Middle East Virus

Clinical Notes

[redacted] | [redacted]

		acneform* rash over upper + lower back	Coat.			
SKIN RASH	– negative		negative	negative	negative	~~St.~~ negative
THROAT	– negative	Sl. fauceal infection	could not examine throat-bites down	Sl. injection of fauces	Negative	Sl. fauceal injection
ENLARGED Lymph Nodes	– none	none	none	not palpable	not palpable	not palpable
Spleen	– not palpable	not palpable	not palpable	not palpable	not palpable	not palpable
LIVER	– not palpable	not palpable	not palpable	" "	" "	not palpable

Nose bleed- first time in her life. pt. very obese

*and red punctate

[redacted]

Skin rash	none	none	none	none	none	none
Throat	Sl. fauceal injection	Sl. injection	fauceal injection	negative	negative	Sl. fauceal, injection
Enlarged lymph nodes.	both axillary are inlarged	none	none	none	none	none
Spleen	not palpable	not palpable	not palpable not ~~palpable~~	not palpable	not palpable	not palpable
liver	" "	" "	" "	" "	" "	" "
		pulse 60	Chronic cough			

17. [redacted] — White Male - Age 44 — Longview

Oct. 19 — 2:45 P.M. — Middle East (Carrol) Serum
0.1cc intracut. right forearm
0.9cc subcut. " deltoid

Patient is obese. Speaks well and is concerned about the inoculation.

Oct. 20 — No local reactions. Negative

Oct. 21 — Negative; up and about

Oct. 22 — " ; " " "

Oct. 23 — 9:45 A.M. — States that after midnight last night he had three chills. When he got up this morning he felt pain in the small of the back. Only low back pain now. Feels like staying in bed. No headache — eyes negative. No rash. Mouth and throat — neg. Liver + spleen not palpable. No lymphadenopathy

Temp. 100.6° Pulse 102

About 60cc of blood obtained

Oct. 24 — 10 A.M. — Temp. 99.4° Says he feels all better. Pain in back is gone. Had slight frontal headache last night but not anymore. Physical — neg.

Oct. 25 — " — Feels fine except a little weak. To sit up.

Oct. 26 — " — Up and about

Oct. 27 — " " "

18. [redacted] — Colored Male - Age 50 — Longview

Oct. 19 - 2:50 P.M. — Middle East (Carrol) Serum
0.1cc intracut. - right forearm
0.9cc subcut. - " deltoid region

Patient is obese. Doesn't talk.

Oct. 20 — No local reactions; Negative

Oct. 21 — Negative; up and about

Oct. 22 — " ; up " "

Oct. 23 — " ; " " "

Oct. 24 — " ; " " "

Oct. 25 — " ; " " "

19. [redacted] — White Female — Age 48 — Longview

Oct. 19 — 2:35 P.M. — Middle East (Carrol) Serum

0.1cc intracut. right forearm

Patient is lanky ~~and~~ gay and chatters incomprehensibly.

Oct. 20 — No local reactions. NEGATIVE

Oct. 21 — Negative; up and about

Oct. 22 — NEGATIVE; " " "

Oct. 23 — " " " " 10 A.M.

Oct. 24 — " ; " " " — put to bed for follow up.

Oct. 25 — Says she felt drowsy yesterday. Night nurse reported perspiration at midnight

Oct. 26 — Up and about yesterday. Very drowsy last night

Oct. 27 — Up + about; OK

" 28 — " " " "

20. [redacted] — White Female — Age 43 — Longview Hospit.

Oct. 19 — 2:30 P.M. — 0.1cc of 1:10 Middle East (Carrol) Serum intracutaneously on flexor surface of rt. ~~left~~ forearm.

Patient doesn't speak; mutters incomprehensibly

Oct. 20 — No local reaction. Pt. somehow complains of pain in legs — even before inoculation

Oct. 21 — Negative; up and about.

Oct. 22 — 10 A.M. — Negative up and about.
1 P.M. — Temp. rising. Indicated that legs hurt more and wanted to go to bed.

4 P.M. — 50cc of blood taken; defibrinated.

Patient does not appear acutely ill. Cannot get her to talk. Skin is hot. Conjunctivae not injected, no apparent pain in eyes on movement or pressure. Mouth and throat negative. No lymphadenopathy. No rash. Liver and spleen not palpable.

Oct. 23 — 10 A.M. — Says a few words — but no sense. Patient next to her says she "vomited" last night. Doesn't appear ill this morning. Physical — negative. Anorexia yesterday.

Oct. 24 — 9:45 AM — Appears bright and cheerful. ~~Do~~ Talks a good deal but only occasionally in touch with surroundings. Physical negative. Temp. still somewhat elevated

Oct. 25 — Poor appetite still only sign; no rash
Oct. 26 — " " " " " "
Oct. 27 — Appetite improved
" 28 — Sitting up for first time; very weak

[redacted] – White male – Age 42 LONGVIEW

Nov. 3, 1943 – 4 & 4:30 P.M. – MIDDLE EAST VIRUS – CARROLL SERUM

0.1cc. i.cut., 0.9cc. subcut.

The patient is an extremely obese man from whom no comprehensible story can be obtained.

Nov. 4 – Neg.
" 5 – "
" 6 – "
" 7 – 10 A.M. – Neg.
Temp. began rising at about 4 P.M.; 101.4° at 7 P.M.

7 P.M. – Patient found in bed, conjunctivae markedly injected. Cannot get any story.

7:15 P.M. – About 50cc. of blood obtained

" 8 – Just nods his head. Reported to have perspired last night. Eyes still pink – not as red as last night.

" 9 – No change

" 10 – To be up out of bed to-day

" 11 – Up and about; O.K.

[redacted] — White female — Age 46 — LONGVIEW

Nov. 3, 1943 — 4-4:30 P.M. — MIDDLE EAST VIRUS — CARROL SERUM

0.1cc. i.cut., 0.9cc subcut.

