secretary pointed out the advantages which could be gained by Spain in joining the European Commission. While in Madrid the Secretary visited laboratories and discussed eradication programmes for ASF.

4. Visit to the FMD Laboratory at Cairo (2-7 December 1971)

On his way to Khartoum the Secretary visited the Arab Republic of Egypt to evaluate the development of the new laboratories for FMD set up within the framework of the Near East Animal Health Institute (FAO), with the financial assistance of the UNDP Special Fund (ARE/67).

The laboratory had last been visited in May 1969 when it only consisted of the essential installations for the laboratory diagnosis of FMD. The intention of the Governmant was to develop a vaccine production center to supply the needs of extensive campaigns to be carried out, especially among the susceptible buffalo and cattle population of the Nile Delta.

Under the direction of Dr. Frederiks, FAO expert, intensive work was undertaken to adapt the laboratory for its new functions: valuable unused equipment (Ensink) for vaccine inactivation was received and repaired with the collaboration and financial support of the Dutch Embassy, new equipment was ordered for cell and virus production in deep suspension and an isolation unit was designed for the testing of the vaccine produced at the laboratory.

Dr. H.O.G. Böhm, FAO expert, took over the work done by Dr. Frederiks, after his retirement, and has obtained very promising results, especially in the field of BHK cell suspension. However, some additional equipment will be needed for virus inactivation and vaccine preparation and a plan was drawn up with Dr. Ozawa, Project Manager, Dr. Böhm and Dr. El Sabban, Director-General of the Research Institute, which included consultation with the Istituto Zooprofilattico Sperimentale, Brescia.

5. Visit to the Veterinary Institutions in the Federal Republic of Germany (3-9 May 1971)

The main purpose of the visit was to discuss with the federal authorities in Bonn, the possibility of greater participation by the Federal Republic in the work of the European Commission. The Secretary was received by the Ministerial Director, Professor Pielen, and by the Director of the Federal Veterinary Services, Professor Eckerskorn, and drew attention to the activities and functions of the Commission, emphasizing the significance and practical implications of a possible adherence of the Federal Republic to the European Commission. The technical and financial contribution given by the Federal Republic to FAO, especially in supporting the activities organized by the Commission against exotic viruses in south-eastern Europe and, more recently, the offer of facilities for the session of the Research Group to be held at Tübingen were recognised as tangible signs of effective and fruitful cooperation.

The epizootiological situation in the Federal Republic was also discussed, especially in connection with some post-vaccination accidents. It was agreed that "innocuity testing of vaccines" should be proposed for discussion as an additional item on the agenda of the meeting of the Research Group.

6. Attendance of the 2nd International Congress for Virology, Budapest, (27 June to 2 July 1971), and visits to veterinary institutes in Hungary and Czechoslovakia (3-13 July 1971)

(a) The 2nd International Congress for Virology

The Congress was well organized and attended by more than 1,000 virologists of medical and agricultural disciplines. Among the various specialized sessions at the Congress was a symposium on FMD in which interesting papers were presented and discussed on virus structure, protein biosynthesis in cellular and cell-free systems, antigenic components of the virus, immunization and immunity, live modified vaccine strains, potency testing, epizootiology of foot-and-mouth disease and evaluation of the vaccination campaigns.

Techniques for large scale production of foot-and-mouth disease vaccines by the BHK cell culture method in deep suspension and the field results with such vaccines were the subject of very interesting communications and discussions. A particularly important contribution from the Wellcome group of scientists reported that high immunity levels have been obtained in significant numbers of animals following repeated administration of vaccines in fractions of doses. Repeated vaccination seems to be promising also when a good protection against foot-and-mouth disease has to be conferred to very young stock intended for export.

(b) Visit to the Phylaxia Institute and Directorate of Veterinary Services, Budapest

The Waldmann method of virus production (natural virus) is still applied and continues to give good results, but at a high cost. The advantages of virus production techniques in vitro were discussed at a meeting attended by all the staff members of the Institute and it was agreed that Frenkel and tissue culture methods would, in future, replace the Waldmann technique. Technical assistance may be required in the formulation of plans to convert the laboratory.

At the Directorate of Veterinary Services, Budapest, the Secretary met Dr. Banos, representing Dr. Kadár, and Dr. Czukas, Chief, Infectious Disease Section and expressed satisfaction at the very favourable disease position achieved and maintained over the last few years. It was explained that some 600,000 head of cattle are now vaccinated every year in the large cooperatives in areas, and herds, most exposed to infection.

In connection with the question of animals in transit, it was mentioned that road transport has sometimes been requested, to reduce the length of the journey and the sufferings of young stock, especially during the hot season. It was suggested that if and when such a concession is made, the animals should be transported under police escort from frontier to frontier.

Czechoslovakia

By invitation of the central veterinary authorities, the Secretary was able to visit scientific institutions and field veterinary services in both republics of Czechoslovakia in connection with his trip to Budapest.

It was noted that measures were in force to prevent the introduction of foot-and-mouth disease into the country through import of meat, especially from overseas. Extensive vaccination programmes, involving some 2,700,000 head of cattle were implemented in 1971 and included all potentially exposed areas of the country, i.e. all frontier zones, along the main routes of communication, around the FMD institutes and around the plants where imported meat is processed. It was confirmed that no importation of meat is permitted from countries infected by exotic viruses.

At the Foot-and-Mouth Disease Institute, Terezin, the Waldmann technique is to be replaced by virus production in tissue culture. As in Budapest, a large section of the laboratories is maintained under strict isolation, including a number of units for virus production in live cattle, which makes the whole procedure very expensive, cumbersome and dangerous.

At the National Institute for Veterinary Research, Brno, the collection centre for viruses and bacteria was of great interest. It is very well equipped for morphological studies including electronic microscopy. In addition, a documentation centre has been set up where scientific information is coded and transmitted to a computer in town once a week.

At the Veterinary Faculty, Brno, the Secretary spent some time in the Institutes for Epidemiology and Pathology and was able to appreciate the quality and abundance of materials and facilities made available to students, thus enabling them to obtain a complete theoretical and practical training in disciplines of major importance for the state veterinary service.

The electronic microscopy section (equipped with two TESLA BS 513) provides excellent opportunities for morphological and histopathological studies and investigations.

Between 660 and 700 students are registered at the Brno Veterinary Faculty. There are 16 chairs and the course takes 11 semesters and ends with state examinations, i.e. six years to become a veterinarian. No doubt, the Faculty is in a position to host international post-graduate courses.

District and field veterinary services in Czechoslovakia

Each province is divided into districts. The district veterinary officer is in charge of five to six veterinary "points" serving the farmer's cooperatives. The Secretary was able to visit the district officers of Galanta, Snojmo and Jihlava, where information and views were exchanged with specialized personnel in the sections of epizootiology, nutrition, gynaecology, andrology and poultry diseases which constitute a very efficient supporting network for the technical services in the field. Very modern clinics are housed in the more recent district offices and portable X-ray equipment is available to service a scheme of systematic examination aimed at the elimination of the last pockets of atrophic rhinitis infection in the country.

The Jihlava laboratories are also in charge of wildlife disease investigation throughout the country.

At Bratislava discussions took place at the central veterinary laboratory on the disease position and diagnostic services in Slovakia and at the Medical Faculty, on zoonosis epidemiology and control. Prof. Kmety, a physician, is the Chairman of the Coordinating Commission for Anthropozoonoses of which Dr. Lactis, Chief Veterinary of Bratislava, is the Secretary. Important studies are in progress especially on leptospirosis.

7. Attendance at the XIXth World Veterinary Congress

The Secretary represented FAO at the XIXth World Veterinary Congress which was held in Mexico City from 15-22 August 1971. The main purpose of this trip was to participate in the two sessions on foot-and-mouth disease, namely "The world position and control of FMD" and "Immunology of FMD". At the first session, chaired by the Director of OIE, the Secretary contributed a paper entitled "FMD as a World Problem; the position in Europe". The paper gave a review of the most recent advances in FMD research and epizootiology in relation to disease control and prevention policies with special reference to Europe. It was explained that, as progress towards eradication continues, preventive measures are being extended and strengthened in an increasing number of countries. The result is that more restrictions are being imposed on potentially dangerous importations from infected countries. More efficient control of the disease, therefore, becomes imperative, especially in countries where meat production is a major or potential factor in the balance of payments.

The paper was discussed together with the contributions by Dr. Brooksby on "Epizootiology of FMD in Africa", by Dr. Fernandez on "The position and control of FMD in South America" and the comments of Dr. Vittoz on the rôle of OIE and the importance of the OIE Zoosanitary Code. A plea was made for a wider adoption of the Code by Governments.

Other contributions, in the section on FMD Immunology presided over by Dr. Brooksby, were made by Dr. Callis on "Advances in the preparation of FMD vaccines", by Dr. Mackowiak on "The significance of antibodies appearing in different post-vaccinal periods", by Dr. Giraud on "Results achieved with a new oil vaccine for pigs", and by Dr. E. Mayer on "Anaphylactic post-vaccinal reactions".

The Secretary attended several other sessions of the Congress and a special meeting on African Swine Fever where he commented on the successful campaign conducted by Cuba and drew attention to the results of the European, and particularly to the Italian, experience in bringing ASF under control and subsequently maintaining the position.

Other activities during the Mexico Congress concerned the preparation of the Paris meeting on disease-free zones in collaboration with the Chairman of the Commission and the Director of OIE, discussions with Dr. Peritz, Regional Veterinary Officer, and the Director of the Pan American Center on problems related to FAO activities in the field of FMD control in South America, attendance at meetings of the new Association of Veterinary Epidemiologists, and the WHO/FAO Panel on Echinococcosis and at several meetings held by the Permanent Commission of the World Veterinary Association where the venue of the next Congress, the revision of the Constitution and the recommendations of the XIXth Congress were discussed.

Before concluding his stay in Mexico City, the Secretary visited the Palo Alto Institute to discuss the FAO/UNDP Rabies Project with Dr. Sureau, the Project Manager, and other officers, and the results so far achieved. Future work in the field (Bolivia) to evaluate a new live modified virus developed by FAO (Bijlenga) against paralytic rabies in South America was also considered. The first encouraging result following the use of such vaccine had been reported by Dr. Bijlenga at the World Veterinary Congress.

8. Attendance at the XXIXth Session of OIE (24-29 May 1971) and the XIIIth Conference of the OIE Permanent Commission for FMD (Paris, 22-26 February 1972)

As in the past the Secretary attended the Annual Session of OIE, held in Paris from 24-29 May 1971, where he had an opportunity to discuss various problems concerning the present position and control of FMD in the world.

In addition, the Secretary took part in the work and deliberations of the XIIIth Conference of OIE on Foot-and-Mouth Disease which was held in Paris from 22-26 February 1972; the following agenda items were discussed under the chairmanship of Dr. J.B. Brooksby: i) the comparative epizootiology of FMD in regions (continents) and its effect on control measures; ii) vaccination of young cattle; iii) vaccination of pigs; iv) vaccination schedules; v) norms of the control of FMD vaccines; vi) FMD in sheep.

Twenty papers were presented under the first agenda item; in general they dealt with the epizootiological picture in countries, rather than regions, and contained much information on the disease position, progress in control and prophylactic schemes. Of particular interest were the studies of a French mission to Ethiopia, which reported the presence of the three virus types O, A and C; recent studies, carried out in the United Kingdom, on the origin of primary foci and on the mechanism of wind-borne transmissions of FMD virus; measures adopted in South Africa to control the movement of wildlife across frontiers; the influence of mass vaccination on the kinetics of the epizootic in France and the suggestion made by Italy in connection with a socio-economic approach to the problem of disease prevention in international trade. Following a general discussion it was recommended that: a) vaccination schemes should be continued and strengthened where the disease remains endemic (this is in line with the resolution passed at the XVIIIth Session of the European Commission); b) extensive research should be carried out on the epizootiology of FMD in sheep, goats, wildlife and other virus carriers as well as on the relationship between the disease in game and domestic stock; c) full epizootiological study should be made of all sporadic outbreaks, whenever they occur. The Conference also supported the recommendations made by the Joint FAO/OIE working group (Paris, 14-16 September 1971) reviewing the criteria governing the importation of beef from countries not entirely free from enzootic disease.

