Practical Use.—It is considered that the jelly test might be of value as the final test prior to B.C.G. vaccination, in view of the evidence that its sensitivity lies between 10 and 100 T.U. and of the objections to the Mantoux test. A case has at least been made for its consideration and trial for this purpose. There would appear to be no doubt that for use in hospital, clinic, and general practice the test has many advantages over the intradermal test and has a failure of only 0.2% with O.T.; even this degree of failure must be considered in relation to the non-specific element of the intradermal test, referred to above.

Summary

Three techniques using P.P.D. jelly are described and are compared with each other in trials on some 5,400 persons of all ages from 4 to 20.

It is shown that techniques involving the use of flourpaper are essential if the best results are to be obtained. The use of the erythema factor alone gives poor and inconsistent results; its use in combination with flourpaper is not recommended as a deliberate policy.

There are some grounds for thinking that the less satisfactory results from the use of P.P.D. jelly are in part due to insufficient time being allowed before reading the test; the fifth day is suggested as the optimum for reading, but further work on this aspect is proceeding.

The use of O.T. jelly by technique D gives superior results to those of the same technique using P.P.D. jelly, and gave 98.4% agreement with 10 T.U. of O.T. in 3,092 cases aged 4 to 20, as opposed to 94.7% in 1,914 comparisons with P.P.D. jelly. The recommended technique is therefore technique D, which is that described and reported by Pointon Dick (1950).

Technique D (O.T. jelly) is as efficient in the higher age groups as in the lower, which is not the case with P.P.D. jelly.

The advantages of transdermal tests as opposed to the Mantoux test are emphasized; the jelly test has all the advantages of the former with none of the disadvantages of the latter, and when used as recommended is more reliable than 10 T.U. Its sensitivity level is between 10 and 100 T.U.—probably about half-way between the two.

It is to be preferred for hospital, clinic, and general practice to the Mantoux test; it is suggested that a case has been made out for its trial as the final test prior to B.C.G. inoculation, in view of non-specific reactions from 100 T.U.

I wish to express my thanks to Dr. J. Knowelden, of the Department of Medical Statistics, London School of Hygiene, for advice and assistance with the statistical part of the work; to the staff of the Chest Clinic and Mass Radiography Unit, whose willing help has made the investigation possible; and to the Medical Research Council for the provision of P.P.D. jelly and old tuberculin. Finally, I would like to thank the South-west Metropolitan Regional Hospital Board and the Education Committee of the Portsmouth City Council for the provision of a grant towards bus fares for children.

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POLIOMYELITIS IN ISLINGTON IN 1947, 1949, AND 1950

BY

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In common with the county of London and also England and Wales, three substantial outbreaks of poliomyelitis were experienced in the Metropolitan Borough of Islington in each of the years 1947, 1949, and 1950. In all of these years the number of cases was considerably greater than had ever been previously experienced. However, as has been pointed out elsewhere, geographical distribution in poliomyelitis is very uneven, and each outbreak has its own peculiar and special features, as will be evident from the three outbreaks reported.

Incidence and Mortality

TABLE I.—*Poliomyelitis and Polio-encephalitis Notifications and Deaths*

Year	Population	Confirmed Cases	Rate per 1,000 of Population	Deaths	Case Mortality	Cases Under 5
<i>London</i>						
1947	3,309,700	702	0.212	49	7.0%	27.9%
1949	3,389,850	668	0.208	50	7.4%	55.3%
1950	3,410,720 (Dec. 31, 49)	456	0.133	35	7.7%	
<i>Islington</i>						
1947	236,840	22	0.093	4	18.0%	27.3%
1949	239,580	62	0.259	2	3.2%	61.3%
1950	240,370 (Dec. 31, 49)	30	0.125	2	7.3%	40.0%

NOTE.—The deaths recorded are of cases included as confirmed cases.

Table I shows that in 1947 the Islington case rate per thousand population was considerably below that for London as a whole. The case mortality rate, at 18%, was two and a half times that for London. But the numbers are small and the difference may be due to chance.

The Islington case rates for 1949 and 1950 were comparable to those for the County of London, although mortality was low in 1949. The proportion of cases under the age of 5 varied considerably for each outbreak, the percentages showed reasonable approximations to the county figures for 1947 and 1949; the London figures for 1950 are not to hand.