Nov. 4 — Neg
" 5 — "
" 6 — 8 A.M. temp. 101.4°. Cannot get any reliable information
Physical exam. negative.

10 A.M. — @ 50cc of blood obtained

" 7 — Patient does not appear acutely ill. No physical signs.
Complains of headache.
" 8 — Can get no comprehensible story. Nothing objective
" 9 — " " " " " " "
" 10 — Status quo
" 11 — Out of bed; up and about

[redacted] — White female — Age 39 — Longview

Nov. 3, 1943 — 4 to 4:30 p.m. — MIDDLE EAST VIRUS — CARROL SERUM

0.01cc — (0.1cc of 1:10) i. cut.

Nov. 4 — Neg. (Patient is very obese)
" 5 — "
" 6 — "
" 7 — Rising temp. in the morning. Can get no reliable story regarding symptoms. Physical Exam — negative. Does not appear ill.

10:45 A.M. — @ 50cc of blood obtained

" 8 — Status quo
" 9 — Maculo-papular red rash over the posterior aspects of the lower halves of both thighs noticed yesterday afternoon. Still present this afternoon. The rash consists of discrete macules and papules ranging in size from 2 to 8 mm. in diam. Confluent in parts. Does not itch and does not appear urticarial. Has persisted since appearance. ~~Does not~~ Fades on pressure. Nothing elsewhere on the body.
" 10 — Rash covers larger area on lower thighs — more confluent less red.
" 11 — Rash same — extends up to buttocks
" 12 — " — no further extension — scaly

[redacted] — Colored Female — Age 45 — Longview

Nov. 3, 1943 4 to 4:30 P.M — Middle East Virus — Carrol Serum

0.001cc. (0.1cc of 1:100) intracutaneously

Patient is a lean woman who looks younger than her chronological age. Appears oriented but is inclined to "vague complaints"

Nov. 4 — Neg.
" 5 — "
" 6 — "
" 7 —
" 8 — Temp. 100°; pt. somewhat "ill-disposed" but no definite complaints.
" 9 — complains of frontal headache but is up and about.
" 10 — states she is better; difficult to obtain definite story
" 11 — " " " " " " " " " "

[redacted] — Colored Male — Age 55 — Longview

Nov. 3, 1943 — 4 to 4:20 P.M. — Middle East Virus — Woodmansee Serum

0.2cc i.cut. ; 0.8cc subcut.

Pt. is a wiry, well preserved male.

Nov. 4 — Neg.
" 5 — "
" 6 — "
" 7 — 8 A.M. temp — 101°; No complaints; Physical - neg.
11 A.M. — ⊃ 50 cc of blood obtained
" 8 — Had frontal headache all day yesterday. Says he feels better now.
" 9 — O.K. to-day
" 10 — Would like to get up to-day. To be up
" 11 — Up and about

[redacted] — White male – Age 50 (Very obese) — LONGVIEW

Nov. 3, 1943 — 4 to 4:30 A.M. — MIDDLE EAST VIRUS — WOODMANSEE SERUM

0.2cc. i.cut.; 0.8cc subcut.

Nov. 4 — NEG.
" 5 — "
" 6 — "
" 7 — 8 A.M. temp. 102° — No complaints; does not appear ill. Physical neg.

11 A.M. — @ 50cc of blood obtained

" 8 — Says he feels OK. Reported to have perspired a great deal about 4 A.M.

" 9 — No change

" 10 — Says he feels well but would like to stay in bed a little longer.

" 11 — Out of bed; up and about

[redacted] – WHITE MALE – 4TH YEAR MED. STUDENT

UNIV. of CINCINNATI COLLEGE OF MEDICINE

PREVIOUS SANDFLY FEVER HISTORY

NOT in sandfly fever country before 1932. Went to live in Palestine in 1932. Lived in Cincinnati before 1932

First attack of Sandfly Fever – In summer of 1934 while in Jerusalem – acute onset with headache, soreness in the eyes, great deal of prostration, muscle soreness, fever, anorexia for several days. Fever and acute symptoms lasted 3 days. Marked weakness however persisted for 2 weeks.

Second attack – in summer of 1935 he had fever for one or two days and symptoms, although not as severe, resembled those of previous attack. After-effects not prominent.

Remained in Palestine until August 1936. Several months passing through Italy, Switzerland & France. In U. S. A. since 1936

Nov. 15, 1943 – 5:30 P.M. – WBC and differential done

– 1cc of Middle East Virus (Woodmansee serum) intracutaneously in 5 sites (0.2cc each) on left forearm

Nov. 16	–	Neg.
" 17	–	"
" 18	–	About noon felt uncomfortably warm – had some aching in the neck – felt "giddy". No headache. This lasted about 3 to 4 hours. Felt well in evening
" 19	–	O.K. Also had abdominal distress on "/18 – mild intermittent
" 20	–	O.K. cramp. No diarrhea.
" 21	–	O.K.
" 22	–	O.K.
" 23	–	O.K.

[redacted] — WHITE FEMALE — PHYSICIAN LIVING IN CINCINNATI, OHIO

SOJOURN IN PALESTINE — 1932 to Aug. 1933

First attack in summer 1932

In U.S.A., 1934, 1935, 1936

Returned to Palestine in 1937 — 2nd attack

Stayed in Palestine until 1939

In U.S.A. since 1939

First attack — off the boat in Haifa — 5 days later onset with chill. Fever 3 days — max. 102°. Headache, pain in the joints. Felt "badly" for 2 weeks afterwards — weak and depressed. Had diarrhea during febrile attack — leukopenia.

2nd attack — Aug. 1937 after trip in Syria — 2 days of fever not nearly as sick as first time — leukopenia again.

Nov. 15, 1943 — Tested for immunity with Middle East Strain of Virus. 1cc of Woodmansee serum intracut. on left forearm — 6 P.M.

