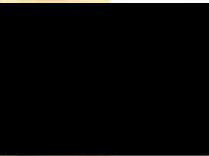


Polio 1947.



Akron.



white, ♂, 2 yrs.

Dr. Bratty
adm. 8/25/47.

Onset: 8/25/47.

History: Morning of admission child cried because of pain in the neck and of headache. Child felt feverish. Vomited several times and seemed drowsy.

Admission: T. 101° - Skin hot and flushed.
Exam: Stiff spine. pos. Kernig sign bilaterally; spasm of neck and hamstrings. No evident muscle weakness.

CSF: 8/25/47

cells	lymphs	Polys	Globulin
530	60%	40%	+

Notes: 8/26/47 - Temp. 99°. neck, back + hamstrings still show spasm.

8/27/47 - T. 99° - still mild nuchal + hamstring spasm.

8/28/47 - 99° - NO signs present.

8/29/47 99°

8/30/47 98°

	CP Swat	Stool-
8/25	✓	-
8/26	✓	✓ soft formed
8/27	✓	✓ soft stool.
8/28	✓	✓ formed

0.5 days after onset

JAN 5 1948

A. Stool Suspension -

Solids Present
Liquid Present
Saline Added

80 gms.
0.
400 cc } **20%** suspension

Blended at low speed for one minute.

Settled for one hour in the refrigerator.

For Freezing — ± 180 cc Box "C"
For Intranasal use — + 40 cc

Etherization — of 170 c.c. with 340 c.c. ether; shaken for 10 minutes and refrigerated.

1-6-48 - Reshaken 10 minutes; centrifuged 30 minutes; middle layer = +125 c.c.

B.A.P. Cultures	DAYS			
	1	2	3	4
a) Treated Stool Alone 0.2 c.c.	15 large colonies	Covered a spreader	→	→
b) + Penicillin 5000 U/c.c.	No growth	No growth	No growth	No growth
c) + Streptomycin 5000 U/c.c.	No growth	"	"	"
d) + Streptomycin } aa + Penicillin } 5000 U/c.c.	No growth	"	"	"

1-8-48 - Both monkeys inoculated with [redacted] material died of peritonitis — 12-16-48

∴ Refroze a) Intranasal Material in Luerlock tube. B-2-8

b) Etherized material in wax Carston B

7-20-48 Blended Stool thawed and 4.0 cc removed for interference experiment with Tansing Polio. Remainder refrozen "C"

7-22-48 ± 4.5 cc of etherized stool frozen in one 10 cc amp. Stored B-7-9

12-16-48 ± 4.5 cc vial of stools discarded

JAN 5 1948

B. Pharyngeal Swab Material.

Swabs Plus 0.6 cc Buffer #1 = 2.7 cc.

Buffer #2 = 0.6 cc.

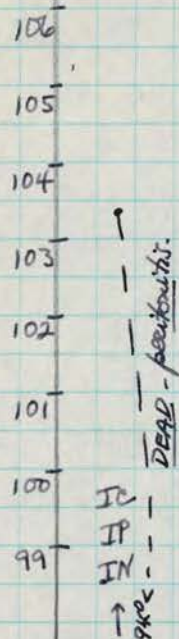
Ether Added = 1.0 cc; shaken 10'; refrigerated.

1-6-48. Centrifuged (horizontal) - 15 minutes.
Culture: ✓✓✓

JAN 7 1948

Rhesus #66-

Treated Pharyngeal Swabs IC
Treated Stools IP
Untreated Stools IN



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

1-6-48. - Inoculated 1.5×10^8 IC; 1×10^8 per nostril; 20×10^8 IP. together with 100,000 units penicillin + 100 mgms. Streptomycin IP.

1-7-48-9⁰⁰ A.M. Temp < 94.0 ; prostrate; abdomen distended; given 200,000 u of penicillin and 100 mgms of streptomycin IP.

3⁰⁰ p.m. Dead. Autopsy: peritonitis.