Three papers dealt with the subject "vaccination of young cattle" (item 2) and an interesting discussion ensued. The problem of how to overcome the obstacle of residual maternal antibodies when the object is to ensure good immunity levels in young stock, especially in animals intended for export or intense fattening in feedlots remains open. As a general rule, it is recommended that young cattle, particularly calves, should be vaccinated at least twice (this is in line with the conclusions of the Research Group, approved by the XVIIth Session of the European Commission).

The vaccination of pigs (item 3) was dealt with by 10 speakers; new formulae for vaccine for pigs and methods of evaluating immunity levels and duration were the main subjects of discussion. The conclusions were in accord with those reached at the meeting of the Research Group at Tübingen (October 1971) in so far as the efficiency of new adjuvants and inactivants is concerned. In addition, the meeting agreed that "the potency of some of the new vaccines for pigs can be measured quantitatively".

A further nine papers were presented on vaccination schedules (item 4) and the method of measuring immunity levels in a population submitted to repeated vaccination. Note was taken on important progress made, especially in France, on the differentiation of early and late post vaccination antibodies, and the study of their significance in evaluating immunity, at various post-vaccination periods. It was concluded that "antibodies which appear after several vaccinations may vary both quantitatively and qualitatively". In vitro tests, such as the serum neutralization test and the complement fixation inhibition test may be of interest in determining the immunity level in vaccinated stock, provided a prior correlation

is established between these tests and the protection rate". The policy of submitting adult cattle to vaccination at least once a year and young stock to revaccination as soon as possible has been recommended. Finally, the meeting took note of the possibility that "viruses isolated from the pharyngeal mucus of clinically healthy animals may acquire, in some instances, after cultivation on thyroid cells the characteristics of FMD virus. On initial isolation these viruses have no pathogenic power and are not contagious". Further research is needed on this important subject and for the time being it was concluded by the meeting that "one should be cautious before adopting sanitary police measures".

Six papers were read on the subject of "Norms for the control of FMD vaccines" (item 5). The principles and techniques of vaccine control gave rise to a lively discussion in which members of the OIE Commission for the standardization of biological products also participated. It was recognized that the problem was a complex one, due to the nature of FMD vaccine, to the variety of methods of preparation, to the lack of accurate methods of evaluation of efficacity in the laboratory and to the variability of the results obtained in cattle.

The following "Principles of the control of the potency of FMD vaccines intended for use on cattle" have been agreed upon as a preliminary step in the standardization of vaccine:

1. "The potency of FMD vaccines intended for use in cattle should be controlled in cattle. Other methods can be considered to be auxiliary to the cattle test. Such methods can be used where correlations with the bovine test have been established".

2. "The potency of a vaccine should be determined, for each valency, as a minimum percentage of protection in fully susceptible cattle".

3. "The potency of monovalent vaccine and the valencies of a polyvalent vaccine should be determined by a quantitative method. The minimum percentage of immediate protection in cattle vaccinated with a single dose should be 70%".

The problem of "relation between antigenic differences measured serologically and immunologically" (item 6) was the subject of important papers, which included the results of field trials carried out in Argentina and Uruguay on the initiative of the Italian Government.

According to Lucam and his co-workers it is possible, by comparing the values of homologous and heterologous relationship of virus strains, to evaluate the degree of immunological dominance and thus select the more appropriate strain to confer a broader spectrum of protection within the type. Although complement fixation is the most accurate test in the study of antigenic differences between strains, it has been found that virus neutralization reactions are more closely related to the immunogenic response in animals. It is important to note that, as a result of virus neutralization tests carried out on Plum Island on 102 different strains of FMD virus, high degrees of cross reactivity were found when various virus types were tested against SAT1 and SAT3 sera. It was concluded that common antigens may be shared by different virus types.

Finally, the results of cross immunity trials carried out on cattle by comparing European and South American virus strains were illustrated, as previously reported in Tübingen (see later) by the Italian delegate. The experiments showed: (a) the possibilities of optimal vaccine formulation, in respect to all valencies, based on PD_{50} measurements on cattle; (b) the importance of revaccination as a means to overcome subtype differences.

The discussion on "foot-and-mouth disease in sheep" (item 7) gave an opportunity to stress once again the importance of sheep and goats in the epizootiology of the disease

especially in countries where small ruminants are numerous and their movements difficult to control. It was recalled that, through vaccination campaigns, involving all ruminants and carried out annually over the last ten years in south-eastern Europe, the disease was liquidated in regions like Thrace where FMD used to be endemic.

The meeting agreed to recommend intensified veterinary control on all animal movements, especially transhumance, and the inclusion of sheep and goats in vaccination schemes, whenever such measures appeared to be justified.

III. MEETINGS OF THE COMMISSION'S COMMITTEES

A. Meeting of the Research Group of the European Commission for the Control of Foot-and-Mouth Disease, held at Tübingen, Federal Republic of Germany, 22-24 October 1971 (Summary)

A meeting of the Research Group of the Standing Technical Committee of the European Commission for the Control of Foot-and-Mouth Disease was held at the Federal Research Institute for Animal Virus Diseases, Tübingen, Federal Republic of Germany, from 22-24 October 1971.

Chairman of the meeting was Prof. Dr. M. Mussgay, President of the Institute.

The meeting was attended by:

(a) the Members of the Research Group of the European Commission:

Dr. L. Nardelli, Director, Istituto Zooprofilattico, Brescia; Dr. E. Michelsen, Director, State Veterinary Institute for Virus Research, Lindholm, accompanied by Dr. M. Jensen; Dr. J.B. Brooksby, Director, the Animal Virus Research Institute, Pirbright, accompanied by Dr. J.H. Darbyshire; Dr. J.G. van Bekkum, Director, Central Veterinary Institute, Amsterdam; Dr. G. Kubin, Director, Bundesanstalt für Virusseuchenbekämpfung bei Haustieren, Vienna; Dr. J.E.M. Leunen, Chief, Virology Department, Institut national de recherches vétérinaires, Brussels, accompanied by Dr. Charlier, and Dr. N. Muntiu, Deputy Director, "Pasteur" Institute, Bucharest, in his capacity as Secretary-General of the OIE Permanent Foot-and-Mouth Disease Commission.

(b) Invited research workers:

Prof. Dr. E. Traub, FAO Expert, Şap Enstitüsü, Ankara, Turkey; Dr. L. Dhennin, Directeur de recherches, Laboratoire national de recherches vétérinaires, 94 Maison Alfort; Dr. C. Mackowiak, Director-General, IFFA, Lyons, accompanied by Dr. H.C. Petermann; Dr. P. Prunet, Laboratoire Roger Bellon, Villaines-le-Rochers; Dr. R. Bandau, Impfstoffwerke Wellcome, Grossburg-Wedel; Dr. H. Geilhausen, Farbenfabriken Bayer, A.G., Köln-Nippes; Dr. W. Merk, Bakteriologisches Institut, Dr. Rentschler & Co., Laupheim; Dr. B. Schneider, Behringwerke A.G., Marburg-Lahn; Dr. G. Mondino, Centro Sperimentale Farmitalia, Nerviano, Italy; Dr. F. Manso Rodriguez, Chief, Virus and Contract Section, Patronato de Biologia, Madrid; Dr. P. Cármenes and Dr. M. Cordero del Campillo, Faculdad de Veterinaria, Lëon; Dr. T.W.F. Pay, Director, the Wellcome Laboratory, Pirbright; Dr. P. Capstick, Director, Vaccine Production Laboratory, Wellcome Institute, Nairobi, Kenya; Dr. J.H. Graves, Plum Island Animal Disease Laboratory, Greenport, U.S.A.; Dr. P.A. Chaloux, European-African Representative, ARS, Rome; Dr. V.P. Onoufriev, Director, All-Union Institute for Foot-and-Mouth Disease, Vladimir, U.S.S.R.; Dr. J.M. Reda, Arab Republic of Egypt;

(c) Officers of the Federal Veterinary Services of the Ministry for Food, Agriculture and Forests, Bonn, and staff members of the Federal Institute, Tübingen.

Dr. A. Rojahn, Chief, Animal Disease Control Branch, Ministry of Food, Agriculture and Forestry, Dr. G. Eissner, Deputy Director, Federal Research Institute, Tübingen, as well as Dr. H.D. Matheka, Dr. K. Strohmaier, Dr. G. Wittman, Dr. R. Ahl, Dr. B. Dietzschold, Dr. K. Bauer, Dr. C.R. Kaaden, Dr. W. Uhlmann.

Dr. G.M. Boldrini, Secretary, European Commission, acted also as Secretary of the meeting, assisted by Dr. P.R. Ellis, Consultant, and Miss D. Guarino, Admin. Assistant.

At the opening of the meeting, the Secretary expressed the gratitude of the Commission to the President of the Federal Research Institute and the authorities of the Federal Republic of Germany for the hospitality offered to the Research Group at Tübingen and made some introductory remarks concerning the functions and objectives of such technical meetings. In particular, he drew attention to the requests for standardized procedures in vaccine production, especially as far as innocuity and potency testing are concerned.

Dr. Rojahn, Chief of Animal Diseases Branch, welcomed the Group and the numerous observers on behalf of the Federal Ministry of Food, Agriculture and Forestry. He pointed out that while the Federal Republic had been more or less free of foot-and-mouth disease for some years, research had to continue because of the new problems and dangers which continued to arise. It was, therefore, very appropriate that the meeting should be held at the Federal Research Institute for Virus Diseases where work was being done on many items proposed for study.

The main items of the agenda discussed were the following:

1. Vaccination of pigs

2. Methods of measuring potency and innocuity of vaccines (and purification of the virus for vaccine production)

3. Review of subtypes used in vaccine production in Europe

4. Special presentations of the Tübingen Institute

Twentytwo papers were presented covering all items very extensively and stimulated considerable discussions. The full report of the meeting, which includes the originals of all contributions, will be circulated as a separate issue to all the interested laboratories and parties.

Summaries of papers presented under items 1, 2 and 3 of the agenda are given here under together with accounts of the general discussions of the plenary sessions and the conclusions approved by the Research Group.

A brief account of the other scientific contributions to the meeting, laboratory visits and technical demonstrations, and finally the proposed programme for the Group's future activities will conclude the report.

Item 1 : Vaccination of Pigs against Foot-and-Mouth Disease

Dr. Prunet (France) reported the production of a trivalent vaccine which was found to protect fattening pigs for their normal life-span with one 3 ml. dose. The virus strains for antigen production were adapted to pigs by four or five passages in the coronary band. They were then grown in monolayer or suspension cultures of IB-RS-2 cells and proved more antigenic than when grown on BHK cells. Inactivation was carried out with glycidaldehyde and a special water-oil emulsion used as adjuvant. The product passed the official French Government tests for innocuity and potency and substantially exceeded the minimum requirements (22 pigs per valence are challenged four weeks post vaccination by coronary band infection: at least 20 pigs must resist generalization).

Dr. Wittmann (Federal Republic of German) reviewed the work done at Tübingen over the previous three years and the results obtained in experiments by vaccinating pigs against FMD with EEI/DEAE-Dextran vaccines. Antigen was produced mainly on calf kidney cells, but BHK cells were also used. The amount of antigen incorporated in the vaccine was not significant provided it was above a certain minimum. Satisfactory responses to vaccination were obtained following both subcutaneous and intramuscular injection of 5 and 10 ml doses of vaccine; however, there were wide variations in the responses of individual pigs and pig families which indicated a need to mix pigs from different sources in immunity tests. Immunity was fully developed in four days and began to diminish after four weeks, but was considered adequate for mass vaccination to protect against epizootic spread for eight to twelve weeks.

Revaccination at twelve weeks prolonged protection for a further period of 12 to 16 weeks.

Short lived local and generalized reactions to the vaccine were recorded.

Dr. Leunen (Belgium) described a comparative test made with three vaccines prepared with virus O_1 Bruges produced by the Frenkel method. The first contained the combination: Aluminium hydroxide-Formol-Tego-Bayol; the second contained DEAE-dextran with formol as inactivant, and the third DEAE-dextran with AEI (acethylethyleneimine) as inactivant. Innocuity tests were carried out in suckling pigs and potency tests in 20 kg pigs maintained under intense fattening conditions. A 5 cc subcutaneous dose was used and the pigs were challeneged by injection nine weeks post vaccination. DEAE-dextran was shown to be the more effective adjuvant, but the superiority of AEI over formol as inactivant was not as marked as in previous studies.