Nov. 16 — No local or systemic reaction

Nov. 17 — " " " " "

Nov. 18 — at 4 P.M. headache — frontal; gen. malaise
8 P.M. — feverish + symptoms same

Nov. 19 — 10 A.M. — ill but up and about. Pain in eyes, back, joints — intense photophobia. Had to go to bed that afternoon. Anorexia — slight nausea — some abdominal cramps + distended. Also pain in back of neck.

Nov. 20 — Felt better on awaking — photophobia gone. Out of bed at 11 A.M. — Worked all afternoon — feeling weak but no pain

Nov. 21 — Indisposed again — vertigo chief symptom — dizzy and weak — no pain

" 22 — Worked all day. Felt perfectly well

Aedes aegypti Ova

12/3/43 Received on filter paper and put into water + dry whole wheat bread at about 11 A.M. – 6 pans

12/4/43 – 9 P.M. – Motile larvae present in 2 pans

12/5/43 – 5 P.M. – Larvae numerous in first 2 pans. Still none in other 4

12/8/43 – First pupae seen

12/9/43 – More pupae – no adults yet

12/10 – About a dozen adult mosquitoes in cage. Most of the remainder in pupal stage. Only a few larvae left

12/11 – Large number of adults present. About 140 females picked out. – Used 12/12

12/12 – New adults still emerging. Remaining pupae picked out and put in separate container

12/13 – New adults emerged

Attempted Transmission of Sandfly Fever by Aedes aegypti

Experiment I – Middle East Virus

Dec. 12 – 70 females (@ 24 hours old) exposed to Kallmeyer for 1 hour (11:30 A.M.) – 6 fed (12 bites)

Unfed 64 again exposed at 7 P.M. for 40 minutes

– 19 fed

Total – 25

Scott – 70 females exposed 11:30 A.M. for 1 hour

– 8 fed

Unfed 62 again exposed at 7 P.M.

– 7 fed

Total – 15

Total mosquitoes fed Dec. 12 – 40

Dec. 14 – 89 remaining, unfed females put on Frank Grant at 9:50 A.M. – Four cages on abdomen. Within about 12 minutes all mosquitoes appeared to have fed. Patient bled when the mosquitoes were removed. Upon examination in the laboratory, 80 engorged mosquitoes were found. These were separated and stored for subsequent infection attempts

GRANT Lot of Mosquitoes – Fed on Dec. 14

Dec. 20, 1943 – 38 put on [redacted] – 14 fed, removed to separate container

40 " " [redacted] – 5 fed, 1 died, " " " "

Dec. 21 – 58 unfed mosquitoes

33 put on [redacted] – 20 fed

24 " on [redacted] – none fed;

then on [redacted] – 3 fed – 1 dead

23 fed on Knose

33 remain unfed

Dec. 22 – One lot of 13 put on [redacted] – 9 fed, 2 dead, 2 unfed

Other lot would not feed on [redacted] but fed on [redacted]

18 fed on [redacted] – 4 dead (count doesn't tally by 2)

Dec. 24 – Of 14 previously fed on [redacted] (12/20-12/22) – 10 fed on [redacted]
3 dead
1 unfed

Of 53 previously fed on [redacted] (12/20-12/22) – 3 fed on [redacted]
12 dead
38 unfed

At this stage the remaining mosquitoes of this lot totaling 39 were pooled with 13 mosquitoes of the [redacted] and used for further feedings

AEDES AEGYPTI — MIDDLE EAST STRAIN

DEC. 20, 1943 — [redacted] lot which fed on Dec. 12 were pooled and consisted of 39 mosquitoes.

20 put on [redacted] — 9 fed — removed to separate container

19 put on [redacted] — 9 fed — " " "

DEC. 21 — 21 put on [redacted] — only 4 fed } removed to KNOSE container
then on [redacted] — 5 fed }

2 dead. 10 remain unfed

DEC. 22 — 10 put on [redacted] — 6 fed, 1 dead, 3 unfed

Dec. 24 — Previously on [redacted] put on [redacted] — 8 fed, 1 unfed
" " " " [redacted] — 7 fed, 12 unfed, 4 dead

Remaining 13 mosquitoes pooled with Grant lot

This pool of mosquitoes was put to feed on [redacted] at 7 P.M. — upon sorting out the following was found

13 engorged on [redacted]
25 unfed
15 dead apparently as a result of handling

Mosquitoes of all lots on hand Dec. 24

41 fed on [redacted]
25 unfed
66 — total

DEC. 28 — only 48 left alive

After putting on [redacted] and sorting the following was found

13 fed
6 fed
16 unfed
13 dead

— the following morning all but five of these were dead

Dec. 31 – Total no. left alive – 23 – all put on [redacted]

Only 11 fed ; 12 unfed left.

AEDES AEGYPTI – MIDDLE EAST VIRUS – Attempted transmission

[redacted] – white male – age 38

Dec. 20 – 9 KALLMEYER-SCOTT lot engorged (8 day incubation)
5 GRANT lot " (6 " "
14 – total no. fed

DEC. 21 – 4 K-S lot engorged (9 day incubation)
none of 24 GRANTS engorged

Total no. individual mosquitoes fed to-date = 18

Dec. 22 – 9 Grant lot (8 day) engorged

Total no. to-date = 27

Dec. 24 – 10 new mosquitoes fed – 7 K-S lot 12 day incub
3 Grant " 10 d. "

Dec. 28 Total no. individual mosquitoes fed on Davis = 37

Dec. 28 – 6 mosquitoes of K-S: Grant pool (14 to 16 days' incub.) engorged

AEDES AEGYPTI – MIDDLE EAST VIRUS – ATTEMPTED TRANSMISSION

[redacted] – white male – age 39

Dec. 20, 1943 – 9 [redacted] lot engorged (8 day incubation)
14 " " (6 " ")
23 total no. mosquitoes fed

Dec. 21 – 23 [redacted] lot engorged (7 day incubation)
5 lot engorged (9 " ")
28 total mosquitoes fed.

Total no. individual mosquitoes fed to-date = 51.