SMEAR PERITONEAL FLUID: - packed with polys and very many short plump gram + rods - some appear almost like diplococci. (slide saved)

1/8/48 Peritoneal Fluid: frozen to aa skimmed milk pH 7.0 (B-1-1)

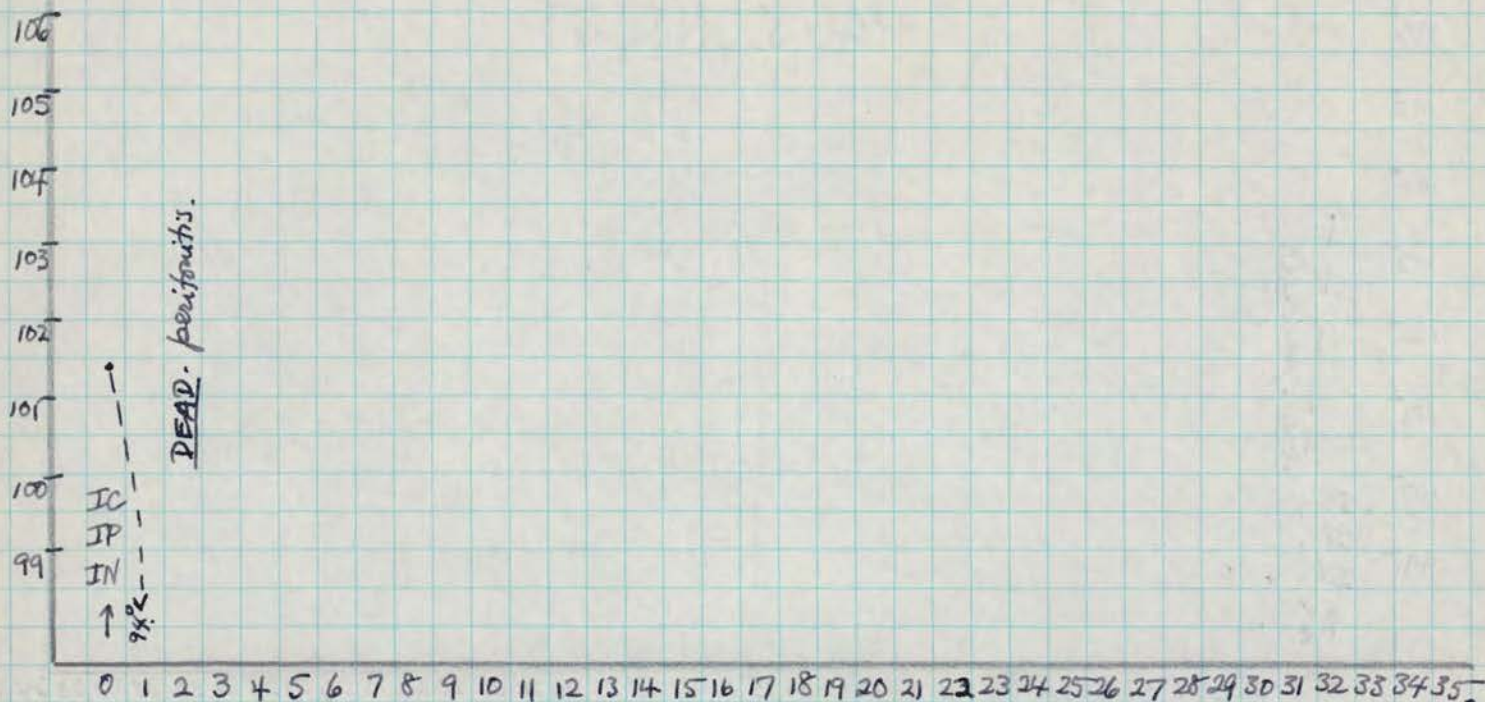
Penicillin level :- no end point i.e. > 250 units/cc.

Streptomycin level - no end point i.e. > 160 units/cc.

