

Polis - 1947 -

Aleron.

White; 8' 13 1/2

adm. 8/26/47.

Onset: 8/24/47.

History: The evening of 8/24 he complained of general headache, and felt hot and feverish. On the day of admission, he started to complain of pain in the back of the neck and held his neck stiff. -

Admission: T. 102° F.

Exam Neck is markedly stiff. Entire back stiff. only moderate hamstring spasm. - NO reflex changes.

C&F: 8/26

cells	Lymphs	Polys	Hemoglobin
409	60%	40%	+

Notes: 8/27 T. 102° F. Marked nuchal rigidity; still has mod. hamstring + back stiffness.

8/28. T. 101° F - Neck + hamstring stiffness persist - of moderate degree. Feels O.K. systemically today.

8/29. Temp. 100°. Still has definite but less spasm of neck + hamstrings. -

8/30. Temp. 99°. Mild nuchal rigidity persists. Pt. feels well.

OP Swab Stool

8/26	✓	formed.
8/27	✓	✓ formed
8/28	✓	✓ brown
8/29		✓ inema.
8/30		- clear inema discarded.
8/31		- clear inema discarded.
8/31		- A.M. a satisfactory inema was discarded on the ward!!
8/31		✓ - repeat inema - sm. amt of solid shreds.

JAN 5 1948

A. Stool Material -

Solid Present 22. gms.
 Liquid Present 80. cc-
 Saline Added 140 cc- } 10% susp

Blended at low speed for one minute.

For Freezing ± 70°c (Box "C")

Settled for one hour in refrigerator. -

For Intracanal use = ± 40 cc-

Etherization: 95 c.c. of suspension and 19.0 c.c. of ether; - shaken for 10 minutes; refrigerated. -

1-6-48. Reshaken 30 minutes; centrifuged 30 minutes; middle layer = ± 85 c.c.

B.A.P. cultures.	DAYS.			
	1	2	3	4
a) Treated stool Alone 0.2 c.c.	8 large colonies	Confluent central growth	→	→
b) + Penicillin 5000 u/c.c.	No growth	No growth	No growth	No growth
c) + Streptomycin 5000 u/c.c.	No growth	"	"	"
d) + Streptomycin } 5000 + Penicillin } u/c.c.	No growth.	"	"	"

JAN 5 1948

B. Pharyngeal Swab Material -

Swabs plus 0.6 cc Buffer #1 = 2.6 cc -
Buffer #2 = 0.6 cc.

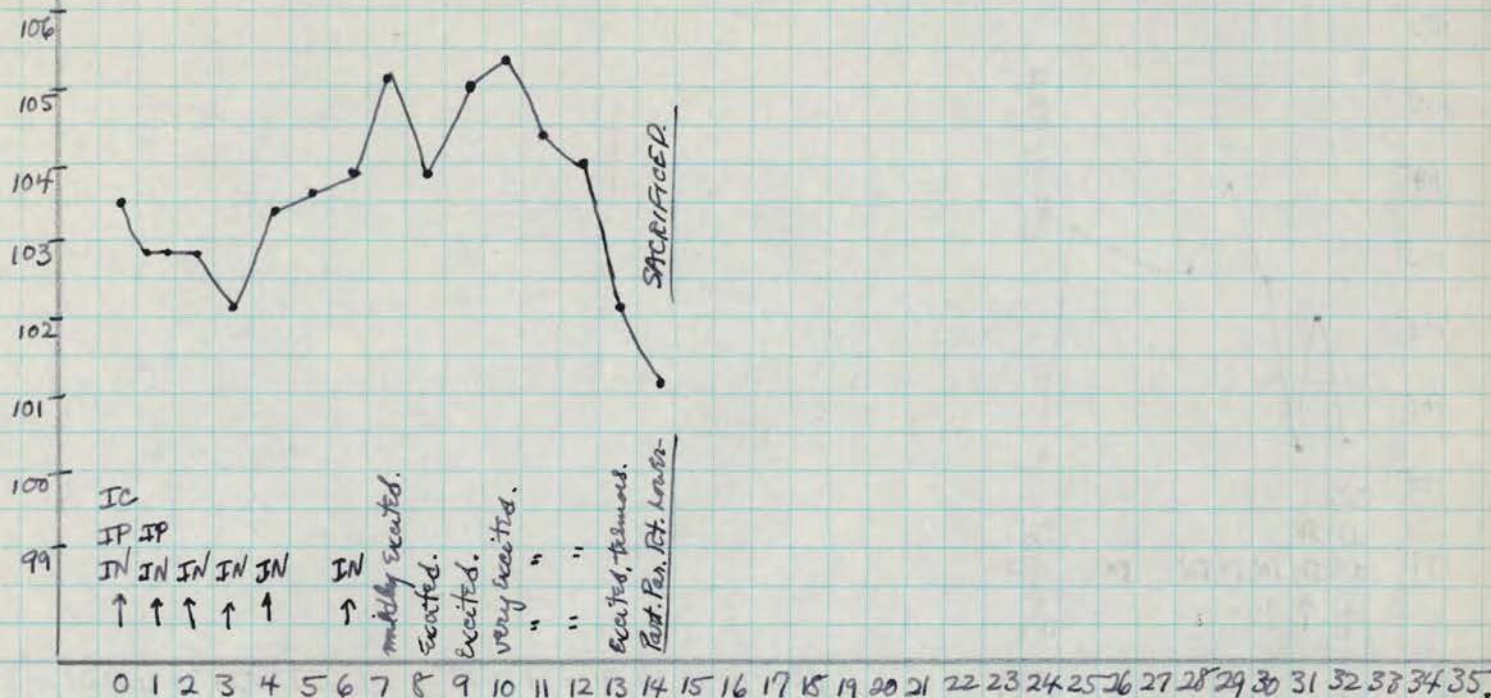
Ether Added = 1.0 cc; shaken 10'; refrigerated.