Dec. 22 18 [redacted] lot engorged (8 day incub.)
6 " " (10 " ")
24

Total no. individual mosquitoes fed to-date = 75

DEC. 24 10 [redacted] lot (10day incub) prev. fed. on DAVIS
8 " (12 " ") " " " "
18 new mosquitoes fed

Total no. individual mosquitoes fed = 93

13 of pool of [redacted] #fed on ~~Dec~~ KROSE on previous days fed again – 10-12 day incub.

DEC. 28 13 mosquitoes of pool (14–16 days' incub.) fed
DEC. 31 11 " " " (17–19 days' ") "

Attempted Transmission of Sandfly Fever by Aedes Aegypti

Experiment II - Sicilian Virus

Dec. 18 — Mosquitoes used had emerged between Dec. 12 and 15

[redacted] — 201 females exposed on patient during first rise in temperature.
177 fed within 15 min. — 24 unfed

[redacted] — 253 females exposed during beginning fever
140 fed within 15 min. — 103 unfed

Remaining 127 mosquitoes again put on [redacted] in late afternoon —
43 fed, 15 dead, 69 unfed

Total fed on [redacted] — 183

Dec. 21 — [redacted] — of 69 remaining females — 12 were dead;
of 57 live females exposed on patient during beginning fever 51 fed; remaining 6 discarded

Use of Above Mosquitoes in Transmission Tests

Dec. 24 — Of the original [redacted] 360 mosquitoes
142 were dead — probably because glucose was kept away from them too long
115 engorged on [redacted]
92 " on [redacted]
11 did not feed

Dec. 28 — The mosquitoes were reversed, i.e. those that fed on Quensen on 12/24 were put on [redacted] and vice versa

(over)

DEC. 28 (continued) – 115 [redacted] (Queensen 12/24) – 13 dead
83 fed on [redacted]
19 unfed

102 left alive – given glucose until 12/29 5P.M.

92 [redacted] (MEECO 12/24) – 8 dead
+ 10 " " unfed " – 70 fed on [redacted]
24 unfed

94 left alive – given glucose until 12/29 5P.M

51 [redacted] lot – 19 dead
12 fed on [redacted]
10 fed on [redacted]
10 did not feed

32 left alive – given glucose until 12/29 5P.M.

DEC. 31 – 94 [redacted] – 7 dead
38 fed on [redacted]
49 unfed

87 left alive – given glucose

102 [redacted] – 3 dead
24 fed on [redacted]
75 unfed

99 left alive – given glucose

32 [redacted] lot – 2 dead, 1 lost ~~Disjared~~
8 fed on [redacted] (Disjared)
8 " "
13 unfed

JAN. 4 – [redacted] – 47 fed, 35 unfed; 18 dead
" " ON [redacted] – 40 ", 30 ", 19 "
[redacted] – 10 fed, 5 unfed, 3 dead
" " [redacted] – 3 ", 6 ", 3 "

JAN. 5 – Of 65 unfed [redacted] – 15 fed on [redacted], 5 did not, and 45 were dead
Of 11 " [redacted] – 6 " " ", and 5 were dead

Experiment II – Sicilian Virus (continued)

JAN. 9 Remaining mosquitoes put to feed on [redacted] lot – 12/18

5 7 fed
2 4 unfed
2 2 dead

[redacted] lot – 12/21

9 fed
5 unfed
5 dead

JAN. 14 – 69 remaining; living mosquitoes of [redacted] lot etherized
11 " " " of [redacted] lot etherized.

Both lots pooled, transferred to a rubber-stoppered glass ampule and stored in the dry ice box.

ATTEMPTED TRANSMISSION OF ~~AEDES~~ SANDFLY FEVER BY AEDES AEGYPTI

Experiment III — SICILIAN VIRUS

DEC. 27 — Infected Donor - [redacted]

Mosquitoes put on to feed within 1½ hours after first rise in temperature.

The mosquitoes used had emerged between Dec. 21 and 23. They received glucose up until the morning of Dec. 25

Mosquitoes fed between 5:40 and 6:30 P.M.

of 382 — 266 engorged fully, were separated, put into beakers in numbers from 27 to 50, and given glucose.

Blood was obtained from the donor at 6:30 P.M. directly after the mosquitoes finished feeding.

DEC. 30 — Infected Donor - Forrest GOMIA

9:50 A.M - 10:30 A.M. — 178 mosquitoes engorged.

These mosquitoes emerged Dec. 23 - Dec. 24 and had been without glucose since DEC. 25 - about 300 of the original lot of 500 saved for this patient had died. The remaining ones, however, all engorged.

Blood obtained at termination of mosquito feeding 10:40 A.M.

USE OF ABOVE MOSQUITOES IN TRANSMISSION TESTS

JAN. 5, 1944 — [redacted] Lot — 71 fed on [redacted] (1 escaped)
88 " "
84 unfed
41 dead (total = 284)

[redacted] Lot — 37 fed on [redacted]
52 " "
82 unfed
9 dead (total = 180)

JAN. 10 [redacted] LOT

Previously fed on [redacted] 1/5) — 40 fed on [redacted]
22 unfed
8 dead (1 of these fed a little)

Unfed 1/5 — 18 fed on [redacted]
21 unfed
4 dead

Previously fed on [redacted] — 38 fed on [redacted]
43 unfed
7 dead

Unfed 1/5 — 16 fed on [redacted]
18 unfed
7 dead

Remaining alive JAN. 10 in P.M.

39 unfed since their exposure on 12/27

40 fed on [redacted] 1/5, [redacted] 1/10
38 fed on [redacted] 1/5, [redacted] 1/10
22 fed on [redacted] 1/5
43 fed on [redacted] 1/5
18 " " [redacted] 1/10
16 " " [redacted] 1/10

Total = 216

[redacted] LOT

Prev. fed on [redacted] 1/5 — 23 fed on [redacted], 11 unfed, 2 dead
Unfed 1/5 — 24 " " " , 18 " , 6 dead

Prev. fed on [redacted] 1/5 — 11 fed on [redacted], 33 unfed, 8 dead
Unfed 1/5 — 15 fed " " , 10 " , 2 "

Remaining alive JAN. 10 in P.M.