Dr. Leunen also reported that DEAE-formol vaccine conferred adequate protection after one year of storage although lower serum antibody levels were noted.

Dr. Cordero (Spain) reported field and laboratory studies on an FMD vaccine for pigs prepared with EEI (ethylethyleneimine) as inactivant and DEAE-dextran as adjuvant. After drawing attention to the serious difficulties caused by FMD in Spanish pig herds, especially during the fattening period, he stated that whereas ordinary cattle vaccine and Freund's incomplete adjuvant vaccine had proved of little value, DEAE-dextran vaccine prepared with O_1 (Spain) and C viruses grown on calf testis cell cultures had given very encouraging results. In laboratory tests on 197 pigs and on 1,416 in the field, using a 10 ml dose intramuscularly (5 into each side of the neck) local reactions commencing at two to three hours, and lasting up to 36 hours post vaccination were observed. Systemic reaction and, rarely severe allergic reactions, were also observed during the same period, but none of the reactions led to persistent effects or significant lesions at the site of inoculation. Potency tests under very adverse conditions showed strong protection at eight weeks and acceptable levels at twelve weeks. Immunity developed very rapidly and the vaccine gave excellent results under field conditions.

Dr. van Bekkum (Netherlands) summarized recent work carried out with pig vaccine in the Netherlands.

A series of vaccines had been prepared using O Bruges, A and C viruses grown in Frenkel cultures, inactivated with 0.05 percent AEI at a temperature of 25°C. An innocuity test was carried out in both unweaned mice and cattle at 24 hours. No virus was detected at this stage but inactivation was continued for a further 24 hours before the remaining AEI was inactivated by the addition of 1/10 vol. of 20 percent thiosulfate.

DEAE-dextran was used at the rate of 50 mg/ml as adjuvant.

Protection results were better than any obtained previously in the country with oil emulsion vaccines, especially with regard to the duration of immunity.

Dr. Petermann (France) illustrated the results of recent studies on the relationship between serum neutralization titres and percentage of protection in pigs. He was able to demonstrate with the aid of a table and graphs, the existence of a linear relationship between serum titres and protection percentage.

Discussion (Plenary Session)

During the extensive discussion which followed the presentation of papers many additional comments were made:

With respect to virus propagation, the excellent results with IB-RS-2 cells and continuing success with BHK cells were noted but attention was also drawn to the effect that variations in quality of cells within a given line could have on virus titres.

There were differing views on the need to concentrate antigen and on the quantity of antigen required per dose. These were influenced by the source of antigen, obviously affected by the character of the adjuvant and complicated by the difficulties of measuring the antigenic response to vaccines. Serum antibody titres could not be reliably correlated

with protection against challenge beyond three weeks post vaccination. Subcutaneous and intramuscular routes also produced differing antibody titres. Variations in the reactions of individual pigs and pig families further complicated the picture.

However, the French authorities had shown that pig vaccines could be tested satisfactorily by challenge and yielded results which corresponded to levels of protection in the field. The somewhat disappointing results obtained when these same vaccines were tested in Germany were atributed to differences in challenge methods and virus strains.

The effectiveness of the newer vaccines was attributed mainly to DEAE-dextran and new oily adjuvants. Both were responsible for stronger and longer response to vaccine than had previously been possible; opinions only differed as to which of the two was to be preferred. Both produced transient local and, less frequently, general reactions but no one reported lasting effects leading to condemnations at meat inspection. The majority of participants favoured the intramuscular route of inoculation and repeated doses, particularly for breeding stock.

Conclusion of the Research Group on item I

"The Committee noted that a number of vaccines had been applied quite extensively in the field. Frenkel type vaccine containing aluminium hydroxide, increased quantities of antigen and, in some cases, saponin had been used to combat disease situations with considerable success in several European countries. Extensive research on the production of two different vaccines with cell culture antigen, and alternative adjuvants and inactivants, had led to very encouraging developments, and the use of such vaccines had already been officially approved in, at least, one country.

There was still unsufficient evidence with respect to the most suitable cell lines for virus production, the need to concentrate antigen and on the choice between DEAE-Dextran and oily adjuvants, but is was recognized that both the respective vaccines gave improved rate, degree and duration of immune response.

The Committee, therefore, felt that these improved vaccines had reached the stage when they could be used for more extensive vaccination in and around infected areas. However, users should be aware of the risks of transient local and general reactions. More research was needed to define which of the virus sources and adjuvants were to be preferred, and to establish quality standards for the adjuvants. It was also necessary to obtain agreement on methods of vaccine control bearing in mind the fact that:

(a) antibody level may not reflect the immune status of the pigs after more than four weeks post vaccination; and

(b) response of individual pigs and herds may vary widely."

Item 2 : Methods of Measuring Potency and Innocuity of Vaccines

Dr. Uhlmann (Federal Republic of Germany) presented a paper on potency testing of commercial trivalent vaccines in adult mice by means of modified CF tests. The results obtained with serological tests, as a means of measuring potency of vaccines, were somewhat disappointing.

Sixteen trivalent OAC vaccines were inoculated into groups of adult mice and serum pools, prepared from each group, were examined simultaneously by the complement consumption test and serum neutralization tests in suckling mice. While reasonable correlation was obtained between the results of these two series of tests, particularly in the case of saponinized vaccines, no correlation could be found between the adult mouse potency results and the routine potency test results with the same vaccines in cattle, nor did they correspond to the post vaccination antibody levels in cattle. Even with a more sensitive complement consumption test using a 50 percent haemolysis, read photometrically, the same conclusions were reached.

Dr. Eissner (Federal Republic of Germany) reviewed progress with myotropic O, A and C strains for challenge purposes in experimental FMD vaccine potency tests in guinea pigs. The objective was to obtain strains which were still infective for cattle and sufficiently virulent for the end points to be measured by mortality rather than assessment of lesion. Encouraging results had been given by a type O strain but types A and C were not yet satisfactory and the degree of correlation between guinea pig and cattle potency had not yet been established.

Dr. Muntiu (Romania) presented a paper on the duration of immunity in one year old cattle after the first vaccination with 10 PD_{50}.

Using 10 PD_{50} of the ordinary cattle vaccine he found that four times the adult dose was needed to produce the same level of immunity in one year old animals as in adults using the same vaccines. Dr. Muntiu concluded that the present policy of using the same dose for both age groups carried the risk of dangerous weakness in barrier and ring vaccination schemes. Therefore, revaccination was essential to secure a solid immunity in the younger groups.

Dr. Nardelli (Italy) gave a brief account on the extensive investigations being made into the degree of protection afforded by a trivalent OAC vaccine prepared with European O_1, A_5 and C strains of virus against subtypes encountered in South America. A brief progress report was given on the Italy-Argentine and Italy-Uruguayan cross immunity trials.

In the Argentine, challenge tests had been carried out on groups of cattle vaccinated in Patagonia with a full 5 ml dose, 1/4th and 1/16th of this amount. Serological tests were also used, both in South America and Italy, to check the immunological status of the experimental animals and to follow the development of antibodies. Results to date had been very encouraging, since high levels of protection against heterologous strains could be demonstrated despite the general loss of weight (stress conditions) noted in the experimental animals which were not used to being housed.

While the single dose of the Italian vaccine yielded very satisfactory protection against the Argentine subtypes O_1, A_{24} and C_3, revaccination became necessary to ensure comparable levels of protection against A_{26} virus.

The response to vaccination under similar conditions was less satisfactory in Uruguay where the same vaccine was used against three local O, A and C strains. With only one of the three challenge strains did protection approach the satisfactory levels ensured by a single vaccination in the Argentine. Revaccination, however, yielded a very satisfactory response. (Additional information on the trials is given in the reports of the XVIIIth and the XIXth Session of the European Commission and a full report on these studies will be published elsewhere in due course).

In his paper, Dr. Pay (U.K.) discussed the technique and observations made on FMD virus inactivation with acethylehtyleneimine (AEI).

Since AEI appeared to inactivate FMD virus by a first order reaction, it was possible to monitor progress and to anticipate the response by the mathematical method indicated in his paper. Among the factors influenoing the rate of inactivation, the stability of AEI in aqueous solution was possibly the most significant. It was concluded that satisfactory inactivation of the batches could be assured by extending the inactivation period from 6 to 24 hours following the second dose. The technique is now routine in seven Wellcome Group FMD vaccine production laboratories and is used on suspensions of up to 1,000 litres in volume.

Referring to the problems of hypersensitivity and anaphylaxis observed in Lower Saxony, Germany in 1968, Dr. Pay reported that a formalin protein complex had been identified as the cause. After satisfactory field trials of AEI vaccine in the affected area in 1969, general distribution was permitted in 1970 and 1971 and no serious problems of hypersensitivity have been encountered.

In the second section of his paper Dr. Pay described the techniques applied to formalin and to AEI inactivated vaccines. He concluded that if the tissue culture method offered approximately the same order of sensitivity as the Henderson technique in cattle tongues, the practical advantage of being able to test much larger samples of each vaccine allowed for greater confidence limits to be placed on the probable freedom from infectivity of the vaccines.

In his second paper Dr. Muntiu summarized the results of testing for innocuity the last 150 batches of vaccine produced in Romania. Despite the use of a high concentration of antigen containing some undisintegrated cells and cell groups, no case of FMD had been ascribed to the vaccine. Inactivation was carried out by the addition of formalin, after mixing in the aluminium hydroxide, and storage at 26°C for 46 hours, then 4°C for at least 48 hours. Further, and sometimes repeated, inactivations were necessary for some batches but no significant loss of antigenicity resulted. Vaccines prepared with certain subtypes were more difficult to inactivate than those of other subtypes and variations were also noted with vaccines of the same subtype.

Dr. Mackowiak (France) reported further work on the correlation between antibody levels and resistance to infection in cattle.

Earlier work had shown good correlation even towards the end of duration studies following a single vaccination. However, following revaccination, higher levels of antibody were not accompanied by a corresponding increase in immunity.

Studies on the character of antibodies developed have, therefore, been initiated. Separation and purification were carried out by gel-filtration in Sephadex G 200 and in ion-chromatograph exchange in DEAE Sephadex A 50. The identification of IgC and IgM antibodies was accomplished by treatment with beta-mercapto-ethanol. Biological tests were routinely made on the different fractions by SN in tissue culture and CF inhibition, while radial immunodiffusion precipitation tests were conducted in the whole serum.

Preliminary results suggest that the antibodies produced by a first FMD vaccination differ in character from those induced by revaccination, being of heavier molecular weight and stronger electrical charge. Further investigations are being undertaken to confirm these findings and to correlate revaccination antibody levels with immunity.

Discussion (Plenary Session)

Extensive discussion on methods of assessing vaccine potency ensued. Various workers reported difficulties in correlating the antigenicity of virus strains in cattle and guinea pigs. It was noted, however, that some progress had been made at the Pan American Foot-and-Mouth Disease Center with a test in mice. Dr. Mackowiak also mentioned work with mice at IFFA; some correlation had been obtained between mouse and bovine test results but he felt that such correlation was only valid as long as exactly the same production and testing systems were followed. Any change would require recorrelation of results.

Age of vaccination and duration of immunity also attracted considerable attention, following the presentation of papers. It was generally agreed that protection was most needed during the optimum growth period - the first year of life - in cattle. Dr. Pay cited the preliminary data he had presented at the II International Congress of Virology in Budapest (June 1971), with respect to combinations of primary and secondary vaccination, using graduated doses of vaccine. The antigen dose did not appear critical in older animals and preliminary findings suggested a similar conclusion for young animals. While the initial dose might give only a nominal response, revaccination between 21 days and 6 months yielded very good protection.

Dr. Mackowiak felt that IFFA's observations on the differing character of the antibodies resulting from primary and secondary vaccination were relevant to these results. With respect to calves, Dr. Pay mentioned the successful practice developed in Spain of giving the first dose of vaccine at two to four months of age, revaccination in 14 to 21

days and a third dose one month later. This had dramatically changed the pattern of disease in intensive calf-rearing units.

Various comments were made on inactivation with AEI. It was noted that AEI was toxic for humans, none was present in the final product. The AEI antigen had also been shown to be very stable. In response to enquiries, Dr. Pay stated that, although the Wellcome Foundation Ltd. was the only current source of AEI, it could be made available to other interested laboratories.(*)

Conclusions of the Research Group on Item 2

"The Committee felt that research during the past two years had not yielded significant advances towards new methods of potency testing of vaccines. No addition could, therefore, be made to the recommendations of the session held in Brescia 1969.