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

JAN 6 1948

Rhesus # 70 -

Treated pharyngeal swabs IC
 Treated stools IP.
 Untreated stools IN.



1-6-48 - Inoculated 1.5 cc IC; 1.0 cc per nostril; 2.0 cc IP together with 100,000 μ Penicillin, and 100 mgms Streptomycin IP.

1-7-48 9⁰⁰ A.M. - T=102.8; abdomen seems very tender to palpation altho it is not distended + monkey does not seem ill.

3³⁰ P.M. - T. 102.8; eating; seems O.K. - was then inoculated with IN and IP - the latter including 100,000 μ of penicillin + 100 mgms. Streptomycin

1-19-48 - excited; tremors; pilomotor response; easily exhausted.

1-20-48 - Mild partial paralysis rt. lower; very easily exhausted with weakness of left lower + of back. - Sacrificed (chloroform) - Autopsy: no gross Tbc.

COLON CONTENTS: frozen in tasteroid tube (B-3-2)

TISSUE FOR PATHOLOGY: cord levels: medulla; Thalamus, hypothalamus and olfactory bulbs. (Z-A)

TISSUE FOR VIRUS: cord-medulla frozen in tasteroid. (J-2)

1-27-48 cord and medulla pooled with that of Cyn # 71 (overleaf) pooled weight 7.00gms made up as 2.0% suspension in (28.0 cc) saline. \pm 2.5 cc of suspension frozen in 3-20 cc ampoules. (B-3-3)