28 unfed since expose on 12/30

23 fed on [redacted]
11 fed " [redacted]
11 " " [redacted]
33 " " [redacted]
24 " " [redacted]
15 " " [redacted]

Total = 145

EXP. III - AEDES AEGYPTI - CONTINUED

JAN. 14 - The following pools were prepared for feeding on JAN. 17

TO FEED ON [redacted]

[redacted] LOT -
- 26 unfed since engorging on [redacted] on 12/27
- 17 fed on [redacted] 1/5
- 16 " " " 1/10
- 59 not previously fed on [redacted]
- 94 { 35 fed on [redacted]

[redacted] LOT -
- 22 unfed since engorging on [redacted] on 12/30
- 11 fed on [redacted] 1/5
- 13 " " " 1/10
- 46 not previously fed on [redacted]
- 69 { + 23 fed on [redacted]

TO FEED ON [redacted]

[redacted] LOT -
- 10 unfed since engorging on [redacted] 12/27
- 36 fed on [redacted]
- 16 " " " 1/10
- 62 not previously fed on [redacted]
- 97 { + 35 fed on [redacted]

[redacted] LOT -
- 29 fed on [redacted] 1/5
- 23 " " " 1/10
- 52 not previously fed on [redacted]
- 63 { + 11 fed on Gilbert 1/5 and [redacted]

Fresh glucose given at 2 P.M. Removed at 7 P.M.

JAN. 15 — Mosquitoes well and active

" 16 — Majority of mosquitoes dead

" 17 — Relatively few mosquitoes alive

Surviving mosquitoes put to feed on Gilbert and Wilhoite — see other side

JA.N.17 On [redacted]

[redacted] – not previously fed on G. – 5 fed, 8 unfed, 46 dead
– " " " – 8 fed, 0 " , 27 "
[redacted] – not " " " – 7 fed, 6 " , 33 "
– " " " – 8 fed, 1 " , 14 "

On [redacted]

[redacted] – not previously fed on W. – 10 fed, 5 unfed, 47 dead
– " " " – 5 fed, 0 " , 30 "

[redacted] – not " " " – 3 fed, 3 " , 46 dead
" " " – all 11 dead

Mosquitoes surviving 1/17

	[redacted]	[redacted]	Total
FED 1/17	28	18	46
UNFED 1/17	13	10	23
Total	41	28	69

All given glucose – when blood is digested to be ground up and tested for content of virus

JAN. 22 – All etherized and used for preparation of mosquito filtrate.

Mosquito Expt. Schedule

Expt I – Mosquitoes fed Dec. 12 – Middle East virus

Dec. 20 – Subject 1 – to be exposed to mosquitoes Dec. 20, Dec. 23, Dec. 26, Dec. 29 and Jan. 1, 1944

Subject 2 – Dec. 20 – inject 1cc i.cut. of Kallmeyer, and Scott serum

Expt II – Sicilian Virus – Feed mosquitoes Dec. 18 and/or 19

Dec. 26 – Subjects 3 and 4

Jan. 18	–	10	–	For ultraviolet irradiated virus 2nd passage Sicilian
" 24	–	4	–	mosquito filtrate test + ME CSF
" 31	–	12	–	Ultrafiltration
Feb. 7	–	6	–	Survival of virus – frozen – lyophilized
" 14	–	4	–	Misc. + Controls for Ultraviolet immunity
March 7	–	4	–	Controls for test on duration of immunity 4 months

[redacted]

	11/24	11/27	11/29	12/1	12/3	12/6
Total WBC –	7,900	6,350	3,600	3750	5,100	6,400
Total neutrophiles –	4,424 (56%)	4890 (77%)	1584 (44%)	1312 (35%)	2346 (46%)	2880 (45%
" lymphocytes –	2,528 (32%)	762 (12%)	1440 (40%)	1950 (52%)	2397 (47%)	3072 (48%
" immature neutrophiles –	711 (9%)	2223 (35%)	756 (21%)	825 (22%)	1224 (24%)	512 (8%)
" Monocytes –	948 (12%)	635 (10%)	468 (13%)	338 (9%)	306 (6%)	320 (5%)

[redacted]

	11/1/43	11/5	11/6	11/8	11/12
Total WBC –	6,750	8,400	4,850	3,850	7,150
Total Neutrophiles –	4286 (63.5)	7056 (84%)	3298 (68%)	1540 (40%)	3647 (51%)
" lymphocytes –	1451 (21.5)	588 (7%)	388 (8%)	1463 (38%)	1930 (27%)
" immature ~~lymphocytes~~ neutrophiles –	101 (1.5%)	1260 (15%)	1455 (30%)	616 (16%)	286 (4%)
Monocytes –	169 (2.5%)	588 (7%)	1116 (23%)	847 (22%)	858 (12%)
Eosinophiles –	810 (12%	0	0	0	644 (9%)

Leukocytes in Common Cold

Nov. 10, 1943 – 2nd day of common cold – no fever – no systemic signs. Rhinitis only manifestation.

WBC – 6,950

Diff. [redacted]

2%
54 "
33 "
7 "
4 "

See also [redacted] – Nov 3 – Nov. 19 – volunteer used for S. F. who developed common cold that "hung on" – series of counts.