With respect to innocuity tests, it was concluded that great advantages accrue from control tests during the inactivation process. New inactivants and the development of tissue culture methods had made this possible. They permit the examination of much larger volumes of antigen and result in improved levels of confidence compared with the cattle test. However, these tests did not yet eliminate the need for a cattle innocuity test on the final product.

The newer inactivants also made a contribution to the improved safety of vaccine. Those which, like AEI, function as first order inactivants, are inherently safer than formol."

Item 3 : Review of virus subtypes used in vaccine production in Europe

Dr. Darbyshire (U.K.) presented the first series of observations from the World Reference Laboratory on vaccine production strains received from France, Belgium, the Netherlands, Italy, Denmark, Switzerland and Spain. Comparisons were made by cross complement fixation and serum neutralization tests, results being calculated and expressed as R values. Marked differences were noted among the A subtypes; the O strains appeared more closely related and differences among the C strains examined were of minor degree. Work was in progress on other strains and the findings would be made available later.

Dr. Traub (FAO) presented the results of cross complement fixation tests with five strains of A virus isolated in Turkey. A type A strain identical with, or closely related to A_{22} had recently appeared in western Turkey. At about the same time a strain differing significantly from A_{22} and A_{20} had appeared in eastern Turkey. The second new strain could not be considered as a distinct subtype, but was important enough to be of concern for the vaccination programme. A common, mainly cell-bound antigen was detected in the five strains and a Turkish O_1 strain.

Dr. Reda (A.R.E.) described a passive immunohemolysis test for FMDV, developed at Tübingen. Partially purified and concentrated viral antigens were coupled to sheep erythrocytes by means of $CrCl_3$. The red cells, so sensitized, reacted specifically with virus specific antibodies. After addition of complement, the reaction could be detected and measured by hemolysis. The test was shown to be type specific. Owing to its sensitivity and simplicity, the method was tested for its usefulness in subtype classification. The results showed that the different O subtypes could be readily differentiated, but most of the A subtypes gave variable degrees of antigenic cross reactions. With the C-strains tested, certain antigenic differences existed between two field strains on the one hand and a laboratory strain on the other.

(*) Note of the Secretary: Acethylethyleneimine (AEI) of a quality suitable for use in FMD vaccine manufacture is produced by the Wellcome Foundation Ltd. The Foundation stated that the product is now available on an all-inclusive price basis, thus eliminating all additional charges which, in the past, had been related to patent rights.

Discussion (Plenary Session)

The significance of the reported differences in European vaccine strains was discussed. It was felt that they were not of great importance in the context of regular annual vaccination programmes, because revaccination could overcome quite marked differences.

However, cases were cited in which subtype differences had caused problems and homologous vaccines had to be prepared (against A Greece and C Torhout). This pointed to a need for continuing alertness and preparedness to modify vaccines. It was also stressed that both r_1 and r_2 values should be fully evaluated before vaccines are used against a new strain.

During the discussion Dr. Onoufriev (U.S.S.R.) gave a brief description of developments in the U.S.S.R. While mass prophylactic vaccination is not carried out in pigs, as a rule ring vaccination, using two to three times the cattle dose, is sometimes applied at two-and-a-half to three month intervals.

Young cattle had presented problems in infected zones due to short duration of immunity. Experimental work to improve the response is in progress.

The position with respect to general incidence of the disease has remained favourable with only sporadic outbreaks being recorded, mainly in the south-eastern regions of the Union. Close watch is kept for the appearance of new subtypes and subtype relationships are checked by the usual tests but there are no changes to report. This refers also to the A_{22} subtype which reappeared in eastern Ukraine during 1971.

Monovalent vaccine is used in problem areas for a period of two years and then withdrawn if there are no further outbreaks. A slaughter policy is adopted for individual foci and the resulting meat is processed.

Conclusions of the Research Group on item 3

"The Group considered the reported differences between the strains of virus used for vaccine production by the various laboratories. It was felt that these differences were not sufficiently large to indicate a need for changes. Provided the vaccines are adequately tested and applied according to a regular schedule, they should protect against the known field strains in Europe.

However, the degree of challenge in the field has been very mild for some time and it is important to watch developments and arrange for subtyping of virus from any unexplainable field outbreaks. The World Reference Laboratory stands ready to assist in this work. The Commission should be kept informed by the Chief Veterinary Officer of the strains being used in the production and testing of vaccines. Further work should be undertaken on the correlation between serological and immune response data in production and field viruses."

Other Scientific Contributions

In addition to those mentioned, the following papers were presented and discussed at the plenary meetings:

- Further studies on the FMDV carrier state of cattle, by Dr. Kaaden, (Federal Republic of Germany)
- Relative sensitivity of an indirect complement fixation test and a plaque reduction test in FMD, by Dr. Traub (FAO)
- Patent infection and virus interactions in the pathogenesis of FMD, by Dr. J.H. Graves (U.S.A.)

- The separation of FMD virus particles by zonal ultra-centrifugation and C.F. titration in a Tecnicon Auto-analizer, by Dr. Larenaudie (FAO), presented by Dr. Dhennin (France)

- Preparation of purified FMDV and determination of the N-terminal amino-acids of the virus, by Dr. Matheka (Federal Republic of Germany)

- Systematic studies on the concentration and purification of FMDV, by Dr. Strohmaier (Federal Republic of Germany)

- Hybridization studies with types and subtypes of FMDV, by Dr. Dietzschold (Federal Republic of Germany)

- Factors of interferon action in bovine interferons, by Dr. Ahl (Federal Republic of Germany)

Laboratory visits and demonstrations

All participants were given an opportunity to visit the laboratories and see demonstrations on the work described by the staff of the Institute in their contributions to the meeting.

After a brief introduction, by the Chairman, on the history and aims of the Federal Research Institute, visits were paid first to the installations of the non-isolated part of the Institute, including the small animal section and the quarantine stables, where Maedi/Visna infection of sheep and the plan of work on cattle leucosis were discussed. Diseased animals were shown.

In the isolat part of the Institute, large and small animal units were visited and different systems of effluent decontamination, manure sterilization, air conditioning and filtration and the various precautions adopted to prevent virus escape were illustrated in detail. This included a visit to the slaughter premises, dissecting rooms and the internal workshops.

When touring the laboratories demonstrations were given on the following:

(1) purification of FMD virus, giving also an opportunity to observe a preparation in the analytical ultracentrifuge;

(2) an acrylamid-gel-electrophoresis;

(3) preparation of ultra-thin sections;

(4) blood picture in leucosis affected and healthy cattle and discussion of the present problems;

(5) techniques of interferon investigation and discussion of results;

(6) technique of microplaque tests without overlay and discussion and illustration of practical examples.

Future Activities of the Research Group and Closure of the Meeting

Recognizing the growing interest in the control of foot-and-mouth disease in many countries in Africa, the Research Group felt that it would be appropriate to devote the next session of the Group to the study of laboratory aspects. It was suggested that the possibility be explored of holding a meeting in Kenya.

With respect to future activities, it was proposed that a course in "Advanced FMD Laboratory Techniques" be arranged for senior staff of Member Countries as soon as resources would permit.

In closing the session, Dr. Mussgay thanked the participants for the many interesting and valuable contributions they had made to the discussion.

On behalf of the Research Group and all the other participants, Dr. Brooksby drew attention to the large amount of time and effort which Dr. Mussgay and his colleagues had devoted to ensuring the success of the meeting. He expressed appreciation, too, for the excellent hospitality which all the participants had enjoyed.

B. Meeting of the Executive Committee, held in Nicosia, Cyprus, 1-3 February 1972

A meeting of the Executive Committee was held in Nicosia, Cyprus, from 1-3 February 1972.

The members who participated were:

Mr. A.G. Beynon, U.K. (Chairman); Dr. Chr. Werdelin, Denmark, (Vice-Chairman); Dr. A. Nabholz, Switzerland, (Vice-Chairman); Dr. R.P. Gaier, Austria; Dr. A. Mattioli, representing Dr. L. Bellani, Italy; Dr. L. Nardelli, Director, Istituto Zooprofilattico Sperimentale, Brescia, Italy, and Dr. J.M. van den Born, Netherlands.

The Government of Cyprus was represented by: Dr. K. Polydorou, Director of Veterinary Services.

FAO was represented by Dr. R.B. Griffiths, Chief, Animal Health Service; Dr. S. Dobai, Project Manager, UNDP Project 446; Dr. H.C. Girard, Project Manager, UNDP Turkey 33; Dr. G.M. Boldrini and Miss D. Guarino served as the Commission's Secretariat for the session.

The meeting was opened by Mr. R.C. Michaelides, Director-General, Ministry of Agriculture and Natural Resources, who welcomed the Members of the Executive Committee and observers on behalf of the Government of the Republic of Cyprus.

1. Adoption of Agenda

The agenda as presented was approved.

2. Situation of Foot-and-Mouth Disease in Europe, the Near East and South America since the last Session

The Secretariat presented a working paper on the subject. A satisfactory situation had been maintained in several European countries, but there had been some deterioration in others, sporadic outbreaks having occurred in a few European countries which had been free from the disease in 1970. Some of these outbreaks resulted from inadequate

inactivation of vaccines; others stemmed from deficiencies in the system of safety measures applied in and around foot-and-mouth disease institutes. Disease latency in countries where the disease has not been eradicated might have been responsible for some isolated foci, and a few were related most probably to meat imports from overseas.

While there had been a marked reduction in the number of outbreaks in the Iberian peninsula in the autumn of 1971, the situation continued to give cause for concern: the peninsula was now the most heavily infected area in Europe. It was encouraging, however, that intensified vaccination programmes were being pursued. The Committee expressed the hope that both Spain and Portugal would provide more detailed information on the types of virus recorded in outbreaks since present information was meagre.

The greatly improved situation in Italy was noted and it was reported that the Government of Italy now provides both vaccine and vaccination free of charge to the farmers. A slaughter policy had been introduced.

The livestock movement regulations imposed for the control of rinderpest which was eradicated from Turkey in 1969 after the appearance of the disease in two foci in Central Anatolia had contributed also to the control of foot-and-mouth disease in Turkey. Thrace had remained free from foot-and-mouth disease for the fourth consecutive year.

The Director of Veterinary Services of Cyprus stated that his country had been free from foot-and-mouth disease since 1964. He described the measures which continue to be applied in order to maintain freedom from the disease.

The disease situation in the Near East and in South America was reviewed.

The Committee also considered the problem posed by "Safari parks" which were now being developed in increasing numbers in some countries. It was agreed that the Secretariat should collect information on the quarantine procedures and other protective measures which are being adopted to prevent the introduction and spread of foot-and-mouth disease.

3. Problems connected with Imports

(a) Results of cross immunity trials to compare European and South American strains

The results of the trials conducted in Italy, Argentina and Uruguay in 1970/71 were described. A report on the trials is given in the report of the Meeting of the Research Group of the European Commission, held at Tübingen, October 1971.

(b) Evaluation of activities connected with the concept of disease-free zones

The Executive Committee examined the report of the Joint FAO/OIE Working Group which met in Paris in September 1971 to review the criteria governing the importation of beef from countries not entirely free from virus diseases exotic for Europe with a view to facilitate inter-regional trade. It was considered that the recommendations of the Working Group were constructive and that they should be adopted in place of those made at Brussels in 1960 by a Joint Meeting of the OIE Foot-and-Mouth Disease Commission and the FAO European Commission for the Control of Foot-and-Mouth Disease.

The report was presented and discussed at the OIE General Session in Paris in May, well as at the 19th Session of the European Commission for the Control of FMD in Rome in April. The report will be issued in due course both by FAO and by OIE. A member of the Executive Committee said that the recommendations should be regarded as minimum requirements; importing countries should remain free to impose additional requirements if necessary.

The Secretariat gave a brief account of the views expressed by delegates of FAO and OIE Member Governments at a joint FAO/OAU/OIE ad hoc consultation on conditions for the establishment and maintenance of disease-free zones which was held in Khartoum, in December 1971 on the occasion of the meeting of the OIE Permanent Regional Commission for Africa. There was general agreement that the recommendations made by the joint Working Group at the meeting in Paris were positive, but there was serious concern over the statement made in the report that EEC countries have accepted the principle that beef derived from animals which have been vaccinated with live rinderpest vaccine should not be imported.