12-16-48 Perit fluid Discarded

JAN 7 1948

CYNOMORBUS # 67-



1-6-48 - Inoculated 1.5 cc IC; 1.0 cc IN; 2.0 cc IP together with 100,000 u penicillin and 100 mgms. Streptomycin IP.

1-7-48 - 9⁰⁰ A.M. - T < 94°; prostrate; abdomen tense and tender; given 200,000 u of penicillin and 100 mgms. Streptomycin IP.

3³⁰ P.M. - T < 94°; prostrate; not eating; abdomen tense and tender; again given 200,000 u. of penicillin and 100 mgms of streptomycin IP.

1-8-48: Dead - peritonitis. -

SMEAR PERITONEAL FLUID: - packed with polys, and with very many short sm. + rods. (slide saved)

Peritoneal Fluid: frozen to aa skimmed milk pH 7.0 (B-1-1)

Penicillin level :- 64 units/cc.

Streptomycin level :- 160 units/cc

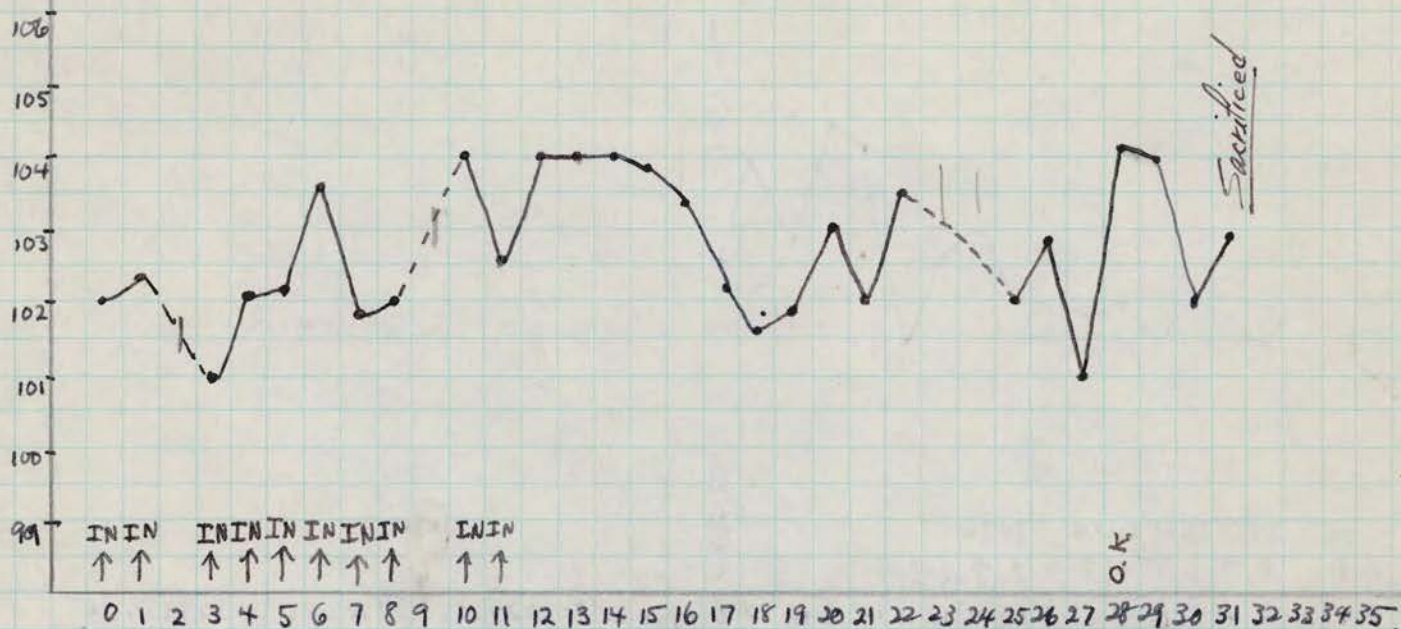
12-17-48 Peritoneal fluid Discarded

JAN 30 1948

SECOND TRIAL

untreated stool - IN 2^{cc}/nostril.