With regard to the low case rate in Islington in 1947, Benjamin (1949) reported a significant negative correlation coefficient of -0.48 between the poliomyelitis attack rate and the average number of persons per room in each administrative area—that is, where more people were crowded together in the household there was less overt poliomyelitis. The extent of overcrowding did not materially alter in Islington in 1949 and 1950, but, as Breen and Benjamin (1950) mentioned in relation to the 1949 outbreak, immunity factors may well invalidate attempts to relate variations to social factors such as housing or economic environment.

Epidemic Spread and Age Grouping

The attack in 1949 showed a sudden onset in July, without preliminary sporadic cases in Islington, and high peaks in September and October (Table II). 1950 gave earlier peaks in July and August with a gradual

TABLE II.—Confirmed Cases of Poliomyelitis and Polio-encephalitis by Date of Onset

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1947			1	1		1	2	6	4	4	3		22
1949							9	6	17	18	8		62
1950	1		1		2	2	10	10	1	2	1	4	30

increase from the earlier part of the year, and the slow rise to a maximum was also a feature in 1947. The difference in the under-5 distribution in each of the three outbreaks (Table III) has already been commented upon. Whether the 1949 age incidence is an exception to the general tendency for the age incidence to rise, as mentioned by Breen and Benjamin—a tendency which might appear to be confirmed by the 1950 age distribution—is a factor for future observation. In connexion with the high proportion of cases under 5 in 1949, and the more explosive character of the outbreak

TABLE III.—Age Grouping of Cases

Year	Under 1 Year	—5 Years	—15 Years	—25 Years	Over 25 Years	Total
1947	1	5	5	8	3	22
1949	3	35	17	2	5	62
1950	1	11	11	4	3	30

in this borough in July, it may be of interest to refer to the Eccles outbreak of 1947. Sweetnam (1949) noted there, in an outbreak with a somewhat similar sudden onset, that 60% of 46 total cases occurred in the 0-4 years group, as compared with only 31% in the country as a whole. This percentage is so close to that of Islington that it suggests the possibility of an age-grouping relationship to rate of spread.

Poliomyelitis and Inoculations

Previous papers by Geffen (1950) and Bradford Hill and Knowelden (1950) have included information of Islington poliomyelitis cases in 1949 which may have been associated with recent inoculations. It may, however, be instructive to set out in more detail the differences in each of the three outbreaks for the respective years.

1947

In 1947 the total numbers were few, but, of six children under 5, only one suffered a left-arm paralysis. There was no case of "included" left-arm paralysis. ("Included" denotes that the site of inoculation was only one of the sites in which paralysis occurred.) This child was aged 19 months at the date of the onset of illness, and had had a second injection of 0.5 ml. of A.P.T. in the left arm five weeks before the onset. Considered alone, this case is of course of no significance, but it may have some significance in the light of the other reported cases.

1949

Table IV shows no undue incidence of left-arm paralysis in children over 5 who had had no recent inoculations or in those under 5 with no previous inoculations or with an interval of more than two months from inoculation to onset of poliomyelitis. The figures, however, are very different in those under 5 who were inoculated less than two months before the onset. Although not strictly comparable with the figures given by Bradford Hill and Knowelden, the proportion of left-arm sites of paralysis (46.8%) is considerably greater than in their cases.

TABLE IV.—Sites of Paralysis and Previous Inoculation History in Children (Islington, 1949)

Site of Paralysis	All Cases up to 5 Years of Age				Over 5 Years
	Interval Between Last Injection and Onset of Poliomyelitis		No Previous Inoculations	Total	No Recent Inoculations
	Less than 2 Months	More than 2 Months			
Right arm ..	2	1	3	6	1
Left arm ..	8	1		9	1
Right leg ..	3	5	9	17	2
Left leg ..	2	8	9	19	3
Trunk ..	2	5		7	2
Cranial nerves..		2		2	1
Polio-encephalitis		1	2	3	2
Total ..	17	23	23	63	12
Cases with paralysis	11	12	14		10
Cases with no paralysis ..	1	2	2		8
No information					2

This is emphasized in the detail of cases apparently associated with inoculations in Table V. Figures relating to other sites of paralysis did not appear to differ significantly from those usually obtained. It will be noted that 8 out of 20 of those over 5 years of age suffered no paralysis.