Procedures for the recognition of disease-free zones were discussed by the Executive Committee. It was considered that the stage had been reached when inspection arrangements should be defined and it was recommended that the matter should receive the attention of the appropriate international bodies as soon as possible. It was understood that discussion on the subject will take place at the OIE General Session in Paris in May. As regards the recognition of disease-free zones with a view to the export of meat to Europe, the Executive Committee strongly recommended that representatives of the EEC should participate in inspection missions.

4. Meeting of the Research Group

The Committee reviewed the work recently carried out by the Research Group and considered its conclusions on the vaccination of pigs. The Committee was pleased to note the results of the campaign conducted towards the end of the year in the Netherlands where a combination of stamping out and extensive area vaccination had brought the disease in the pig population of that country under control. The Committee felt that such an achievement not only supports but strengthens the views expressed by the Research Group at Tübingen on the application of vaccine in pigs.

The Committee appreciated the contribution made at the Tübingen meeting on innocuity and potency testing of vaccines which allowed positive conclusions to be drawn on the use of AEI as the preferred inactivant. It was noted that the product is now available to all potential users without any additional charges and that Brescia was prepared to replace formalin by AEI.

The survey carried out at the World Reference Laboratory on the production strains for vaccines submitted by European Laboratories and the interesting results of such a survey were also appreciated by the Executive Committee; and the recommendation was made that any reappearance of foot-and-mouth disease in Europe of unknown origin should be followed by the immediate submission of the virus strains to the World Reference Laboratory.

In commenting on the future work of the Research Group and the proposed agenda for the next meeting of the Group, the Executive Committee expressed the view that before a decision is taken the matter should be further examined by the Chairman and the Vice-Chairmen of the Commission and representatives of the Research Group, possibly on the occasion of the XIXth Session of the Commission. The result of their deliberations should be submitted to the Session for discussion and approval.

5. Importation Policy

The Committee considered that there was a need for the Commission to recommend conditions for the importation of meat into Europe from countries where FMD caused by virus strains not exotic for Europe continues to occur. A draft document was discussed and it was agreed that the subject should be further discussed during the XIXth Session of the Commission.

6. Budgets and Accounts

The provisional accounts for the year ended 31 December 1971 were presented and approved under the understanding that they will be subject to minor year-end adjustments.

When presenting the draft of the revised budget for 1972, the Members noted that the figure for salaries had been considerably higher than in the past years, due to the increases necessitated by the drop of the dollar rate.

The Secretariat was requested to investigate the opportunity of perhaps increasing the contributions by a small amount in order to balance the present increases, possibly without having to present an amendment to the Constitution of the Commission, as was done in 1967.

7. Working Documents for the XIXth Session and Future Activities

The Secretariat stated that the working documents for the XIXth Session were in an advanced stage of preparation.

A document on future activities was accepted. In addition to continuing the established work programme of the Commission, it is proposed that assistance should be offered to a limited number of laboratory workers from selected Member Countries to receive training in modern techniques of vaccine production. The contribution of the Commission should not exceed, however, a total sum of US$ 1,000 per person and not more than two awards should be made in 1972.

The Secretary informed the Committee that he expected to participate in the ad hoc consultation on disease-free zones to be organized by FAO towards the end of 1972, probably in South America. The Committee agreed that the Secretary's travel and per diem costs should be met by the Commission.

The Committee agreed that the Director, World Reference Laboratory for FMD, should be invited to submit his comments to the XIXth Session on the recommendation made at the last meeting of the Executive Committee that the WRL should be strengthened so that the volume and speed of work on sub-types could be increased. The Commission would then be able to consider whether or not a supplementary assistance grant should be made.

8. Other Business

The minutes of the last meeting of the Executive Committee held in Rome after the termination of the Session on 26 March 1971 were approved.

The Committee considered the frequency of the Commission's Sessions. In view of the significantly improved FMD situation in Europe, it was felt that meetings of the Session might be held in future at two-year intervals provided that suitable arrangements were made to convene a Session should an emergency arise. It was agreed that the matter should be discussed at the forthcoming Session in April next.

ANNEX I (APPENDIX V)

THE ANIMAL VIRUS RESEARCH INSTITUTE, PIRBRIGHT

Stocks of Seed Virus of Foot-and-Mouth Disease
Strains held on behalf of the European Commission

At 31st December 1971, six-litre batches of the following strains are available for distribution should the need arise. These strains represent each of the five serotypes selected for storage. They are:

Type A: USSR 1/66 BTY 1 BHK 8 S 1

Type SAT 1: Rho 5/66 BTY 1 BHK 5 S 1

Type SAT 2: Uganda 6/70 BTY 1 BHK 12 S 1

Type SAT 3: Bec 1/65 BHK 3 S 1 BHK 2 S 1

Type Asia 1: Israel 3/63 BTY 1 BHK 7 S 1

BTY = Bovine thyroid culture
BHK = BHK monolayer culture
S = BHK suspension culture

The titrations of materials which have been stored for periods of up to nine months in liquid nitrogen indicate no detectable loss of infectivity.

Two strains, although available in small quantities, have still to be prepared on the six-litre scale. These are:

SAT 1 Turkey 323/61

SAT 2 Tanzania 5/68

These strains have already been adapted to BHK monolayer culture and tested for purity. They will be grown in suspension culture for storage as soon as possible.

ANNEX II (APPENDIX V)

JOINT FAO/OIE WORKING GROUP TO REVIEW THE CRITERIA GOVERNING THE IMPORTATION OF BEEF FROM COUNTRIES NOT ENTIRELY FREE FROM VIRUS DISEASES EXOTIC FOR EUROPE WITH A VIEW TO FACILITATE INTER-REGIONAL TRADE

Paris, France, 14 - 16 September 1971

Report of the Meeting

1. BACKGROUND

At its Meeting in Malta in February 1971, the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease considered that the development of the concept of feedlot animal production in disease-free areas appeared to have reached the stage when there was justification for a re-examination of the recommendations made at Brussels in 1960 by a Joint Meeting of the OIE Foot-and-Mouth Disease Commission and the FAO European Commission for the Control of Foot-and-Mouth Disease to prevent the introduction of exotic types of foot-and-mouth disease into Europe.

In March 1971, the XVIIIth Session of the European Commission for the Control of Foot-and-Mouth Disease endorsed this proposal and recommended that is be undertaken as a joint FAO/OIE activity, with the participation of EEC.

Accordingly, a Joint FAO/OIE Working Group was convened and met at OIE Headquarters, Paris, from 14 to 16 September 1971.

The Secretariat consisted of Dr. R. Vittoz (OIE), Dr. R.B. Griffiths and Dr. G.M. Boldrini (FAO) and the following attended as representatives of FAO and OIE:

FAO	OIE
Dr. J.G. van Bekkum	Dr. J.B. Brooksby
Dr. A.G. Beynon	Dr. H. El Fourgi
Prof. G. Caporale	Dr. A. Geisler
Prof. A. Nabholz	Prof. F. Lucam
	Dr. A. Provost

Dr. F. Contardo represented EEC.

Dr. J.F. Frank (Canada) and Dr. P. Chaloux (USA) were present as observers.

Dr. A.G. Beynon was appointed Chairman.

A number of documents were placed before the meeting by FAO and OIE, including the recommendations of the First Conference of the Permanent Commission of the OIE for Africa, held in Dakar, December 1966 and relevant extracts from the Report of the Fifteenth Session of the FAO Conference, held in Rome, November 1969.

Following a review of the report of the Brussels Meeting it was concluded that whereas many of its recommendations remained valid there was a need to modify others in the light of advances in knowledge and other changes which had taken place in the past decade. The Meeting decided therefore that a revised list of recommendations should be prepared incorporating both the currently acceptable recommendations of the Brussels Meeting and revisions made following consideration of:

i) new concepts regarding sub-types of foot-and-mouth disease virus, any strains of foot-and-mouth disease virus originating outside Europe being considered as potentially exotic for the continent;

ii) the carrier state in foot-and-mouth disease both in domestic stock and in wildlife;

iii) the development of the disease-free zone concept, especially in relation to feedlot animal production;

iv) export abattoirs;

v) boning as a protective measure.

The Meeting agreed that foot-and-mouth disease and rinderpest were the virus diseases which posed the greatest risk in importing beef from regions where these infections still occur. There was insufficient evidence about the risk of transference of bluetongue and Rift Valley fever through the medium of trade in meat, but attention was drawn to a possible hazard to men from the handling of meat from animals infected with Rift Valley fever virus. The Meeting considered that it was not in a position to make any recommendations in respect of those arthropod-borne infections, but importing countries should keep the situation in exporting countries under review.

For several reasons, the term disease-free zone was not considered to be entirely adequate but since it has been in common usage for several years by bodies concerned with import/export questions it was decided to adopt the term in the present report, it being understood that use of the term would be suitably qualified by reference to specific diseases, as appropriate.

2. PRESENT SITUATION IN THE WORLD IN RELATION TO RINDERPEST AND FOOT-AND-MOUTH DISEASE

The Director of OIE reviewed the position of foot-and-mouth disease and rinderpest on the basis of the information OIE had received from the various countries. As far as rinderpest was concerned the situation in Africa had much improved thanks to the implementation of the JP/15 programme of mass vaccination in various African countries.

He stressed the necessity of carrying out follow-up campaigns in order to consolidate the results so far obtained. The situation in the Near East had also improved, although cases of disease were still occurring in Lebanon. Vaccination programmes remain in progress in the Indian sub-continent and in South-east Asia.

Very good results had been achieved in Europe in controlling foot-and-mouth disease and some progress in reducing the disease incidence has been made in several Latin American countries and in a few African countries as a result of a more extended use of vaccination. The reporting system of outbreaks had also been improved, but in this respect the Director of the World Reference Laboratory for Foot-and-Mouth Disease, Pirbright, United Kingdom, drew attention to the fact that while some countries were supplying satisfactory information on their disease position, the information from others was far from complete.

3. MEASURES TO OVERCOME THE RISKS ASSOCIATED WITH THE IMPORTATION OF BEEF FROM COUNTRIES WHICH ARE NOT ENTIRELY FREE FROM VIRUS DISEASE EXOTIC FOR EUROPE

3.1 The Veterinary Organization within the Country

The Meeting found that in order to be able to give the necessary guarantees to the importing countries, the veterinary services of the exporting countries must be sufficiently staffed. The Veterinary Directorate must be fully empowered to take final decisions in all matters relevant to export.

Minimum requirements for the staffing of personnel based upon livestock units and referring to different animal husbandry systems have been provided in the Report of the Second FAO/WHO International Meeting on Veterinary Education, held in Copenhagen, Denmark, 12 - 21 August 1965: Meeting Report AN 1965/5 (p. 9 English version).

Appropriate legislation with regard to disease control in general and the setting up and maintenance of disease-free areas in particular is indispensable.

Veterinary services should have at their disposal an adequate laboratory organization.

Meat inspection should operate under the direction of the veterinary services.

When wildlife services do not fall under the responsibility of the veterinary services, arrangements should be made to ensure close collaboration between veterinary and wildlife services in carying out investigations on the position and control programmes in respect of wildlife diseases.

3.2 Disease Surveillance and Laboratory Services

It must be recognized that disease-free zones can be operated only by countries possessing adequate veterinary and supporting staff to maintain proper surveillance of the livestock in the zone.

Reporting and investigation of any suspicion of disease is essential, and the laboratory services in the country should be in a position to carry out rapid differential diagnosis. In the case of foot-and-mouth disease this should extend to the typing of the virus concerned but more detailed investigation of subtype could be left to the World Reference Laboratory or to regional centres. The local laboratory should also be capable of maintaining a survey of the disease situation in wild animals.

The areas of the country outside the disease-free zone must also be fully surveyed in respect of rinderpest and foot-and-mouth disease.

3.3 The Rôle of Wildlife in the Epizootiology of Foot-and-Mouth Disease and Rinderpest

The rôle of wildlife in the epizootiology of foot-and-mouth disease is being clarified first by serum surveys which have indicated in general the species most frequently infected. Secondly, surveys of the carrier situation in wildlife have shown that of the species so far studied buffaloes are preminently important and may maintain the disease independently of cattle and in an inapparent form. They may thus act as a reservoir of infection between outbreaks in cattle; field evidence supports this view.