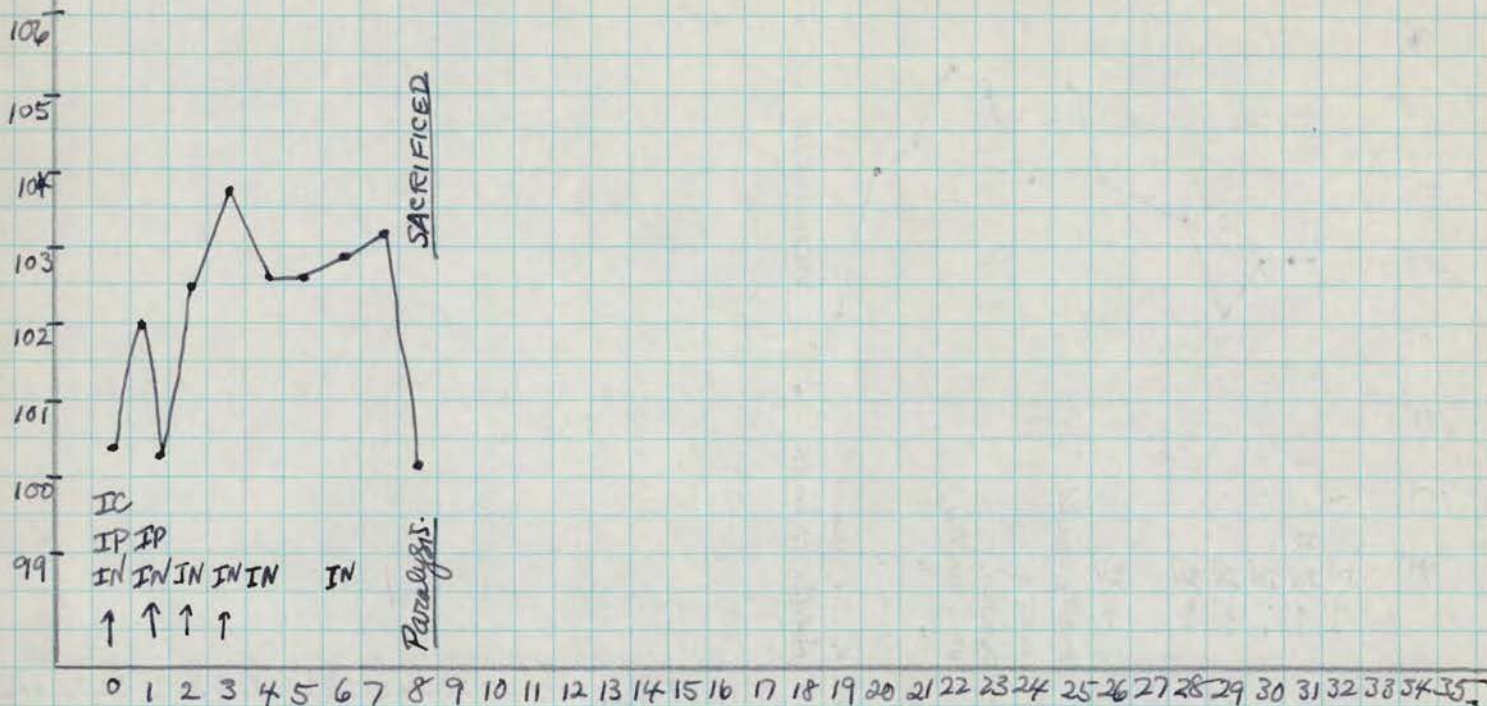
Cultured: J, J, J

3-1-48 One amp (designated as #1) thawed and 2.0 cc removed for passage to Rhesus # 141 and Rhesus # 159. Remainder refrozen and stored (B-3-3)

Histology - Polio

JAN 6 1948

-CYNOMOLGUS # 71-



1-6-48. inoculated 1.5 cc IC; 1 cc per nostril; 20 cc IP together with 100,000 units Penicillin and 100 mgms. Streptomycin IP.

1-7-48 - 9⁰⁰ am - T = 102.; seems OK.

3³⁰ pm. T = 100.3; seems OK; - was then inoculated IN and IP, the latter including 100,000 μ of penicillin and 100 mgms Streptomycin.

1-14-48 - Paralysis - complete of both lowers; both uppers weak, particularly the left; cranial nerves seem O.K. -- Sacrificed (chloroform)

Autopsy: no gross TBc; peritoneal cavity normal.

* COLON CONTENT: frozen in kusteroid tube. (B-2-9)

TISSUE FOR HISTOPATHOLOGY: cord levels; medulla; Thalamus; olfactory bulbs (2A)

TISSUE FOR VIROS: cord-medulla frozen in kusteroid tube. (a-3)