Rhesus # 118



2-27-48 Temp. = 104.2° Seems O.K.

2-28-48 Temp. = 104.0° Seems O.K.

3-1-48 Sacrificed (chloroform-exsanguination) for histopathology.

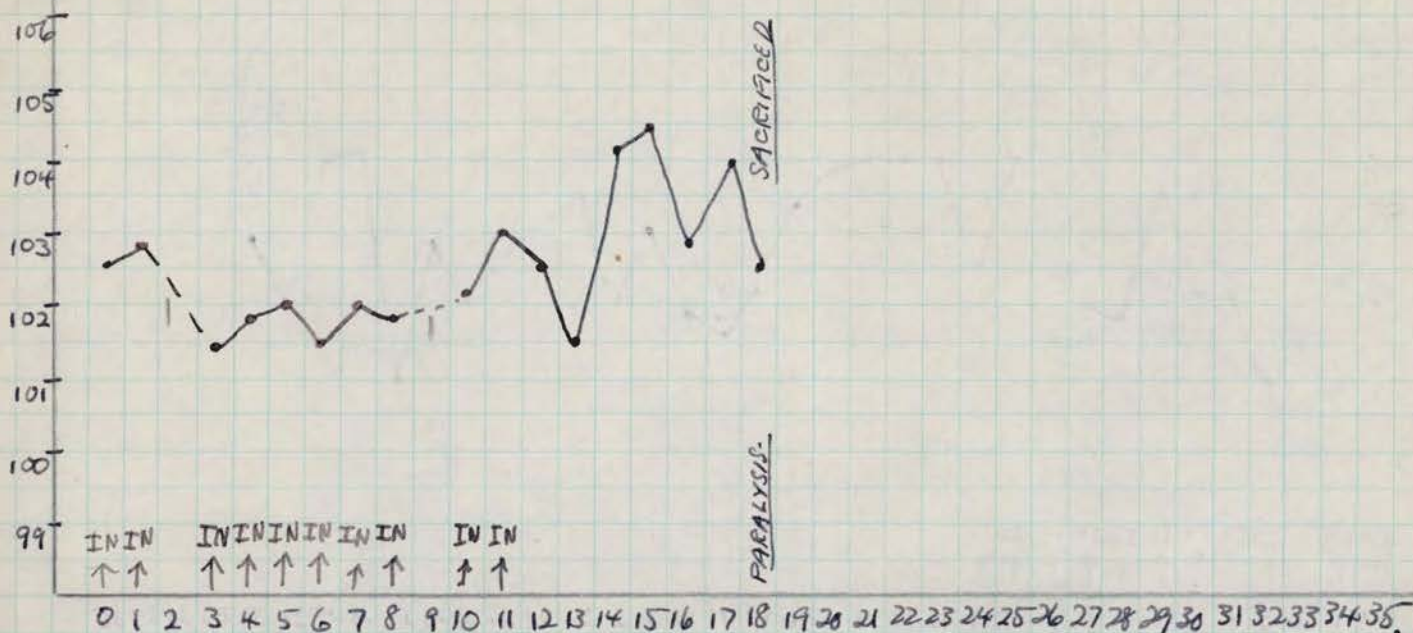
AUTOPSY: No gross lcs. Soft mass adherent to meninges at T-12.

TISSUE FOR HISTOPATHOLOGY: numerous spinal cord levels; pons; medulla; midbrain; thalamus; olfactory bulbs (Z-A).

Histology - No Polio

JAN 30 1948

Rhesus # 1476 splenectomized.



2-18-48 - Partial paralysis both lowers; left wrist drop; back is weak; cranial nerves seem intact. - Sacrificed (chloroform) - Autopsy; no gross TBc; no accessory Spleens.

COLON CONTENTS: frozen in kusteroid. (B-3-8)

TISSUE FOR PATHOLOGY: olfactory bulbs, cord levels. (Z-A.)