Table V deals in rather more detail with inoculated cases in which poliomyelitis developed shortly after inoculation. It will be seen that 11 of the 12 cases

TABLE V.—Cases with Inoculation Histories up to Two Months Before Onset. 1949

Case No.	Age	Inoculations		Paralysis
		Type	Intervals	
1	10/12	Comb. A.P.T./pertussis	13 days	Left upper arm
2	18/12	" "	12 "	Left upper arm only. Deltoid group. Slight left-forearm weakness
7	12/12	A.P.T.	5 weeks	Non-paralytic
8	21/12	Schick	13 days	Left leg
15	10/12	Comb. A.P.T./pertussis	14 "	Flaccid paralysis both arms, much more marked left side. Slight weakness of trunk muscles and diminution of movement at right hip
16	15/12	" "	11 "	Left upper arm. Deltoid group
22	23/12	" "	15 "	Whole left arm; finger movement slight
24	27/12	Pertussis	17 "	Complete paralysis of upper and lower limbs and muscles of back
28	14/12	Comb. A.P.T./pertussis	5 weeks	Left arm
30	18/12	A.P.T.	9 days	No paralysis
31	21/12	Pertussis	6 weeks	
		Schick	9 days	
		Comb. A.P.T./pertussis	6 weeks	Left arm, right leg (severe)
40	16/12	A.P.T.	10 days	
		"	6 mths	Affecting right thigh, right, and left calves
		Schick	8 weeks	

were aged 2 years and under, and that in fact all left-arm palsies except one (see Table IV) in those under 5 years were related to recent inoculations. The interval between inoculation and onset in the five children whose last inoculation was combined A.P.T./pertussis vaccine was 11 to 15 days; in one case there was a five-weeks interval following A.P.T. inoculation, with no paralysis; in one case a 13-days interval after a Schick test, with left-leg paralysis; in a further case a 17-days interval after pertussis vaccine, with extensive paralysis; an eight-weeks interval after a Schick test; and in the remaining three cases there had been two inoculations within the two months preceding the onset, with left-arm and "included" left-arm paralyes after final A.P.T. and initial combined injections.

It was important to ascertain the inoculating materials administered to all children, and Table VI shows the children dealt with at local health authority clinics in this borough during the period July 1 to September 26, 1949.

TABLE VI

Type of Immunization	Year of Birth							Grand Total
	1949	1948	1947	Total	1946	1945	1944	
A.P.T.								91
Pertussis vaccine only	2	495	469	966	331	163	114	1,574
Combined A.P.T./pertussis	75	800	130	1,005	85	47	31	1,168

Of the 12 children with poliomyelitis after recent inoculations, eight were born in the year 1948, and the proportion of such children immunized with combined vaccine as against pertussis vaccine only was approximately 8 to 5, that with A.P.T. alone being almost negligible. Children who were given combined vaccine within two months of onset were therefore disproportionately attacked in the limb inoculated, whether alone or included. Inoculations with combined vaccine were suspended at the end of September, in view of the possible implications which then came to light on attention being drawn to them by Geffen (1950).

1950

In view of the previous year's findings, combined vaccine at clinics was not administered in the expected poliomyelitis season. Owing to the smaller number of children who contracted poliomyelitis in this year, Table VII is not broken down for age grouping in the same fashion as Table IV.

TABLE VII.—*Sites of Paralysis and Previous Inoculation History in Children of All Ages. 1950*

Site of Paralysis	Interval Between Last Injection and Onset of Poliomyelitis		No Previous Inoculations	Totals
	Less than 2 Months	More than 2 Months		
Right arm		2	1	3
Left arm		1	1	2
Right leg		3	5	8
Left leg	2	2	7	11
Trunk	1	1	4	6
Cranial nerves	1		4	5
Polio-encephalitis			1	1
Total	4	9	23	36
Cases with paralysis	4	4	12	20
Cases with no paralysis	1	4	3	10

TABLE VIII.—*Cases with Inoculation Histories up to Two Months Before Onset. 1950*

Case No.	Age	Inoculations		Paralysis
		Type	Intervals	
2	14/12	Pertussis	3 weeks	Left anterior tibial and left peroneal muscles
14	5 years	"	6 days	Back muscles
15	3 9/12	"	2 months	Non-paralytic
28	15/12	A.P.T.	2½ "	Left leg
30	11/12	"	2 "	Right-sided facial palsy

It will be noted that in 1950 there was no abnormal incidence of left-arm paralysis, and the distribution between upper and lower limbs conformed with the proportions customarily found. Thus 1950 would appear to emphasize the outstanding difference in inoculated limb paralysis which occurred in 1949.