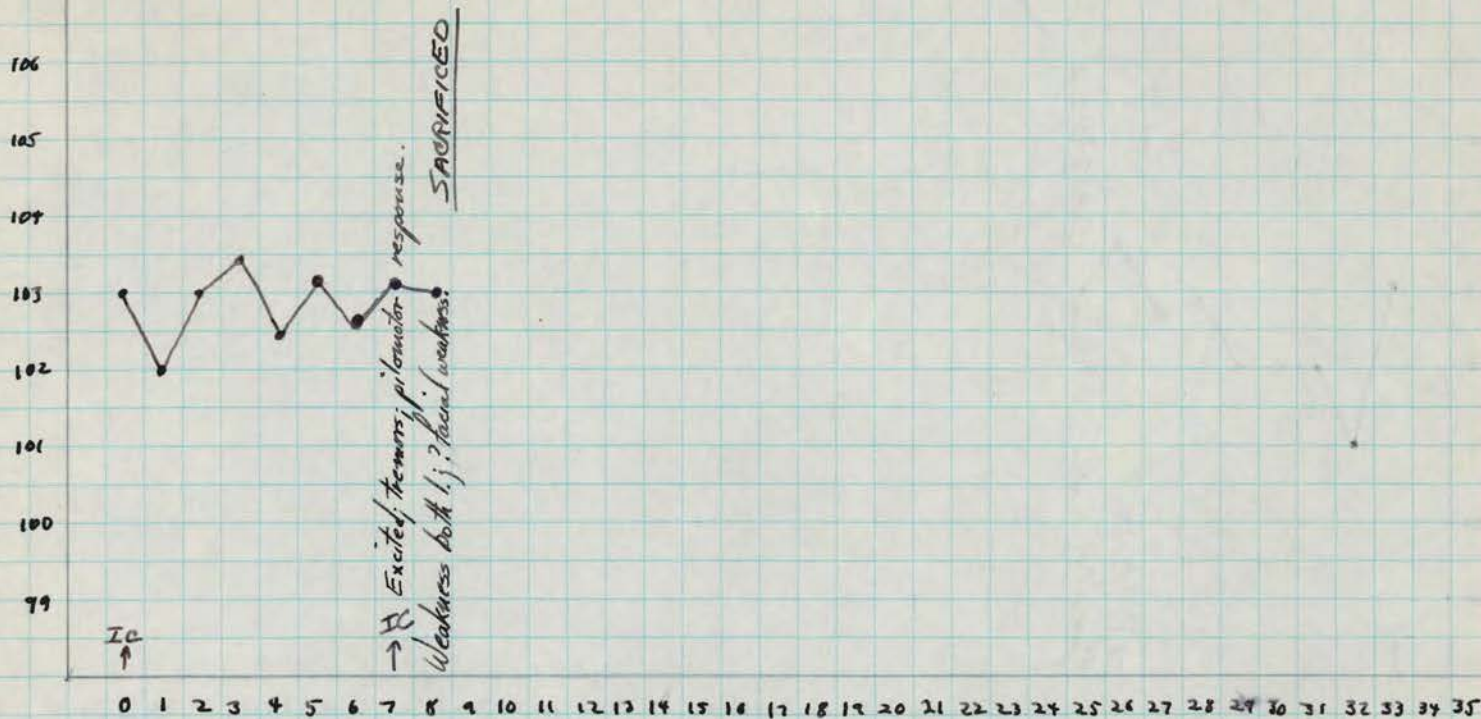
Colon contents stained; examined for polio virus. See "Monkey Feces Study"

Histology - Polio

MAR 1 1948

STRAIN - Generation ii

Rhesus # 141



3-1-48: Inoc. I.C. with a 20% suspension in saline (1.0 cc) of Petty strain, generation i;
 3-8-48: Re-inoc. I.C. with 20% suspension of Petty strain - Gen I.

3-9-48: Weakness both li; ?-facial (left). Tremors; pilomotor response.
 Sacrificed; (Chloroform-exsanguination) No gross obs.