TISSUE FOR VIRUS: remainder of cord, medulla frozen in kusteroid. (B-3-5)

2-21-48 - cord and medulla of Rh #1476 thawed and made up as a 20% susp. in 28.00 sterile saline (wt. found = 6.5 gms.). ± 23.00 of suspension frozen in 2-20 amp. Designated as NO: 1,2) stored (B-3-9)

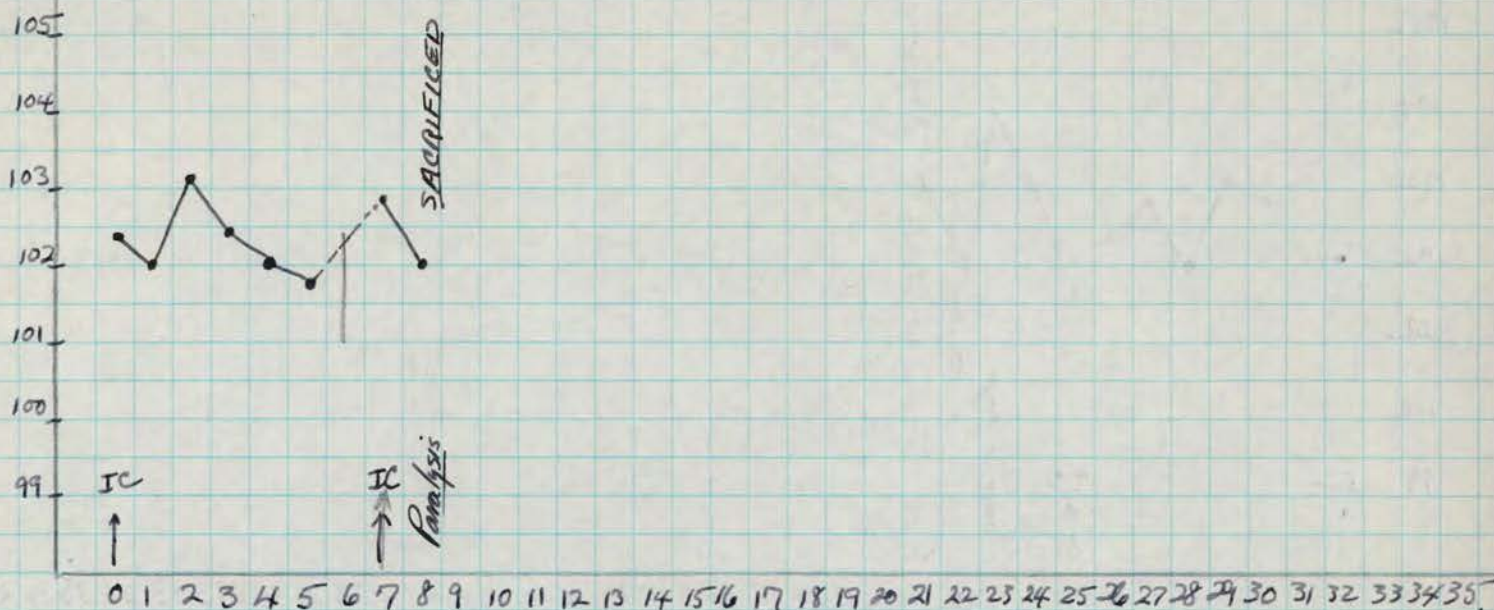
Culture: 144

3-22-48: Amp. #1 thawed. 2.0cc removed for passage IC to Rh #231 and Rh #1564. The remainder refrozen and stored. (B-3-9)

Histology - Polio

MAR 22 1948

STRAIN POLIO - GENERATION II

Rhesus #231 (normal)

3/22/48 - Proc. with 1.0 cc IC of [redacted] strain polio (Gen. I) - 20% in saline.

3/29/48. Re-proc. with 1.0 cc of [redacted] strain polio (Gen. I).