Prophylactic inoculations in 1947, 1949, and 1950 have been administered in the main by the same two

medical officers, and almost invariably the left upper arm is the part inoculated. The principal difference is that in 1949 up to the end of September, combined A.P.T. pertussis vaccine was the principal antigen used for children under 2 years. No abnormal incidence of local or general reactions to this antigen has been reported.

Familial, Contact, and Group Cases

Breen and Benjamin (1950) reported that in the County of London more than one case in the same family was reported 14 times in 1949 and 27 times in 1947. They concluded that the numbers involved were so small that the results could not be regarded as statistically significant.

Bradley (1950) mentioned that multiple cases in a family or household are rare, but that this is not necessarily true on all occasions, and that before the end of 1950 there were already several instances. In the Isle of Wight, for example, there were three cases in each of three households, and this high infectivity was not accompanied by marked increase in virulence as expressed by mortality.

Gale (1948) investigated the possibility of cross-infection in hospitals and guardedly concluded that though cross-infection was rare it would be prudent not to admit into a general ward any patient who, by reason of a history of contact or of doubtful signs referable to the central nervous system, might be suspected of poliomyelitis. If a patient were admitted, then the discipline of typhoid nursing should be followed, particularly in the pre-paralytic and early paralytic stages.

So far as the Islington outbreaks are concerned, no familial or apparent contact cases were detected in 1947. Such cases, however, did occur in 1949, and to a greater degree in 1950.

Cases in 1949

Case 17.—Aged 3 years; onset, September 14; paralysis in lower limbs. *Case 18.*—Aged 16 months; onset, September 15; paralysis in lower limbs. These two children are brothers.

Case 45.—Aged 37 years; onset, August 24; non-paralytic case. There was no direct history of specific contact in this case, but the patient was an L.C.C. ambulance driver by occupation, and had recently transported poliomyelitis cases.

Case 11.—Aged 10 months; onset, July 23; paralysis in lower limbs. *Case 14.*—Aged 12 months; onset, July 17; paralysis in right upper arm group only. The degree of contact in these two babies, who lived near each other, is doubtful.

Case 9.—Aged 5 years; onset, July 20; meningismus; no residual paralysis. *Case 10.*—Aged 3 years 9 months; onset, July 23; polio-encephalitis. These two children are brothers.

Case 50.—Aged 7 years; onset, about September 15; palatal paralysis. *Case 34.*—Aged 3 years 8 months; onset, October 25. Left lower limb paralysis. So far as was known there was no contact between these two children, who lived near each other.

Case 5.—Aged 3 years 5 months; onset, August 31; paralysis in lower limbs. *Case 54.*—Aged 6 years; onset, October 31; paralysis in left shoulder. There was no known contact between these two children, who lived near each other.

In connexion with Case 5, it was ascertained that his brother, aged 9, vomited on August 31 and complained of pains in the legs; he was drowsy on September 4, and was seen by his own doctor, who was not informed of the illness.

and prior removal of Case 5 to hospital. No further action was taken in respect of the brother, who apparently recovered rapidly and completely.

It could therefore be said from the above cases that there was familial incidence in two families, and possibly in three families, with an abortive or minor case in the third.

Cases in 1950

Case 28.—Aged 15 months; onset, October 21; paralysis in left lower limb. This patient's brother, aged 4, was taken to the doctor on account of tonsillitis and sore throat and cold on October 22. The doctor then noticed that the patient was also not well. Another brother, aged 10, was incidentally seen by me when I was called to examine Case 28. On inquiry the mother stated that the eldest boy had also had tonsillitis and had complained recently of pains in the right upper arm; some slight weakness of his right hand was found, which was confirmed at the hospital to which Case 28 had been sent. It was presumed that the eldest boy had probably had a very mild attack of poliomyelitis, and if he had not been at home when I called it is highly probable that he would have been completely missed.

Case 20.—Aged 16 years; onset, August 19; non-paralytic polio-encephalitis. *Case 21.*—Aged 17 years; onset, August 24; paralysis, transient ophthalmoplegia. Both these boys were in camp together with a school party from August 5–12, and were also together on August 20.