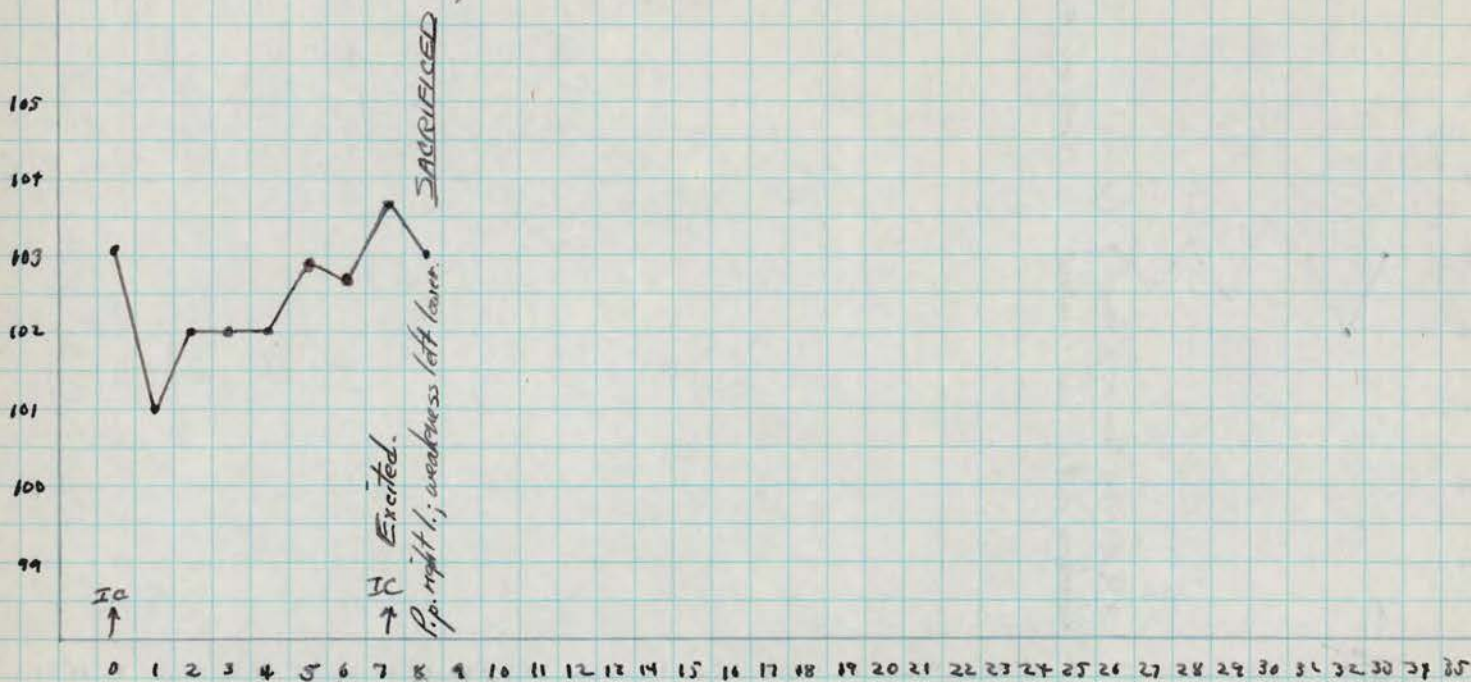
HISTOPATH: Sections taken of cervical & lumbar cord (Z-A)
 FOR VIRUS: Remainder of cord and medulla pooled with that of Rh #159 (see overleaf) and made into a 20% susp. in (42 cc.) sterile saline. Wt. pooled cords = 10.3 gms. ± 35 cc. frozen in 2-20 cc. amps and 1-10 cc amp. and stored. (B-4-4) Cult: ✓✓

Histology - Polio

MAR 1 1948

STRAIN - Generation $\bar{1}$

Rhesus # 159 - Splenectomized



3-1-48: Inoc. IC. \bar{c} 1.0 cc. of 20% susp. in saline of Petty strain - gen. $\bar{1}$.

3-8-48 - Re-inoc. IC with $10^{6.0}$ of 20% Petty strain - Gen $\bar{1}$.

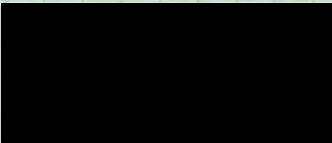
3-9-48: Par. par. right lower; weakness left lower.

SACRIFICED: (chloroform - exsanguination) No gross tbc.

HISTOPATH: Sections taken of cervical & lumbar cord (Z-A)
FOR VIRUS: Remainder of cord and medulla pooled with that of # 141 and made into a 20% susp. in sterile saline (see overleaf).

TITRATION OF HUMAN POLIO STRAINS

4-25-48:



STRAIN (Gen. ii)

Virus used: [redacted] strain polio (gen. ii in monkeys) 20% in saline diluted in saline as indicated below.

Monkeys used: All normal rhesus monkeys.