Culture of Human Serum

10-11-43 [redacted] - BAP - 0000
Broth - 0000

[redacted] - BAP - 0 1 off " "
Broth - 0000

[redacted] - BAP - 0000
Broth - 0000

10-12-43 [redacted] - BAP - 2 1 off " "
Broth - 00 00

10-17-43 [redacted] - BAP - 0 0 00
Broth - 0000

10-20-43 [redacted] - BAP - 000 0
Broth - 0000
Th. glyc - 0000

10-22-43 [redacted] BAP - 0 1 off 00
Broth - 0000
Th. glyc - 0000

10-23 [redacted] BAP - 0000
Br. - 0000
Th. - 0000

10-26 [redacted] BAP - 0000
Br - 0000
Th - 0000

[redacted] BAP - 0000
Br - 0000
Th. 0000

Culture of human serum

11-5-43 [redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

11-6 [redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

11-7 [redacted]

BAP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

[redacted]

BP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

11-8 [redacted]

BP - 0 0 0 0
Br - 0 0 0 0
Th - 0 0 0 0

Culture of Monkey Serum

10-21-43	Rh. 1 normal	BAP	0000
		Br.	0000
		Th. gly	0000
	Rh 2 "	BAP	0000
		Br.	0000
		Th. glyc	0000
	Rh 3 "	BAP	0000
		Br.	0000
		Th. glyc	0000
10-23	Rh 1 - 24 hrs	BAP	0000
		Br	0000
		Th.	0000
	Rh 2 - 24 hrs	BAP	0000
		Br	0000
		Th	0000
	Rh 3 24 hrs	BAP	0000
		Br	0000
		Th	0000
	Rh 1 - 48 hrs	BAP	01 " "
		Br	0000
		Th	0000
	Rh 2 - 48 hrs	BAP	0000
		Br	0###
		Th	0000
	Rh 3 - 48 hrs	BAP	0000
		Br	0000
		Th	0000
10-24	Rh 1 - 3 days	BAP	00ι " (diff)
		Br	0000
		Th	0000
	Rh 2 - 3 days	BAP	0000
		Br	0000
		Th	0000
	Rh 3 - 3 days	BAP	0000
		Br	0000
		Th	0000

(over)

10-25	Rh 1 -	4 days	BAP	- 1 " " " (off)
			Br	- 0000
			Th	- 0000
	Rh 2 -	4 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 3 -	4 days	BAP	- 3 " " " (H)
			Br	- 0000
			Th	- 0000
10-26	Rh 1	5 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 2	5 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 3	5 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
10-27	Rh 1	6 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 2	"	BAP	- 0046 Staph non-hem.
			Br	- 00##
			Th	- 00?+
	Rh 3	"	BAP	- 0000
			Br	- 0000
			Th	- 0000
10-28	Rh 1 -	7 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 2	7 days	BAP	- 0000
			Br	- 0000
			Th	- 0000
	Rh 3	7 days	BAP	- 0000
			Br	- 0000
			Th	- 0000

Culture of Monkey Serum

10-29-43

Rh 1	8 days	BAP	- 0 0 0 0
		Br	- 0 0 0 0
		Th	- 0 0 0 0
Rh 2	8 days	BAP	- 0 0 0 0
		Br	- 0 0 0 0
		Th	- 0 0 0 0
Rh 3	8 days	BAP	- 0 0 0 0
		Br	- 0 0 0 0
		Th	- 0 0 0 0

[redacted]

- - - - Last arsen. October 1940
" Bismuth September 1942
Nothing since--Malaria 1931
Blood and Spinal Fluid--Negative

- - - - Last arsen. April 1940
" Bi. September 1942
No other treatment--Malaria 1935
Blood and Spinal Fluid--negative

- - - - Malaria therapy before 1935
Last arsen. in 1939
" Bism. September 1942
Blood and Spinal Fluid--Negative

- - - - Malaria 1934
Last Arsen. December 1939
" Bism. April 1942
Blood and Spinal Fluid--Negative
Last Blood--?

- - - - Malaria 1934
Last Bism. Sept. 1942
" Arsen. May 1940
Blood and Spinal Fluid--Negative

- - - - Malaria 1937
Last Arsen. October 1940
" Bism. August 1943
Blood and Spinal Fluid--Negative

- - - Malaria before 1935
Last Bism. September 1942
" Arsen. September 1940
Blood and Spinal Fluid--Negative

- - - Malaria before 1935
Last Bism. June 1942
" Arsen. November 1940
Blood and Spinal Fluid--Negative

- - - Malaria in 1936
Last Bism. March 1943
" Arsen. 1941
Blood and Spinal Fluid--Positive September 1943

- - - - Alcoholic Psychosis--not paretic
Spinal Fluid--Negative Syphilis--Blood Negative for 5 years
Last Bism. in 1939
" Arsen in 1939

- - - - Last Bism. in 1941
" Arsen. in April 1940
Malaria 1929
Blood--Positive; Spinal--Negative

[redacted]

- Not paretic; Manic Depressive
  Last Bism. in 1941
  " Arsen. in 1940
  No malaria
  Blood Negative

- Paretic;
  Malaria in 1929
  Last Arsen. in 1937
  " Bism. in 1941
  Blood--fluct. from positive to negative;
  Spinal Fluid--Negative.

Further Attempt at Cultivation of Sandfly Fever Virus in Chick Embryos

Main Purpose – to determine whether or not the virus multiplies in chick embryos without producing any obvious pathogenic effects in the chick embryo (as is the case with yellow fever virus). This is to be determined by subinoculation in human beings.

Technique – essentially the same as that used in cultivation of yellow fever virus for vaccine production.

9 day old chick embryos inoculated with 1½" 25 G. needle. Incubated at ≈ 36°C for 4 days.

Virus Used – Middle East Strain – Woodmansee serum which had produced the disease in at least 10 human beings.

0.1cc inoculated – needle pointed toward embryos

Dec. 10 – 5 eggs inoculated

	12/11 *	12/12	12/13	12/14	
1 –	D				D-discarded
2 –	?	?	D		D-discarded
3 –	ok	ok	ok	ok	opened – all alive – embryos worked up in Waring Blendor – part for passage – part frozen
4 –	ok	ok	ok	ok	
5 –	ok	ok	ok	ok	

Dec. 14 – 3 embryos (minus eyes) + 5cc dist. H_2O macerated in Blendor – very thick stuff Centrif. at low speed to obtain juice for passage. 0.1cc on Blood Agar – sterile
" in Broth – "

Dec. 14 – Culture II – 5 eggs (9day old) received 0.1cc each of culture I

	12/15	12/16	12/17	12/18	
1 –	ok	ok	ok	ok	opened – all alive
2 –	ok	ok	ok	ok	
3 –	ok	ok	ok	ok	
4 –	ok	ok	ok	ok	
5 –	D				

(over)

The four embryos weighing 15 Gm. were "blended" with 15 cc distilled water. Part used for passage – rest frozen.