Case 16.—Aged 3 years 2 months; onset, July 31; left facial paralysis. *Case 18.*—Aged 5 years 10 months; onset, July 31; extensive paralysis, erector spinae group, and right and left hamstring group. These two children lived near each other and played together frequently.

Case 9.—Aged 11 years 11 months; onset, July 20; paralysis, legs and respiratory muscles; died, December 17. *Case 24.*—Aged 7 years 9 months; onset, July 23; bulbar paralysis, pharynx and palate, and paralysis of muscles of respiration. These two are known contacts.

Case 10.—Aged 3 years 11 months; onset, July 26; non-paralytic. Case 10 is not a known contact, but all the last five cases—that is, Cases 16, 18, 9, 24, and 10—although in three roads, lived practically within a stone's throw of each other.

In connexion with Case 9, the father had a cold on July 22, the mother had a cold on July 15 and diarrhoea on July 24, and a young sister had a cold on July 20.

In 1950 there was only one probable familial infection, although the possibility is also suggested in respect of the family of Case 9. However, there were three pairs of known close contacts, and two of these pairs plus one child not definitely known to be a contact live in close housing proximity to each other. It is possible, therefore, that all these five children were direct or indirect contacts of each other.

Some Observations on Familial and Contact Cases

Stocks (1932) estimated the ratio of subliminal attacks to every overt case notified to be 100 to 1 under endemic conditions. Benjamin (1949) estimated the ratio of 100 to 1 for the epidemic conditions of 1947, with probably a much higher endemic ratio. It is not surprising, therefore, that inquiries into the health of contacts arising out of notification may throw up instances of indefinite illness which may or may not be submerged or very mild clinical poliomyelitis. An example of the latter is Case 28 (1950), and possible instances of the former are in connexion with Case 5 (1949) and Case 9 (1950).

Symptoms mentioned in other members of these families were cold, tonsillitis, sore throat, diarrhoea, and vomiting. It was also noticed that the first symptoms

mentioned in a very considerable number of all the poliomyelitis notifications inquired into were of the nature of sore throat or tonsillitis. Detailed medical examination and short-term observation of the contacts of poliomyelitis cases might throw further light on the transmission channels which produce the overt cases.

The intervals between dates of onset in familial and known contact cases varied from simultaneous onset to six days. Simultaneous infection from common sources no doubt occurred in some cases. It will be noted that with regard to the group of five cases in 1950 (Nos. 16, 18, 9, 24, and 10) the first onset was on July 20 and the last on July 31. In Cases 50 and 34 (1949), grouped together because of housing proximity only, and with no known direct contact, there was an interval of nearly six weeks between dates of onset; and similarly there was a two-months interval between Cases 5 and 54 (1949), pointing to the probability of a fortuitous locality association only in these last four cases.

A further feature worthy of comment in these familial and contact cases is the apparent similarity of the type of infection or the location of paralysis in a substantial proportion of this limited group. Thus in 1949 Cases 17 and 18 both had lower-limb paralysis; Cases 9 and 10 had meningismus and polio-encephalitis respectively; and in 1950 Cases 20 and 21 had non-paralytic polio-encephalitis and transient ophthalmoplegia; Cases 9 and 24 were both severe, with respiratory paralysis. Possibly, on the other hand, Cases 50 and 34, and 5 and 54 (1949), showed dissimilar paralyses. No deductions can be drawn from such small numbers, but in future investigations of family and contact cases attention might be given to the possibility of such association.

Summary

Three outbreaks of poliomyelitis, including polio-encephalitis, in the Metropolitan borough of Islington in the years 1947, 1949, and 1950 are reported upon. For reasons which are not clear the attack rate for 1947 was well below the London rate, but for 1949 and 1950 it approximated to those of the county as a whole. No valid deductions can therefore be drawn for any relationship between attack rates and certain social conditions.

A low proportion (27.3%) of children under 5 years were affected in 1947. In 1949 61.3% of confirmed cases were under 5, and the beginning of the outbreak was locally more explosive than in either 1947 or 1950, when the proportion of those under 5 fell to 40%.