Other species at present appear to be of lesser significance as reservoir hosts but quite severe outbreaks in several species have been recorded, and animals such as impala may play a part in cattle-game-cattle cycles of transmission.

A review of the wildlife problem submitted to the Meeting by FAO suggested that it will not be possible or necessary to eliminate all small game animals from disease-free zones; however, the quarantine area within a disease-free zone must be kept free from wild game.

Fortunately, the limited examination of wild animals which has followed control of foot-and-mouth disease in cattle by vaccination suggests that there is a reduction of the carrier state in game animals other than buffalo. Small game animals may not therefore interfere with the control of disease by vaccination in the disease-free zone, especially if the movement of such species in and out of the zone is restricted.

Attention of the veterinary authorities must be drawn to the importance of further game surveys as vaccination programmes are undertaken in new areas, to establish the importance of different game species as they are encountered.

Rinderpest affects all species of artiodactyla (ruminants and pigs) and manifests itself clinically in different ways depending on the species and the intrinsic pathogenic power of the virus strain concerned; some strains appear to be adapted to one species or another.

In Africa, it is assumed that all species of wild artiodactyla can be affected but four species, buffalo, eland, greater kudu and wild pig, suffer most. Paradoxically, the most dangerous species as regards transmission of the infection are those in which the disease is not clinically apparent and in which it is, therefore, not diagnosed, e.g. the outbreak of epizootic disease at the Rome zoo in 1949.

Recent epizootiological surveys in East Africa have suggested that infection in wild animals is derived from domestic cattle. This contrasts with previous observations that the virus could maintain itself in a wild animal population with no outside contact, e.g. in the Ngorongoro crater in Tanzania. A recent series of observations made in Chad and in Central Africa during an epizootic of rinderpest among buffaloes did not reveal the source of infection: no positive evidence was obtained to attribute its origin to the presence of infected domestic livestock.

For the Asian continent there is no information on the relationship between wildlife and domestic animals in the epizootiology of rinderpest.

Under the present circumstances it is not possible to be certain whether the wild artiodactyla populations are a reservoir or whether infection in wild animals is always derived from domestic livestock. In areas where rinderpest is enzootic the presence of wild artiodactyla among or near domestic cattle or domestic pigs may constitute an epizootiological threat, whether the cattle population is or is not vaccinated against rinderpest; and the threat is even greater if the cattle population has not been vaccinated.

Rôle of the Domestic Pig in the Epizootiology of Rinderpest

Asian domestic pig breeds are susceptible to rinderpest virus and sometimes suffer severe losses from the disease.

European and African pig breeds are susceptible but in the vast majority of cases the disease does not show any pathognomonic signs. Neverthless, such infected pigs excrete the virus and in experiments have shown themselves capable of transmitting the disease to susceptible cattle brought into contact with them. The rôle of the domestic pig as a possible vector of rinderpest must therefore not be underestimated.

3.4 Methods of Disease Control

The Meeting felt that of the various methods used in the control of foot-and-mouth disease, namely, restriction of movements, vaccination programmes, the application of a stamping-out policy, none is sufficient by itself in enzootic areas and all should therefore be used to supplement each other.

Vaccines should be officially approved by the veterinary services of the country employing them. Their administration should be under the supervision of the veterinary services.

Methods of Controlling Rinderpest

Inactivated vaccines are almost never employed nowadays because of the poor immunity conferred, the production difficulties and the cost. Caprinized vaccine, which is now used only in certain countries of Asia and the Far East, produces an excellent immunity of relatively long duration, but strong post-vaccinal reactions may result in a not insignificant mortality at the time of first vaccination in highly susceptible stock. Lapinized and lapinized-avianized vaccines which have almost no residual pathogenicity are now rarely used except in the Far East. In Africa and in the Near East, cell culture vaccine has replaced other types of vaccine. ***

The cell culture vaccine is completely harmless, irrespective of the breed and age of the vaccinated cattle. It causes a temporary viraemia but this disappears, giving way to neutralizing serum antibodies and immunity of long duration. After repeated serial passage in susceptible cattle the vaccine virus remains innocuous.

During the last few years the ready availability of freeze-dried cell culture vaccine has made it possible to carry out mass vaccination campaigns on the African continent which have led to a satisfactory control of rinderpest and even to its eradication in some countries. At the present time, the countries covered by the campaigns continue to vaccinate, at least, the annual stock increase. The slaughter policy is applied in some countries in sporadic outbreaks.

The immunity conferred by rinderpest vaccines, whatever their kind, is based on neutralizing serum antibodies. It has been shown experimentally that cattle vaccinated against rinderpest and subjected to contamination at times varying from three weeks to seven years after vaccination could harbour the rinderpest virus for a certain time in the lymph nodes, with excretion in the nasal mucus, and in this way could even contaminate susceptible cattle brought into contact with them. The importance of this point in the epizootiology of natural disease has not yet been fully explored but, as far as the Meeting is concerned, the fact should not be ignored, especially if it is connected with the possible existence of inapparent disease in wild animals or domestic pigs.

3.5 Slaughter Facilities and Meat Hygiene Control

The Meeting expressed the view that slaughter facilities and meat hygiene control should be under the supervision of the veterinary services. Abattoirs where cattle destined for export are slaughtered should be located within disease-free areas. They should only be used for the slaughter of stock qualifying for export. Standards of meat inspection should be acceptable to the receiving country.

*** Requirements for Rinderpest Cell Culture Vaccine (Live) and Rinderpest Vaccine (Live) have been published by WHO in the Twenty-second Report of the WHO Expert Committee on Biological Standardization: WHO Technical Report Series No. 444.

3.6 Import Policies of Exporting and Importing Countries

It was felt that importing countries should be completely informed about the import policy with regard to livestock and livestock products of the countries from which they are importing meat.

4. SCHEMES FOR MEAT EXPORT

The Meeting then discussed the general principles under which schemes could be operated for meat exports from countries where foot-and-mouth disease is still enzootic, and consideration was given to the problems posed by rinderpest.

The basis for such operations is that a disease-free zone shall be established in which animals are not admitted unless previously vaccinated against FMD. The stock in this area must be under full control in respect of movement and health. Within the disease-free zone there should be an area in which control is even more strict, and from which all animals for slaughter for export must be drawn. In certain regions this could be achieved by establishing feedlots, but in general the Meeting considered that this area might be referred to as the pre-slaughter quarantine area or, more briefly, the quarantine area.

The regulation suggested for these areas is set out in the recommendations which follow below.

RECOMMENDATIONS

1. Because of the increasing complexity of the subtype situation in many regions, where viruses of subtypes different from those encountered in Europe appear in different regions, it is recommended that European countries regard any strain of foot-and-mouth disease as potentially exotic.

2. Because it is now possible to transport boneless meat and because this reduces the disease risk from meat, it is recommended that only boneless meat shall be imported under the system discussed in this paper. Offals must not be imported.

3. In the present state of knowledge of live modified foot-and-mouth disease vaccines it is recommended that no importations should be made from countries in which such vaccines are used.

4. Since the best system which can be devised to safeguard meat importation depends on the establishment of disease-free zones and pre-slaughter quarantine areas (feedlots in certain countries) within such zones, the following draft regulations are recommended for this system:

A. Regulations for Disease-Free Zones

(i) The borders of the disease-free zone should be closed either by natural barriers or by fencing, not necessarily of the game-proof variety. Illegal entry or exit of livestock must not be possible and the boundaries of the area must be permanently maintained so that this condition is observed.

(ii) Before a disease-free zone is established the area should be free of rinderpest for two years and from foot-and-mouth disease for one year.

(iii) Vaccinations of all stock in the disease-free area shall be carried out every six months against foot-and-mouth disease with officially approved vaccines administered under the supervision of the veterinary services.

(iv) Movement of livestock into and within the area must be supervised and all livestock kept within the area must be marked with an identification approved for the area.

(v) The disease-free zone should be large enough to make the operation of an abattoir taking only stock from the area a commercial proposition.

(vi) Cattle shall enter the area only after three months isolation at the edge of the area. They shall have been vaccinated twice against foot-and-mouth disease before entry.

(vii) Regular surveys of the disease situation outside the area are necessary. The maximum possible effort should be made to control the disease in areas bordering the disease-free zone, applying a programme including ring vaccination where the disease appears.

(viii) If foot-and-mouth disease occurs in the area after it has been established :

(a) An area of 30 km radius round the infected place must be estblished as a standstill zone;

(b) All exports of meat must stop;

(c) The outbreak shall be notified immediately to OIE and/or FAO, and to the importing country/countries;

(d) The strain of virus shall be examined in the local laboratory and also sent to the World Reference Laboratory for Foot-and-Mouth Disease, Pirbright, U.K.;

(e) If slaughter of all infected and contact stock is carried out the standstill may be removed in 28 days from completion of slaughter of the last observed case, after which exports can be resumed;

(f) If slaughter is not carried out as in (e) above the standstill shall remain in force for six months after the appearance of the last clinical case. No animals shall be moved out of the area during this period;

(g) Ring vaccination of all stock must be carried out immediately within 15 km of the infected place;

(h) There must be a full investigation of the source of the infection in any outbreak;

(i) Adequate official records must be kept of all control procedures practised.

(ix) If an outbreak of rinderpest occurs in the area all exports of meat must be stopped at once; immediate action must be taken to notify OIE and/or FAO and the importing country/countries, and steps must be taken immediately to control the disease. The disease-free zone will not be re-approved until two years have elapsed since the last case.

B. Regulations for Quarantine Area (feedlots in certain regions)

(i) The quarantine area should be strongly fenced to prevent movement of both domestic stock and game.

(ii) There must be no wild game within the area.

(iii) Movement of animals into the quarantine area should be permitted only after they have been in the disease-free zone for at least six months.

(iv) Animals entering the quarantine area should be isolated for one month at entry, during which they will be closely observed and re-vaccinated against foot-and-mouth disease.

(v) Animals should be held in the quarantine area for at least three months before slaughter.

(vi) No meat must be brought into the quarantine area other than meat acceptable for export.

(vii) Direct veterinary supervision of the area must be maintained.

(viii) Traffic of persons to and from the area should be as far as possible restricted.

(ix) If an outbreak of foot-and-mouth disease occurs in the area :

(a) None of the stock already within the area may be sent for slaughter for export;

(b) All stock in the area should be sent for slaughter for local consumption or processing;

(c) No further entry of stock into the quarantine area must take place until the area has been cleared of stock for one month.

5. It is recommended that the slaughterhouse for export meat should be situated in the disease-free zone, and therefore will not deal with meat which has not met the criteria for export.

Meat inspection should be carried out according to the requirements of the importing country. Meat for export should never come into contact with meat or animal products not produced under conditions acceptable for export.

Meat for export must not be boned before rigor mortis is complete.

6. The Meeting, realizing that importing countries would require assurance that agreed arrangements would be satisfactorily carried out, recommended that before final agreement for importing meat was reached a veterinary mission from the importing country should visit the exporting country for discussions with the veterinary authorities on the various aspects of the exportation in order to reach bilateral agreement.

7. It is recommended that when agreement has been reached between the exporting and importing countries, the importing country should maintain its prohibiting legislation against imports, licensing specifically only the importations under the new arrangements.

8. The importance of dealing effectively and immediately with any outbreak in a European country due to an exotic type or subtype of foot-and-mouth disease virus is stressed. Rigorous stamping-out measures are called for and should be applied at once.

In the case of immunization being required to contain a dangerous situation, the group draws attention to the stocks of exotic vaccines and vaccine seeds held in Europe, which would be available in emergency.

9. It is strongly recommended that no live domestic stock be imported into Europe from any country where there exists endemic disease due either to exotic types or subtypes of foot-and-mouth disease or rinderpest.

Additional Note on Rinderpest

The Meeting was informed that EEC countries have accepted the principle that beef derived from animals which have been vaccinated with live rinderpest vaccine should not be imported. Since it is possible that such a restriction might be applied by countries other than EEC countries, a potential exporting country should ensure that its procedures satisfy the requirements of the importing country.