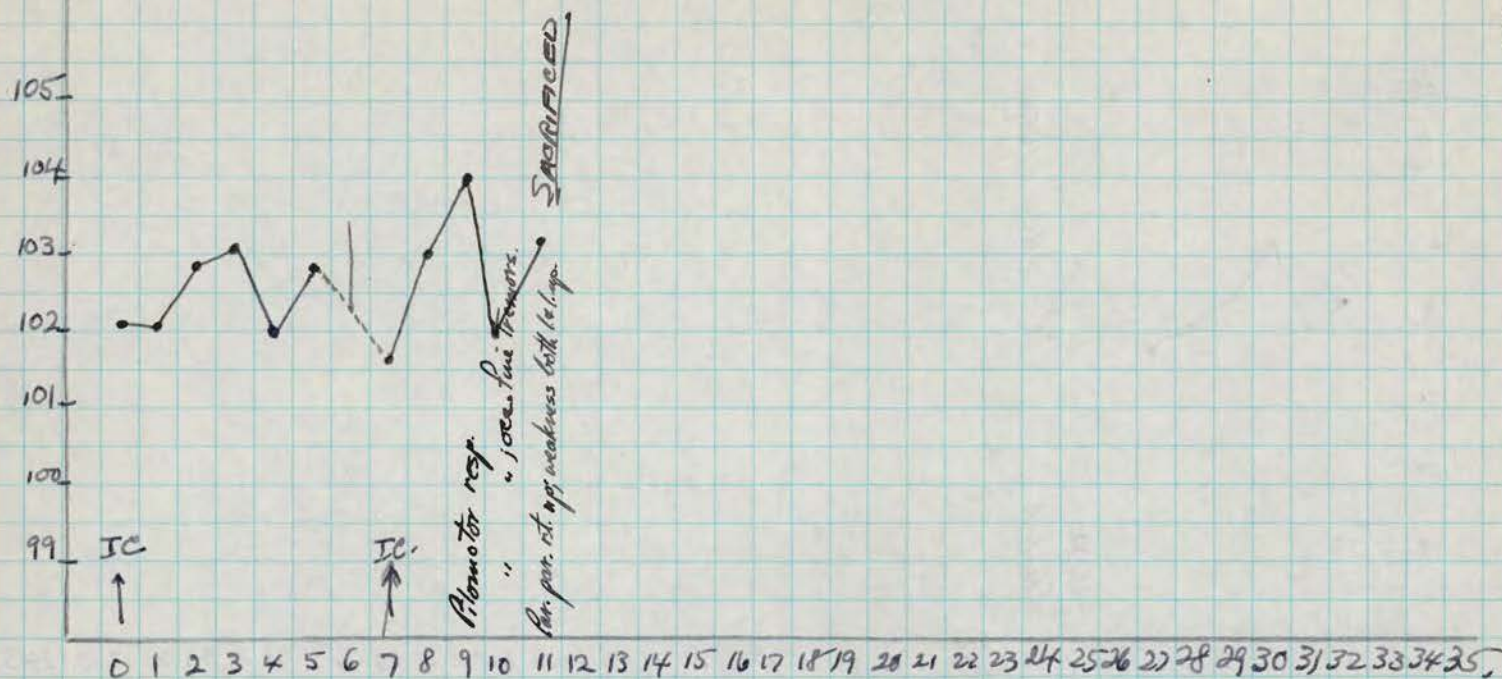
3-30-48: Complete par. of lt. upper. Weakness both lowers & left up.
Coarse tremors. Filibuster response.Sacrificed: (chloroform-exsanguination) Autopsy: No gross les.
TISSUE FOR SECTION: Portions of lumbar and cervical cord (2-A)TISSUE FOR VIRUS: Remainder of cord-medulla frozen in a lusteroid tube. Culture: ✓ X 8 (d-8)4-2-48: Cord-medulla Rh #231 thawed and pooled with that of Rh 1564 to make a 20% suspension in (52 cc.) sterile saline. ± 46 cc. frozen in 5-20 cc. amps. and stored. (B-7-1)
Wt. pooled cords-medullae: 13.5 gms.
Culture: ✓ ✓ ✓2nd day: 10 colonies (non-hem.) Smear shows Gram + rods and Gram - rods & granules (intracytoplasmic staining Gram +). The rods were small, pleomorphic, resembled diphtheroid organisms.
3rd day: 10 colonies - same.