The four yolk-sacs weighing 4.5 Gm. "blended" with 4.5 cc distilled water and frozen

Culture of chick embryo juice – 0.1 cc on BAP. – Neg
0.15 cc in broth – Neg.

Dec. 18 – 4 nine day eggs inoculated – Culture III
0.1 cc each

	12/19	12/20	12/21	12/22	
1 –	OK	OK	OK	OK	} opened ; all alive
2 –	OK	OK	OK	OK	
3 –	OK?	OK	OK	OK	
4 –	D				

The three embryos (minus eyes + beaks) weighing 12.5 Gm. were "blended" with 12.5 cc dist. water. Part used for passage, rest frozen.

The three yolk sacs weighing 4 Gm. were blended with 4 cc of dist. H_2O and frozen

Culture of chick embryo juice – BAP – Neg
Broth – "

Dec. 22 – Culture IV – 5 nine day eggs – 0.1 cc each

	12/23	12/24	12/25	12/26	
1 –	OK	OK	OK	OK	} all alive when opened
2 –	"	"	"	"	
3 –	"	"	"	"	
4 –	"	"	"	"	
5 –	"	"	"	"	

The 5 embryos, weighing 25 Gm. were "blended" with 25 cc of distilled water. Part used for culture and passage – rest frozen

The 5 yolk sacs, weighing 8 Gm., were "blended" ē 8 cc dist. H_2O & frozen.

Culture of chick embryo juice – 0.1 cc on BAP – 00
0.2 cc in Broth – 00

DEC. 26 – Culture V – 4 nine day eggs – 0.1cc each

	12/27	12/28	12/29	12/30	
1 –	OK	OK	OK	OK	} opened; all alive
2 –	"	"	"	"	
3 –	"	"	"	"	
4 –	"	"	"	"	

4 embryos weighing 16 Gm. "blended" with 16cc dist. H_2O.
Total frozen because fertile eggs were not available.

4 yolk sacs weighing 6 Gm. "blended" with 6cc. dist. H_2O.
Frozen.

12/30 Culture of chick embryo-juice – BAP – NEG.
Broth – NEG.

"Infectious Hepatitis" in Chick Embryos

Jan. 12, 1944

Purpose – to determine whether or not the serum of spontaneous cases of infectious hepatitis contains an agent which can be propagated in chick embryos.

Source of suspected virus – Sera of two cases of infectious hepatitis which occurred spontaneously in Cairo in August 1943 – both sera were obtained at the onset of jaundice – [redacted] – Aug. 9, 1943
– Aug. 30, 1943

The sera had been frozen in CO_2 since that time. They were first thawed out to-day and 0.4cc removed from each one with separate syringes to make a pool. Both sera were distinctly icteric.

Technique – same as that used in cultivation of yellow fever virus for production of vaccine. 9 day eggs inoculated through the air-sac with 1½" – 25 gauge needle pointed toward the embryo. 0.1cc inoculated into each egg. Incubation at 36°C.

Jan. 12 – Culture I – 0.1cc of pooled sera into each of 6, 9 day eggs.

	1/13	1/14	1/15	1/16	
1 –	Ok	ok	ok	ok	Opened; all alive
2 –	Ok	ok	ok	ok	
3 –	ok	ok	ok	ok	
4 –	ok	ok	ok	ok	5 embryos weighing 20.7 Gm. "blended" with 20.7cc dist. H_2O. Some passaged – rest frozen
5 –	ok	ok.	ok	ok	
6 –	Hem.				

Culture – Broth – 0 broth pos. diphtheroids
0.1cc on BAP – 0 2 diphtheroids

Jan. 16 – Culture II – 0.1cc of culture I into four 9 day eggs

	1/17	1/18	1/19	1/20	
1 –	ok	ok	ok	ok	All alive when opened; fluids clear
2 –	ok	ok	ok	ok	
3 –	ok	ok	ok	ok	15.5 Gm. of embryo "blended" with 15.5cc dist. H_2O. Smear – no bacteria seen
4 –	ok	ok	ok	ok	

(over)

JAN. 20 – Culture II – Culture on B AP —
Broth —

Part passaged rest frozen

JAN. 20 Culture III – 0.1cc of culture II into 3 nine day eggs

	1/21	1/22	1/23	1/24	
1 –	OK	OK	OK	OK	} all alive when opened.
2 –	"	"	"	"	
3 –	"	"	"	"	

Culture on B AP – heavy growth
Broth – " "

Hepatitis – Chick Embryo

1/28 – Comfort Serum – BP – 0 0 0 0
Br – 0 0 0 0

Mustard Serum – BP – 0 0 0 0
Br – 0 0 0 0

2/1 – Chick Embryo I (13.6g) BP – 2 off 0 0 0 1 on 0
Br – 0 0 0 0 Smear on Agar – neg.

2/5 Hep. II BP – 1 } Heavily contaminated
Br. – # }

2-9 Hep I frozen BP – 0 0 0 0
Br – 0 0 0 0

Hep III (Hep II Contam) BP } Heavy contamination – disc.
Br }

2-13 Hep II (17.6g) BP – 0 0 0 0
Br – 0 0 0 0 Smear + cult. neg.