ANNEX 3 (APPENDIX V)

JOINT FAO/OAU/OIE CONSULTATION
MEETING ON CONDITIONS FOR THE ESTABLISHMENT
AND MAINTENANCE OF DISEASE FREE ZONES

Khartoum, Sudan, 9 December 1971

The meeting was informed of the action that has been taken jointly by OIE/FAO following the first conference of the permanent OIE Regional Commission for Africa in Dakar in 1966 and the 15th Session of the FAO Conference held in Rome in 1969.

A joint FAO/OIE working group was convened in Paris in September 1971 to review the criteria governing the importation of beef from countries not entirely free from virus diseases exotic for Europe with a view to facilitate inter-regional trade, and in particular to re-examine the recommendations made in Brussels in 1960 by a joint meeting of the OIE Foot and Mouth Disease Commission and the FAO European Commission for the Control of Foot and Mouth Disease to prevent the introduction of exotic types of Foot and Mouth Disease into Europe.

The meeting was informed that the working group reviewed the situation in respect not only of Foot and Mouth Disease but also of Rinderpest and its recommendations with regard to the creation of disease-free zones with a view to facilitate international trade, were described.

The meeting welcomes the initiative that has been taken by both organizations. However, there were certain matters that required clarification.

Since live rinderpest tissue culture vaccine virus is harmless the meeting considered that the use of this vaccine should be permitted within a disease-free zone and that its use should not preclude the export of beef derived from the vaccinated animals as long as all the necessary animal health requirements had been met.

It was felt that a policy which precludes the export of meat derived from animals vaccinated with live rinderpest tissue culture vaccine could seriously jeopardise the efforts of African countries to eradicate the disease from the continent.

Furthermore, the meeting knew of no evidence of transmission of virulent rinderpest virus under natural field conditions through the medium of meat derived from vaccinated animals.

Delegates at the meeting also raised the question of the delimitation of disease-free zones which extend to national borders, and it was felt that where natural barriers did not exist, neighbouring countries should establish common policies and coordinate their efforts so as to maintain the disease-free status of the area or areas concerned.

The meeting noted with satisfaction the efforts made by sub-regional organizations to harmonize health regulations in line with the requirements of the OIE zoo-sanitary code.

The meeting noted with satisfaction also that the report of the joint FAO/OIE working group will be reviewed at the OIE General Session in May, 1972, and that an ad hoc consultation on disease-free zones will be convened by FAO late in 1972.

In emphasizing the importance placed by FAO/OAU and OIE on the subject of disease-free zones, the Joint Secretariat said that countries desirous of obtaining the services of FAO experts to advise and assist in the development of such zones could request assistance through the procedures which have been established for the provision of technical assistance financed under the United Nations Development Programme and other sources of funding.

APPENDIX VI

PROPOSED CONDITIONS FOR IMPORTATION OF BEEF INTO EUROPE FROM COUNTRIES WHERE FOOT-AND-MOUTH DISEASE IS ENDEMIC AND IS CAUSED BY VIRUSES NOT CONSIDERED EXOTIC (*) TO EUROPE

1. The exporting country must have an effective State Veterinary Service which is the direct responsibility of a Chief Veterinary Officer or Director.

2. Foot-and-mouth disease must be compulsory notifiable. The type and subtype position and any changes therein must be notified to the appropriate authority in the importing country and all new strains of virus forwarded to the W.R.L.

3. If foot-and-mouth disease is confirmed on an establishment the movement of all susceptible species off that premises must be prohibited until a fixed period has elapsed since the last case.

4. All animals from which beef is derived must have been vaccinated against foot-and-mouth disease at least twice before slaughter, or at least once, in the four months prior to slaughter in the case of young animals. The times of vaccination should be defined. The vaccine used must be an inactivated vaccine tested and controlled for safety and potency by the State Veterinary Service.

5. The animals must be slaughtered in approved slaughterhouses which conform to international standards and where they will be subjected to ante-mortem inspection by Government veterinarians and post-mortem inspection under the direct supervision of Government veterinarians. De-boning and processing plants must also be under the direct supervision of Government veterinarians.

6. Lairage facilities at approved slaughterhouses must be adequate and be cleansed and disinfected between each batch of animals.

7. Any vehicle employed to carry the animals must be properly cleansed and disinfected before use.

8. All cattle markets must be inspected by Government veterinarians. If any case of foot-and-mouth disease is diagnosed no affected animal or contact animal may be moved to a slaughterhouse approved for export.

9. If foot-and-mouth disease is found at ante-or post-mortem inspection, the animals or carcasses so affected and all in-contact animals or carcasses must not be exported and the premises cleansed and disinfected following removal of the affected batch.

10. All packing and wrapping materials used must be new.

11. The beef exported must not contain any bones or offal other than diaphragm. The boning process must not be carried out within 48 hours of slaughter.

12. The beef so exported must be clearly marked in an approved manner so that its identity of the slaughterhouse of origin can readily be recognized.

(*) In this context "exotic" means a strain of virus against which the susceptible animal population is not protected by vaccines currently used in Europe.

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5. The animals must be slaughtered in approved slaughterhouses which conform to international standards and where they will be subjected to ante-mortem inspection by Government veterinarians and post-mortem inspection under the direct supervision of Government veterinarians. Slaughtering and processing plants must also be under the direct supervision of Government veterinarians.

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4. All animals from which beef is derived must have been vaccinated against foot-and-mouth disease at least twice before slaughter, or at least once, in the four months prior to slaughter in the case of young animals. The times of vaccination should be defined. The vaccine used must be an inactivated vaccine tested and controlled for safety and potency by the State Veterinary Service.

5. The animals must be slaughtered in approved slaughterhouses which conform to [illegible] and where they will be subjected to ante-mortem inspection by Government [illegible] and post-mortem inspection under the direct supervision of Government [illegible] Cutting and processing plants must also be under the direct supervision of Government [illegible]

6. [illegible] facilities at the slaughterhouses must be adequate and be cleansed and disinfected between each [illegible] animals.

7. Any vehicles employed to carry the animals must be properly cleansed and disinfected before use.

8. All cattle animals must be inspected by Government veterinarians. In the case of foot-and-mouth disease is diagnosed no affected animal or contact animal may be moved [illegible] approved for slaughter.

9. If foot-and-mouth disease is found at ante-or post-mortem inspection, the [illegible] diseased or affected and all contact animals or carcasses must not be moved [illegible] premises cleansed and disinfected following removal of the affected [illegible].

10. The packing and wrapping materials used must be new.

11. The beef exported must not contain any [illegible] offal other than diaphragm. Boning process must not be carried out within 48 hours of slaughter.

12. The beef so exported must be clearly marked in an approved manner so that the [illegible] of the consignment can readily be recognised.

(*) In this context "exotic" means a strain of virus against which the susceptible animal [illegible] not protected by vaccines currently used in Europe.

APPENDIX VII

FUTURE ACTIVITIES

The consolidation of the results achieved in recent years in controlling the disease over large areas of the European continent will continue to be the main objective of the Commission's work. To this end, close contact will be maintained with Government authorities, specialized institutes and international agencies.

Special attention will be directed to those areas where the disease still occurs with a view to recognizing the factors which favour its persistence and to promoting more determined efforts toward its control. Visits will be made, if warranted.

The epizootiology of foot-and-mouth disease in Europe will be further studied in collaboration with the executive authorities and laboratory specialists. Coordination of activities, including research, is still needed to improve the knowledge of immunity levels in populations of vaccinated animals and of virus persistence under different systems of animal husbandry and disease control.

All available information will be collected on the timing and application of prophylactic schemes over the continent; the extension of such schemes within Europe will be promoted as much as possible.

Improvement of vaccine production techniques, including testing of vaccines, will be furthered; international initiatives directed toward equipping and modernizing vaccine production units in Europe will be encouraged and supported. Within the limits of its financial resources, the Commission will assist one or two laboratory workers of Member Countries in receiving training in modern techniques of vaccine production.

The Secretary will continue to request from Member and non-Member Countries all the information which could prove useful to further the activities provided for in the Commission's Constitution, including the collection and study of import legislation and policies, especially from overseas.

Prevention of the introduction of foot-and-mouth disease into Europe will continue to receive fullest attention. In this connection emphasis will be placed on securing up-to-date information on the disease position, control and prophylaxis, in countries and regions from which the disease is more likely to be introduced into Europe through trade or other means.

The distribution of virus types and subtypes throughout the world remains a matter of constant surveillance in collaboration with the World Reference Laboratory, OIE and any other agency envisaged in the collection and study of field strains of the virus. The position of the seed virus stock at the World Reference Laboratory and of exotic vaccine stocks in other laboratories will closely be followed in parallel with the evolving epizootiological situations.

The disease position in South America, especially in the major exporting countries, will be monitored and experiments intended to assess the conditions under which imports of live animals could take place from that continent will be closely followed, if deemed necessary, also through visits by the Secretary.

Action against exotic and non-exotic viruses in eastern and south-eastern Europe will be maintained by all available means, including the mobilization of the remaining funds of the campaigns, in case of emergencies. In particular, the Secretary will assist in the implementation of projects which constitute a follow-up of technical assistance supplied under the SAT 1/A22 campaigns.

The Secretary will continue to take part in all studies and actions directed toward improving conditions in international trade in animals and meat and the establishment of disease-free zones. If feasible, he will visit regions of the world which are of particular importance to this effect.

APPENDIX VIII

Accounts for the Year Ended 31 December 1971 (Provisional)

The European Commission for the Control of Foot-and-Mouth Disease is a body established under Article XIV of the Organization's Constitution for the purpose of promoting and co-ordinating national and international action for the control of foot-and-mouth disease in Europe and its final eradication. Its funds are handled as Trust Funds under Financial Regulation 6.7.

FUNDS

The Organization does not maintain separate bank accounts for Trust Funds, having found it more convenient to use the Regular Programme accounts for the transactions involved. The balance of funds held in the Regular Programme accounts on behalf of the European Commission for the Control of Foot-and-Mouth Disease as at 31 December 1971 amounted to $51,941 and is shown on Statement II (D) of Volume I of the Organization's Published Accounts for 1970-71.

INCOME AND EXPENDITURE

Contributions to the Commission's General Account amounting to $41,766 were received from Member Governments of the Commission in 1971. Contributions for 1971 amounted to $41,400; contributions received in arrears for 1970 amounted to $366. The General Account was credited with interest earned during the year totalling $451. Administrative costs for the year amounted to $38,539 leaving a balance on the General Account at 31 December 1971 of $3,678 which was transferred to the Special Account.

SPECIAL ACCOUNT

Interest for the year amounting to $1,630 was credited to the Special Account.

SERVICES PROVIDED BY THE ORGANIZATION

During 1971 the Organization made available without charge the services of some senior officials and the use of accommodation and facilities, to a total estimated value of $26,266

A.H. Boerma
Director-General

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Accounts for the Year Ended 31 December 1971 (Provisional)

(These accounts are provisional and subject to review by the external auditors)

STATEMENT I

GENERAL ACCOUNT

Administration	$		$
Personal Services	31,807.76	Members Governments' Contributions received in 1971 (as per Schedule I)	
Travel	4,310.81	For 1970 365.58	
Meeting of the Commission	2,032.50	For 1971 41,400.00	
Miscellaneous	387.78		41,765.58
	38,538.85	Interest received	451.64
Transfer to Special Account	3,678.37		
	$42,217.22		$42,217.22

STATEMENT II

SPECIAL ACCOUNT

	$		$
Travel and per diem costs of members of Technical Committee	1,906.52	Balance at 1 January 1971	47,432.61
Balance at 31 December 1971	50,834.17	Transfer from General Account	3,678.37
		Interest received	1,629.71
	$52,740.69		$52,740.69

STATEMENT III

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Accounts for the Year Ended 31 December 1971 (Provisional)

BALANCE SHEET AT 31 DECEMBER 1971

L I A B I L I T I E S	$	A S S E T S	$
Special Account	50,834.17	Current Account with the Organization	51,941.47
1971 Unliquidated Obligations	1,107.30		
	$51,941.47		$51,941.47

SCHEDULE I

Trust Fund 42 - European Commission for the Control of Foot and Mouth Disease

Statement of Contributions at 31 December 1971

	Amounts due in respect of 1970	Amounts due in respect of 1971	Total Amounts Due	Receipts 1971	Amounts Outstanding 31.12.71
	$	$	$	$	$
Austria	-	1,800.00	1,800.00	1,800.00	-
Belgium	-	3,000.00	3,000.00	3,000.00	-
Bulgaria	-	225.00	225.00	-	225.00
Cyprus	-	300.00	300.00	300.00	-
Denmark	-	3,000.00	3,000.00	3,000.00	-
Finland	-	1,800.00	1,800.00	1,800.00	-
Greece	5.30	900.00	905.30	905.30	-
Hungary	-	1,800.00	1,800.00	-	1,800.00
Iceland	-	300.00	300.00	300.00	-
Ireland	-	900.00	900.00	900.00	-
Italy	37.11	6,000.00	6,037.11	6,037.11	-
Luxembourg	-	300.00	300.00	300.00	-
Malta	300.00	300.00	600.00	600.00	-
Netherlands	-	3,000.00	3,000.00	3,000.00	-
Norway	-	900.00	900.00	900.00	
Portugal	-	900.00	900.00	900.00	-
Sweden	-	3,000.00	3,000.00	3,000.00	-
Switzerland	-	3,000.00	3,000.00	3,000.00	-
Turkey	6.72	1,800.00	1,806.72	1,806.72	-
United Kingdom	13.75	8,400.00	8,413.75	8,413.75	
Yugoslavia	2.70	1,800.00	1,802.70	1,802.70	-
	$ 365.58	43,425.00	43,790.58	41.765.58	2,025.00

APPENDIX IV

BUDGETS FOR 1972 - 1973

(Note by the Director-General of FAO)

1973 Administrative Budget

1. In accordance with the Constitution of the Commission and with its Financial Regulation III, I present herewith the proposed Annual Administrative Budget for 1973.