Histology - Polio

MAR 22 1948

STRAIN POLIO - GEN II

Rh. # 1564 - splenectomized.



3/22/48 - Intra. IC with 1.0 cc of 20% in saline [redacted] polio - GEN II

3/29/48. Reintr. IC with 1.0 cc of 20% in saline " " "

3-31-48 - A.M. ? Promotor response; seems very passive but no definite weakness or paralysis.

P.M. No change.

4-2-48: Partial paralysis of right arm; weakness both knees and left upper. Voice weak.

Sacrificed: (chloroform-exsanguination) Autopsy: No gross thc.

TISSUE FOR SECTION: Portions of lumbar and cervical cord. (2-A).

TISSUE FOR VIRUS: Remainder of cord medulla pooled with that of tharbed Rh # 231 to make a 20% susp. in saline. (See overlay).

TITRATION OF HUMAN POLIO STRAINS.

5-27-48.

STRAIN (GEN. II)

Viruses used: [redacted] strain polio (Gen. II in monkeys), 20% in saline, diluted as indicated below in saline.

Monkeys: Normal rhesus (NPIP Farm R.C.)

Mixtures: Dilutions as indicated below in saline, kept at room temp. (77°F.) for one hour, refrigerator overnight (15 hrs), then into ice bath during inoculations on 5-28-48.

Inoculum: 0.5 cc. I.E. per monkey.

<u>DILUTION</u>	<u>MONKEY #.</u>	<u>CLINICAL FINDINGS</u>	<u>POLIO PATHOLOGY.</u>	<u>RESULT</u>
10 ⁻²	Rk 523	O; K ₂₈	O	1/3
	524	O; K ₂₈	O	
	525	O; K ₂₈	+ ("old - non-paralytic")	
10 ⁻³	526	O; K ₂₈	O	0/3
	527	O; K ₂₈	O	
	528	O; K ₂₈	O	
10 ⁻⁴	529	O - Given to Dr. Schmidt, Christ Hospital		
	530	O	"	0/3
	531	O	"	
10 ⁻⁵	532	O	"	0/3
	533	O	"	
	534	O	"	

Titration of [redacted] Strain Polio

Rh No. 523

10⁻²

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
6-2-48	5	? excited.
6-3-48	6	? excited
	7	" "
	8	" " T = 102.5
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Sacrificed (chloroform-exsanguination) - Autopsy: no gross Tbe.

TISSUE FOR HISTOLOGY: cord levels; medulla; midbrain, and
Thalamus. (2-A)

HISTOLOGY: NO pathological findings.

DIAGNOSIS: NO POLIO.

Titration of [REDACTED] Strain Polio

Rh No. 524

10⁻²

Date	Day	Remarks
5-28-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Sacrificed (chloroform-exsanguination), - Autopsy: no gross lcs.

TISSUE FOR HISTOLOGY: - cord nerves; medulla; midbrain; Thalamus.
(2-A)

HISTOLOGY: No ~~pathological~~ findings:

DIAGNOSIS: NO POLIO.

Titration of [redacted] Strain Polio

Rh No. 525

10^{-2}

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Sacrificed (Chloroform - Exsanguination) - Autopsy - no gross TBE

TISSUE FOR HISTOLOGY: Cord levels; medulla, midbrain, Thalamus - (2A).

HISTOLOGY: Lumbar, Thoracic Cord - shows root degeneration; outfall of neurons, dense glial nodules in ant. horns; mild cuffing. - Cervical - neuronal loss with dense glial nodules in ant. horn. - Medulla - glial interstitial infiltration in reticular substance. - Midbrain - perivascular cuffing; also glial infiltration interstitial and 2 dense collections in substantia nigra. Thalamus - (region of caudate nucleus) - perivascular cuffing, several dense glial aggregates.