Mixtures used: Dilutions, as indicated below, made up in saline, kept at room temp. (80°F) for one hour - then into refrigerator overnight for about 15 hours - then into ice bath during inoculations on 4-26-48 (a.m.)

Inoculum: 0.5 cc. intracerebrally per monkey 4-26-48.

<u>DILUTION</u>	<u>MONKEY #</u>	<u>CLINICAL FINDINGS</u>	<u>POLIO PATHOLOGY-</u>	<u>RESULT</u>
	Rh 363	P11 K13.	+ (acute)	
10 ⁻²	Rh 364	No Par. Tremors, clumsy. K. 36	+ "old"	3/3
	Rh 365	No Par. K. 28.	+ "old non-paralytic"	
10 ⁻³	Rh 366	No Par. K. 28	0	0/3
	Rh 367	No Par. K. 28	0	
	Rh 368	No Par. K. 28.	0	
10 ⁻⁴	Rh 369	No Par. K. 28.	0	0/3
	Rh 370	No Par. K. 28.	0	
	Rh 371	No Par. K. 28.	0	
10 ⁻⁵	Rh 372	- Given to Dr. Schmidt, Christ Hospital.		0/3
	Rh 373	- " " " " " "		
	Rh 374	- " " " " " "		

APR 26 1948

TITRATION OF

STRAIN POLIO (Gen. II)

Rh # 363

10⁻²

DATE	DAY	REMARKS
4-26-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
	10	T=103 ⁴ ✓
5-7-48	11	T=102 ² = Complete left facial paralysis. (Otherwise o.k.)
5-8-48	12	T=101 ² No change.
5-9-48	13	Complete left facial paralysis; partial paralysis both lower. Sacrificed (chloroform-exsanguination) - Autopsy: no gross nec TISSUE FOR PATHOLOGY: segments of cervical and lumbar cord. (2-4) DISCS FOR VIRUS: cord. medulla frozen in posterior tabs. (B-2-3) 5-17-48 Cord & medulla of Rh 363 thawed and made up as a 20% susp in 20 ^{cc} saline. WT of cord = 4.7 gms. ± 18 ^{cc} frozen in 2-20 ^{cc} amps (designated as Vials #1 & 2) stored (B-2-3) Culture: ✓✓

HISTOLOGY: lumbar + cervical: severe acute neuronophagia; mild PV cuffing.

DIAGNOSIS: POLIO (acute)

APR 26 1948

Rh # 364.

10⁻²

DATE	DAY	REMARKS
4-26-48	0	✓
	1	✓
	2	✓
	3	✓
	4	✓
	5	✓
	6	✓
	7	✓
	8	✓
	9	✓
5-6-48	10	T=103 ⁶ ✓
5-7-48	11	T=102 ⁹ ✓
5-8-48	12	Excited. Clumsy. Pilomotor response.
5-9-48	13	Same - i.e. no increase in symptoms; no focal weakness.
5-10-48	14	" T=101 ¹
5-11-48	15	T=101 ² Only ? excited.
5-12-48	16	T=105 ⁴ Excited; pilomotor response; occ. tremors.
5-13-48	17	T=103 ² " " " " "
5-14-48	18	T=101 ³ " " " " "
5-15-48	19	→ " " " " "
5-16-48	20	No change.
5-17-48	21	? pilomotor. T=103 ⁶ .
5-18-48	22	T=102 ⁵ ; pilomotor t.
5-19-48	23	✓ T=102 ³
	24	✓
	25	✓
	26	✓
	27	✓
5-24-48	28	T=104 ⁶ - mild head tremors; ? weakness both lower.
5-25-48	29	T=102 ⁶ ? excited; ? clumsy. " " "
5-26-48	30	T=101 ³ No change. (Perhaps sl. increase in clumsiness)
5-27-48	31	T=101 ⁶ Clumsy; pilomotor t.
5-28-48	32	T=102 ² Clumsy; pilomotor t.
5-29-48	33	T=102 ⁴ " "
5-30-48	34	— Clumsy; pilomotor t.
5-31-48	35	— No change.
6-1-48	36	No change. <u>SACRIFICED</u> (chloroform-exsanguination) TISSUE FOR SECTION - Thalamus, midbrain, medulla, single sections of cervical, thoracic, and lumbar cord. (7-AV)

HISTOLOGY: Lumbar: root degeneration, neuronal outfall; glial nodules, perivascular infiltration. Thoracic + Cervical - same but no root degeneration noted (most roots are intact). Medulla - PV cuffing; and dense glial aggregates in reticular formation. Midbrain - rather marked PV cuffing. Thalamus - mild PV cuffing; scattered interstitial glial reaction.