2. The budget estimates have been drawn up in the form established in the Financial Regulation.

3. In the absence of "supplementary details", I present the estimates for Chapter II in a single total in accordance with Financial Regulation 3.2. No expenditures have so far been made under this Chapter and in the absence of more accurate information I recommend that an amount of $ 1,200 be provided here for 1973.

4. The proposed Annual Administrative Budget for 1973 totals $ 44,100 i.e. contribution from Member Governments which may be received by the Commission. This time no estimated additional contributions have been included and it is possible to count on the full amount of $ 44,100.

5. Under Codes .00 and .10 "Personal Services" of Chapter I, the budget estimates for 1973 allow as in 1972, for one P-5 Secretary to the Commission and one G-6 Administrative Assistant. The increase in salaries as against 1972, is due to mandatory increments. These increases are covered by the provision made under Chapter II.

1973 Special Budget

6. In the Special Budget for the Special Account, 1973, I recommend that an amount of $ 3,000, be provided to cover any necessary travel and per diem of the members of the Standing Technical Committee.

Revision to 1972 Administrative Budget

7. The total of possible contributions from Member Governments totals $ 46,125, representing $ 44,100 in respect of 1972 and $ 2,025 outstanding contributions from 1971.

8. The increases under Chapter I, Personal Services, have been partly offset by $ 1,200 additional contributions from the Member Governments, and partly by a decrease of the funds reserved for travel and deleting the provision for consultants. The arrears from 1971 have been allocated under Chapter II.

9. Attached are: Table A, the revised Annual Administrative Budget for 1972, together with my proposed budget estimates for 1973; Table B, a Summary showing by item the expenditures in 1971 as presented for audit, the 1972 revised budget and the 1973 proposed budget; and Table C, a note showing the Special Budget for the Special Account.

Assistance given by FAO

10. Besides the above expenditures, there are services provided by the Organization which have not been included. Items not charged to the Commission include part-time services of senior officials of the Organization, the services of the Budget and Finance Units, accommodation, equipment, supplies of stationery, document processing and publication, etc. as well as postal and cable charges.

TABLE A

Annual Administrative Budget for 1972 (revised)

TRUST FUND No. 9042

Source of Fund: Member Governments Contribution

Purpose of Fund: To support the activities of the Commission whose object is to promote national and international action with respect to control measures against FMD in Europe.

Contributions outstanding from 1971	$ 2,025
Contributions in respect of 1972	$ 44,100
GRAND TOTAL	$ 46,125

Application of Resources in 1972:

Ch. I Administrative Expenditure under Articles IV and XII.2 of the Constitution

(1 x P-5 Animal Health Officer - 12 months post No. 6162-660)

(1 x G-6 Administrative Assistant - 12 months - post No. 6162-546)

Code 9042.00.00	Salaries	$ 28,500
.10	Common Staff Costs	$ 8,500
.20	Travel on Official Business	$ 2,000
.30	Contractual Services	$ 1,300
.40	General Operating Expenses	$ 1,525
	Sub-Total Chapter I	$ 41,825
Ch. II	Emergency Expenditure under Article V of the Constitution $ 4,300	
	Sub-Total Chapter II	$ 4,300
Ch. III	Contingencies Nil	
	Sub-Total Chapter III	Nil
	GRAND TOTAL	$ 46,125

TABLE A

Annual Administrative Budget for 1973

TRUST FUND No. 9042

Source of Fund: Member Governments Contribution

Purpose of Fund: To support the activities of the Commission whose object is to promote national and international action with respect to control measures against FMD in Europe.

Contributions in respect of 1973	$ 44,100
GRAND TOTAL	$ 44,100

Application of Resources in 1973:

Ch. I Administrative Expenditure under Article IV and XII.2 of the Constitution

(1 x P-5 Animal Health Officer - 12 months post No. 6162-660)

(1 x G-6 Administrative Assistant - 12 months - post No. 6162-546)

Code 9042.00.00	Salaries	$	29,300
.10	Common Staff Costs	$	8,800
.20	Travel on Official Business	$	2,000
.30	Contractual Services	$	1,300
.40	General Operating Expenses	$	1,500
	Sub-Total Chapter I	$	42,900
Ch. II	Emergency Expenditure under Article V of the Constitution $ 1,200		
	Sub-Total Chapter II	$	1,200
Ch.III	Contingencies Nil		
	Sub-Total Chapter III		Nil
	GRAND TOTAL	$	44,100

TABLE B

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

SUMMARY OF THE BUDGETS FOR 1971, 1972 AND 1973

	1971 Expenditures (provisional) $	1972 Budget (as revised) $	1973 Budget (as proposed) $
Chapter I			
1. Personal Services	31,808	37,000	38,100
2. Travel	4,311	2,000	2,000
3. Meetings of the Commission	2,032	1,000	1,000
4. Contractual Services	—	800	800
5. General Operating Expenses	388	1,025	1,000
Sub-Total Ch. I	$ 38,539	$ 41,825	$ 42,900
Chapter II	nil	4,300	1,200
Chapter III	nil	nil	nil

TABLE C

SPECIAL BUDGET FOR SPECIAL ACCOUNT

Travel and per diem of members of the Standing Technical Committee	1,907	3,000	3,000
GRAND TOTAL	$ 40,446	$ 49,125	$ 47,100

	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS	AGA: EUFMD/19/7
	ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE	
	ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION	June 1972

ADDENDUM

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

(Nineteenth Session)

Rome, Italy 11-14 April 1972

Note by the Secretary

Emergency situation in Greece caused by virus A_{22} in April 1972

Shortly after the conclusion of the XIXth Session of the European Commission, an emergency situation arose in Greece where there was a sudden appearance and spread of A_{22} virus in various regions of the country.

The first outbreak occurred in the department of Evros near the Turkish border on 14 April 1972, and a few days later other outbreaks were recorded in the departments of Xanthi, Drama, Serres, Thessaloniki and also in Attika (near Athens) and Argolis (Peloponnesus). In all, 21 villages were affected by the disease between April and the beginning of May. On 8 June, a new outbreak occurred again in Evros, east of Alexandropoli. In Turkish Thrace, eight villages were found affected by the disease in the province of Edirne during May. Only a few animals showed symptoms of disease since the province had been revaccinated a few weeks previously.

Strict measures were taken in Greece to block further spread of the disease. Stamping-out was applied in the primary outbreaks in Evros, Xanthi, Serres and Argolis and it was decided to use monovalent, heterologous vaccine (A Greece 69) for the vaccination of uninfected stock in the area, pending the availability of homologous vaccine. Greece, as well as Bulgaria and Yugoslavia applied to FAO for urgent supplies of A_{22} vaccine.

The Secretary of the Commission visited Athens on 22 April 1972, i.e. 24 hours after the identification of A_{22} virus had been notified by the World Reference Laboratory for Foot-and-Mouth Disease, Pirbright, and arrangements were immediately made for the procurement of homologous vaccine from available sources at Teheran and Ankara. In the meantime, adaptation of the new strain and vaccine production was started in Athens.

Accepting a proposal made by FAO Headquarters, Rome, the Members of the FAO/OIE/EEC Committee agreed that the residual funds of the SAT1/A_{22} Campaigns should be used for the immediate shipment to Greece of 100,000 doses of A_{22} vaccine, produced in Teheran. Requests for homologous vaccine from Bulgaria and Yugoslavia could not be met because of lack of funds. However, Bulgaria was able to procure inactivated A_{22} vaccine from the U.S.S.R. and vaccination was undertaken along Bulgaria's frontiers with Greece and Turkey.

Turkey agreed to donate 15,000 doses of A_{22} vaccine for ring vaccination in Greece but was not in a position to exchange and additional 50,000 doses of the same vaccine

against the same amount of O vaccine produced in Greece, as suggested by FAO, because of the scarcity of reserves and the high demand for A_{22} vaccine in Anatolia.

Bilateral meetings in the border areas took place between the Greek, Yugoslav, Bulgarian and Turkish authorities and strict measures were taken along all frontiers to prevent escape of virus from the affected regions. Close cooperation was shown by all parties concerned.

The disease position in Thrace and the control measures were discussed in various meetings, including the XLth General Session of the Committee of OIE, held in Paris from 14 to 16 May 1972, where the report prepared by an OIE mission which visited Athens on 5 and 6 May to evaluate the situation was discussed and where the proposal made by FAO that prophylactic campaigns should be undertaken again in south-eastern Europe, as during the period 1962-1968, under the supervision of the FAO/EEC/OIE Consultative Committee, to ensure the maintenance of buffer zones and possibly to provide assistance to FMD laboratories was supported.

A fund-raising campaign was subsequently launched by FAO and all European Governments and the European Economic Community have been invited to contribute. Should funds become available during the current year, exotic vaccine could be obtained outside continental Europe and therefore the production of exotic vaccine in south-eastern Europe could be discontinued.

At the end of May, the Secretary proceeded to Athens for a second time and to Sofia and Turkish Thrace where, together with Turkish veterinary officers and Dr. H.C. Girard, currently assigned by FAO to the Foot-and-Mouth Disease Laboratory, he visited infected areas, frontier posts, slaughterhouses and the livestock market of Istanbul.

The situation at the beginning of June was the following:

Turkey: no new outbreak on record in the province of Edirne where vaccination against A_{22} had been completed; no outbreaks in the rest of Turkish Thrace where the vaccination programme against A_{22} was also almost complete. Veterinary inspection and control were strengthened in all animal movements, especially in regard to animals transported across the Bosphorus and the Sea of Marmara to the Istanbul market.

Greece: no new outbreaks have been recorded after the middle of May in the previously infected provinces, except in Evros, where a new outbreak was discovered at Ferai near the borders on 8 June. All animal movements were blocked in the affected areas and no diseased or suspect animal has been allowed out of its byre for at least four weeks after the last case in the herd. Vaccination has been extensively applied in and around the outbreaks with very good results and no additional cases have been observed seven days post vaccination. This success is attributable to the homologous vaccine procured by FAO from Teheran and Turkey and also to the new vaccine produced in Athens. Satisfactory results have also been obtained with the heterologous A Greece 1969 vaccine. Ring and area vaccination had been completed at the time of the second visit of the Secretary in all the affected departments with the exception of Evros where stamping-out was applied to the first outbreak coupled with mass vaccination using the vaccine produced in the Athens laboratory. Vaccine production in Greece is limited to approximately 20,000 doses per week.

Bulgaria: strict veterinary police measures have been imposed in all frontier areas with Greece and Turkey. This includes the maintenance of a frontier belt free of domestic animals to a depth of 3 to 5 kilometres all along the borders. Vaccination was rapidly completed in the most exposed frontier areas. No post-vaccinal accidents have been recorded.

Yugoslavia: strict veterinary measures have been adopted at the frontier with Greece; animals and meat in transit from Bulgaria have been subjected to meticulous inspection.