DIAGNOSIS: Polio (non-paralytic)

Titration of [redacted] Strain Polio

Rh No. 526

10^{-3}

Date	Day	Remarks
5-28-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	-
	6	✓
6-5-48	7	✓ ? excitement
	8	No excitement today
	9	O.K.
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
	28	✓

Sacrificed (chloroform-exsanguination) - Autopsy: no gross TB.

ISSUE FOR HISTOLOGY: Cord levels; medulla; midbrain; ^{2 levels} Thalamus (Z.A)

HISTOLOGY: Apical vessel in ventral portion of medulla - (midline); and a ventral vessel in pia of midbrain at level of inferior colliculus. Both show asymmetric PV cuffing ("Kling" type) but no interstitial infiltration. - Other areas entirely neg.

DIAGNOSIS: NO POLIO

Titration of [redacted] Strain Polio

Rh No. 527

10^{-3}

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
6-8-48	11	? excitement
6-9-48	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Sacrificed (chloroform - exsanguination) - Autopsy: no gross TBC.

Tissue for HISTOLOGY: ^(single) cord levels; medulla; midbrain; Pons. (Z.A.)

HISTOLOGY: Above segments reveal no pathology.

DIAGNOSIS: NO POLIO

Titration of [REDACTED] Strain Polio

Rh No. 528

10⁻³

Date	Day	Remarks
5-28-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Sacrificed (chloroform-exsanguination) - Autopsy: no gross TBC.

TISSUE FOR HISTOLOGY: ^{single} cord levels; medulla; midbrain; Thalamus (2A)

HISTOLOGY: These levels show no pathological changes.

DIAGNOSIS: NO POLIO.

Titration of [REDACTED] Strain Polio

Rh No. 529

10-4

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓

Observation terminated. — Given to Dr. H. Schmidt.

Titration of [REDACTED] Strain Polio

Rh No. 530

10^{-4}

Date	Day	Remarks
5-28-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Observation terminated. Given to Dr. H. Schmidt.

Titration of [REDACTED] Strain Polio

Rh No. 531

10⁻⁴

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
6-25-48	27	✓
	28	✓

Observation terminated. Given to Dr. H. Schmidt.

Titration of [REDACTED] Strain Polio

Rh No. 532

10⁻⁵

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
6-25-48	27	✓
	28	✓

Observation terminated. Given to Dr. H. Schmidt.

Titration of [REDACTED] Strain Polio

Rh No. 533

10-5

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Observation terminated. Given to Dr. H. Schmitt.

Titration of [REDACTED] Strain Polio

Rh No. 534

10⁻⁵

Date	Day	Remarks
MAY 28 1948	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	✓
	11	✓
	12	✓
	13	✓
	14	✓
	15	✓
	16	✓
	17	✓
	18	✓
	19	✓
	20	✓
	21	✓
	22	✓
	23	✓
	24	✓
	25	✓
	26	✓
	27	✓
6-25-48	28	✓ Observation terminated. Given to Dr. H. Schmidt.

1940-1947. MONKEY HYSTEROLOGY.

MK. #.	Lumbar	Thoracic	Cervical	Medulla	Midbrain	Talampus	Hypothal	Opt. Bulb	Dience
Rh. 118	0	0	0	0	0	+	—	O:O:	No polio
Rh. 1476	NH, PH.	NH.	NH, PH.	NH, PH.	—	—	—	NH, NH.	POLIO
Rh. 231	NH, PH.	NH	NH, PH.	—	—	—	—	—	POLIO.
Rh. 1564	NH, PH.	—	NH	—	—	—	—	—	POLIO

GENERATION II

TITRATION OF GENERATION II

10⁻² Rh. 523
 Rh. 524
 Rh. 525
 10⁻³ Rh. 526
 527
 528