DIAGNOSIS: POLIO MYELITIS (old - parapalytic)

APR 26 1948

TITRATION OF

STRAIN POLIO (Gen. ij)

Rh #365.

10⁻²

DATE DAY REMARKS

4-26-48

0

✓

1

✓

2

✓

3

✓

4

✓

5

✓

6

✓

7

✓

8

✓

9

✓

5-6-48

10

T=103⁸ ✓

5-7-48

11

T=103⁴ ✓

12

✓

5-9-48

13

? Excited.

5-10-48

14

✓ T=102⁸

5-11-48

15

T=102⁶ ✓

5-12-48

16

T=103³ ✓

17

✓

18

✓

19

✓

20

✓

21

✓

22

✓

23

✓

24

✓

25

✓

26

✓

27

✓

5-24-48

28

SACRIFICED: (chloroform - exsanguination)
 TISSUE FOR SECTION - Single sections of lumbar, thoracic,
 cervical cord, medulla, midbrain, and thalamus. (7-A)

HISTOLOGY: lumbar: root degeneration; neuronal cytolysis; dense and scattered glial reaction; Cervical and thoracic: minimal glial infiltration of ant. horns, without root changes and with ~~very~~ numerous intact neurons. Medulla (2): mild interstitial glial infiltration in reticular substance and floor of 4th ventricle, with one dense glial nodule in floor of 4th ventricle. Midbrain - minimal glial interstitial infiltr. ventrolateral to aqueduct. - thalamus - mild PV cuffing

DIAGNOSIS: POLIO MYELITIS "old - non paralytic"

APR 26 1948

Rh # 366

10⁻³

DATE DAY REMARKS

4-26-48

0

✓

1

✓

2

✓

3

✓

4

✓

5

✓

6

✓

7

✓

8

✓

9

✓

10

✓

11

✓

12

✓

13

✓

5-10-48

14

Excited - pilomotor response. T=103⁵

5-11-48

15

T=102⁵ ✓

5-12-48

16

T=103⁵ ? excited.

5-13-48

17

T=102⁵ ? excited.

5-14-48

18

T=102⁵ ? Excited.

19

? hair erect.

20

seems O.K.

21

✓ T=102⁶

22

✓

23

✓

24

✓

25

✓

26

✓

27

✓

5-24-48

28

SACRIFICED: (chloroform - exsanguination)
 TISSUE FOR SECTION - Single sections of lumbar,
 (2) thoracic, cervical cord, (2) medulla, midbrain,
 and thalamus. (2-A)

HISTOLOGY: Above sections show no pathological changes

DIAGNOSIS: NO POLIO

APR 20 1948

TITRATION OF

STRAIN POLIO (Gen. ij)

Rh #367

10⁻³

DATE	DAY	REMARKS
4-26-48	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	✓
5-24-48	28	<p>✓ <u>SACRIFICED</u> (chloroform-exsanguination)</p> <p>TISSUE FOR SECTION - Single sections of lumbar, thoracic, cervical cord, medulla, midbrain, and thalamus. (2-A)</p> <p>6-10-48. N.B. No thalamic section found at time of trimming.</p> <p><u>HISTOLOGY:</u> Exam. of above slides shows no pathological change.</p> <p><u>DIAGNOSIS:</u> <u>NO POLIO.</u></p>

APR 26 1948

Rh #368

10⁻³

DATE DAY REMARKS

4-26-48

0

✓

1

✓

2

✓

3

✓

4

✓

5

✓

6

✓

7

✓

8

✓

9

✓

10

✓

11

✓

12

✓

13

✓

14

✓

15

✓

16

✓

17

✓

18

? excited.

19

" "

20

seems OK.

21

✓

22

✓

23

✓

24

✓

25

✓

26

✓

27

✓

5-24-48

28

✓

SACRIFICED: (chloroform-exsanguination)
 TISSUE FOR SECTION - Single sections of lumbar,
 thoracic, cervical cord, medulla, midbrain, and
 thalamus. (Z-A)

HISTOLOGY: Above sections show no pathological changes.