There was a high relative incidence of left-arm—that is, inoculated-limb—paralysis in 1949, especially in children under 2, within 9–15 days of inoculation. A similar left upper limb incidence of paralysis did not occur in 1947 and 1950. In 1949 most children under 2 were given combined A.P.T./pertussis vaccine; this was not the case in the other two outbreaks. In 1949 children given pertussis vaccine only were not affected proportionately in relation to those given the combined vaccine. To a considerably less degree, paralyses in the inoculated limb have also followed within a short time the administration of other antigens, including A.P.T. These findings confirm and emphasize the wider surveys in respect of the 1949 outbreak carried out by Geffen and by Bradford Hill and Knowelden, although the Islington findings are relatively more unfavourable to the results following the use of combined vaccine.

Familial, contact, and group cases were not a feature of the 1947 outbreak, but were noticeable in the 1949 and 1950 outbreaks. Home investigations of contacts indicate the possibility of contemporaneous illness in other members of the family or others who are in close contact, which may be of the nature of abortive or very mild poliomyelitis. It

is therefore suggested that the medical examination and short-term observation of poliomyelitis contacts might provide a more realistic picture of familial and contact incidence and give further information on the transmission channels which result in clinical poliomyelitis in a proportion of those infected with the virus.

It was noticed that in some of the contacts, whether family or otherwise, there was an apparent similarity of the type of infection or the location of paralysis. The numbers dealt with here are too small to justify deductions, but it is suggested that this is an aspect for further inquiry in future investigations of family and contact cases.

I acknowledge with thanks the co-operation of Dr. A. B. Stewart, Divisional Medical Officer, L.C.C., in providing inoculation histories of poliomyelitis cases and information on antigens used, and also physician-superintendents and other hospital medical staff for kindly sending clinical information on Islington cases admitted.

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IMMUNITY TO OLD AND NEW STRAINS OF INFLUENZA A VIRUS

BY

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In the early days of influenza serology it seemed to be established that there were several immunologically distinct strains of influenza A, so that antiserum produced by infection with one strain showed a higher antibody level to that strain than to a heterologous strain (Francis and Magill, 1935; Bodily and Eaton, 1942; Hirst, 1942).

Since then, however, the following facts have emerged: Friedewald (1943), using complement-fixation tests, found that higher titres were sometimes given by convalescent sera against the PR8 strain of influenza virus—isolated in Puerto Rico in 1934 (Brown, 1936)—than against the strain of virus isolated from the patient's throat washings. Stuart-Harris and Miller (1947) also found higher serum antibody titres against PR8 than against the A strain causing the epidemic of that time (they used haemagglutination-inhibition tests). Morgan, Barnes, and Finland (1948) found that in convalescent serum a higher antibody level was present against PR8 than against the strain causing the epidemic concerned. The tests used in this instance included haemagglutination-inhibition, complement-fixation, and egg-neutralization techniques.

The following results show a similar tendency in the case of haemagglutination-inhibition and complement-fixation tests carried out in 50 normal sera against PR8 and BAR (Barclay) strains of influenza.

The time of the investigation was the first five months of 1950. Sera were obtained from blood transfusion donors at the Royal Infirmary, Edinburgh, and were taken nine months after the 1949 (March) epidemic of influenza A. The technique of the haemagglutination-inhibition tests was that of Salk (1944), except that a final concentration of 0.25% red-cell suspension instead of 0.125%, and calcium saline as diluent, were used. The latter consisted of 0.024% CaCl_2 in 0.85% NaCl. For the complement-fixation tests Hoyle's (1948) method was employed, except that the antigen used was infected allantoic fluid, prepared and harvested by the method of Francis and Salk (1942), instead of infected mouse-lung suspension.

Results

Tables I (Fig. 1) and II (Fig. 2) show the titre levels involved and Table III the distribution of sera giving different ratios.

FIG. 1.—Haemagglutination-inhibition tests: distribution of sera of different titres.

FIG. 2.—Complement-fixation tests: distribution of sera of different titres.

TABLE I.—Haemagglutination-inhibition Tests: Percentage Distribution of Sera of Different Titres

Titre:	<8	8	16	32	64	128	256	512	1,024	Total No. of Sera
Virus PR8 ..	2	0	2	4	27	11	35	18	0	55
Virus BAR ..	10	14	45	22	8	0	0	0	0	49

TABLE II.—Complement-fixation Tests: Percentage Distribution of Sera of Different Titres

Titre:	<2	2	4	8	16	Total No. of Sera
Virus PR8 ..	20	26	31	17	6	54
Virus BAR ..	62	38	0	0	0	45