DIAGNOSIS: NO POLIO.

TITRATION OF

STRAIN POLIO (Gen. ij)

APR 26 1948

Rh # 369

10⁻⁴

DATE DAY REMARKS

4-26-48

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 ✓

5-24-48

27 ✓
28 ✓

SACRIFICED (chloroform-exsanguination)
 TISSUE FOR SECTION - Single sections of lumbar, thoracic,
 cervical cord, medulla, midbrain, and thalamus, (Z-A)

HISTOLOGY: Above sections show no pathological changes.

DIAGNOSIS: NO POLIO

APR 26 1948

Rh # 370

10⁻⁴

DATE	DAY	REMARKS
4-26-48	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	✓
5-21-48	28	✓

SACRIFICED (chloroform-exsanguination)

TISSUE FOR SECTION: - Single sections of lumbar, thoracic, cervical cord, medulla, midbrain, + thalamus (Z-A)

HISTOLOGY: Above sections show no pathological changes

DIAGNOSIS: NO POLIO.

APR 26 1948

TITRATION OF

STRAIN POLIO (Gen. ij)

R_h #37110⁻⁴

DATE DAY REMARKS

4-26-48

0

✓

1

✓

2

✓

3

✓

4

✓

5

✓

6

✓

7

-

8

-

9

✓

10

✓

11

✓

12

✓

13

✓

14

✓

15

✓

16

✓

5-13-48

17

Excited, pilomotor response?

5-14-48

18

T=102[°]; excited.

19

? excited; ? pilomotor response.

20

seems O.K.

21

✓ ? pilomotor T=102[°].

22

? excited.

23

✓

24

? pilomotor response.

25

-

26

✓

27

✓

5-24-48

28

✓ SACRIFICED (chloroform-exsanguination)
 TISSUE FOR SECTION - Single sections of lumbar, thoracic,
 cervical cord, 2 medulla, midbrain, & thalamus (Z-A)

HISTOLOGY:

Above sections reveal no pathology.

DIAGNOSIS: NO POLIO.

TITRATION OF

STRAIN POLIO (Gen. ij)

APR 26 1948

Rh # 372

10⁻⁵

DATE	DAY	REMARKS
4-26-48	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	✓
	28	✓
5-25-48	29	✓ 5-25-48. - Monkey has remained well clinically; given to Dr. Schmidt, Christ Hospital.

APR 26 1948

TITRATION OF

STRAIN POLIO (Gen. ij)

Rh # 373

10⁻⁵

DATE	DAY	REMARKS
4-26-48	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	✓
	28	✓
5-25-48	29	✓ 5-25-48. Monkey has remained well clinically; given to Dr. Schmidt, Christ Hospital.

APR 26 1948

TITRATION OF

STRAIN POLIO (Gen. ii)

Rh #374

10⁻⁵

DATE DAY REMARKS

4-26-48

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

✓

28

✓

5-25-48

29

✓ 5-25-48 - Monkey has remained well clinically; given to Dr. Schmidt, Christ Hospital.

POLIO - 1947 - MONKEY HISTORY.

<u>MK.#</u>	<u>Lumbar</u>	<u>Thoracic</u>	<u>Cervical</u>	<u>Medulla</u>	<u>Midbrain</u>	<u>Salivary</u>	<u>Cog. Bulbs</u>	<u>DIAGNOSIS</u>
Rh. 70	NH; PA.	NT.	NT.	NT; Pt.	—	0	NT; NT.	<u>POLIO</u>
CYN. 71	NH; PA.	NT; Pt.	NH; PA.	NT; Pt.	—	0	NT; NT.	<u>POLIO</u>
Rh. 141	NH; Pt. (open)	—	NH.	—	—	—	—	<u>POLIO</u>
Rh. 159	NH; Pt.	—	NH; Pt.	—	—	—	—	<u>POLIO acute</u>

PRIMARY ISOLATION:

GENERATION II

TITRATION OF GENERATION II VIRUS.

10^{-2}	Rh. 363
	364
	365
10^{-3}	366
	367
	368
10^{-4}	369
	370
	371