2-17 Hep III (9.7g) BP – 0 0 0 0
Br – 0 0 0 0

2-21 Hep. IV (10.7g) BP – 0 0 0 0
Br – 0 0 0 0

2-25 Hep V (19.7g.) BP – 0 0 0 0
Br – 0 0 0 0

2-29 Hep VI (11.6g.) BP – 0 0 0 off 0
Br – 0 0 0 0

3-4 Hep VII (15.0g) BP – 0 on off 0 0 0
Br – 0 0 0 0

3-8 Hep VIII (6.2g) frozen BP – 0 0 0 0
Br – 0 0 0 0

Only 9 day eggs used. Passage at 4 day intervals. Initial inoculum – 0.1cc. each into 4 eggs.
0.1cc used for passage (2 to 4 eggs used)

SF in Chick Embryo - II

SICILIAN

2-25-44 Pool of [redacted] 1/3 2/18 2/18 — 1.1 cc each total @ 4.4 cc

Culture BP - 0 0
Br - 0 0

Egg #1 - 1 cc inoc - ? D
#2 - 1 cc " - ? D
#3 - 1 cc " - OK OK " " } Used for 2nd egg passage. 0.1 cc per egg.
#4 - 0.5 cc " - OK " " "
#5 - " " - OK " " "

2-29 SF II - I (9.4g.) BP - 0 0 0 0 off
Br - 0 0 0 0

SF II - II
Egg 1 — OK OK OK OK
2 — " " " "
3 — " " " "
4 — " " " "
0.1 cc inoc. } used for egg Passage III 0.1 cc per egg.

3-4 SF II - II (13.3g) BP - 0 0 0 0
Br - 0 0 0 0

SF II - III Egg #1 - OK " " } Passaged to IV
Egg #2 - "

Culture (6.6g) BP - 0 0 0 0
Br - 0 0 0 0

3-8 SF II - IV Egg 1 - OK " " " } - Frozen - no eggs available
2 - " " " "
3 - ? ? ? alive - not used → Discarded

3-12 IV - Culture (7.9g) BP - Gram neg. rods }
Br - " " " }

3-28-44 SF II - III (frozen 3/4) BP - 0000 Br - 0000

SF II - IV Egg 1 - 0000 2 - 0000 3 - 0000

4-1-44 SF II - IV (10.6g.) frozen - no passage BP - 0000 Br - 0000

4-17-44 Passage of SF II - IV frozen

SF II - V

Egg 1 - 0000 } Blended and frozen
2 - 0000 } no passage
3 - 0000 }
4?- ?? D - discarded.

4-21 SF II - V (12.4g.) Culture - BAP - 0 Br - 0

Incubation Period

	Middle East		%	Sicilian		%	Total	
2 – 3	𝍸	= 9	– 19.6	𝍸	= 5	– 12.8	14	– 16.5%
3 – 4	𝍸𝍸	= 16	– 34.8	𝍸𝍸	= 20	– 51.3	36	– 42.4%
4 – 5	𝍸𝍸	= 12	– 26.1	𝍸	= 8	– 20.5	20	– 23.5%
5 – 6	𝍸	= 7	– 15.2	𝍸	= 5	– 12.8	12	– 14.1%
6 – 7	𝍸	1	– 2.2	𝍸	= 1	– 2.6	2	– 2.3%
7 – 8								
8 – 9	𝍸	1	– 2.2				1	– 1.2%
		46			39			

Duration of Fever

	Middle East		%	Sicilian			%	Total	
less than 24 hrs									
~~1 day or less~~	||||	= 4	- 8.7	||	2		(4.7%) 4	- less than 24 hrs
1 - 2	|||| |||	= 15	- 32.6		|||| ||	7 = 7	- 17.9	(25.9%) 22	- 1 - 2
2 - 3	|||| ||||	= 14	- 30.4		|||| |||| |||| 29 = 24	- 61.5	(44.7%) 38	- 2 - 3
3 - 4	||||	9	- 19.6	||||	|||	11 = 3	- 7.7	(14.1%) 12	- 3 - 4
4 - 5	|||	3	- 6.5			1 = 1	- 2.6	(4.7%) 4	- 4 - 5
5 - 6						||	2 = 2	- 5.1	(2.3%) 2	- 5 - 6
6 - 7		1	1	- 2.2						(1.2%) 1	- 6 - 7
										0	- 7 - 8
7 - 8											
8 - 9						||	= 2	- 5.1	(2.4%) 2	- 8 - 9
		46					39			85	

54

less 24 - 6
1-2 - 22
2-3 - 43
3-4 - 20
4-5 - 4
5-6 - 2
6-7 - 1
7-8 - 0
8-9 - 2
100

110 (54
108 20.4
200
162
380

70 (54
160 12

Membranes sent c/o S. H. Bauer

Maximum Temperature

	Middle East	%	Sicilian	%	Total	%
II	Under 100 ~~100 or less~~	II = 2			2	= 2.3
𝍸	100 – 100.9	𝍸 = 9	III	= 3 – 7.7	12	– 14.1
𝍸	101 – 102.9	𝍸 = 9	𝍸 II	= 7 – 17.9	16	– 18.8
𝍸 𝍸	102 – 103.9	𝍸 𝍸 = 15	𝍸 𝍸	= 10 – 25.6	25	– 29.4%
𝍸	103 – 104.9	𝍸 = 8	𝍸 𝍸	= 15 – 38.5	23	– 27.1
III	104 – 104.5	III = 3	IIII	= 4 – 10.3	7	– 8.2
		46		39		
	104.6 + No fever – leukopenia	I	I			
	No reaction	II (Bonta) Evans	II Bonham Sauer			
	Recurrence	II	II			

* Kitchen and Street incl: included

Comparison of Maximum Temperatures Observed in Experimental Phlebotomus and Dengue Fevers

Maximum Temp	Phlebotomus Fever Author's Data		Dengue * (Simmons, St. John, Reynolds)	
	Cases	Per cent	Cases	Per cent
Under 100°F				
100 – 100.9				
101 – 101.9				
102 – 102.9				
103 – 103.9				
104 – 104.5				
Total				

Remaining Tests on Human Beings

Aedes aegypti transmission — 9 to 12 (6 on Dec. 20 - 3 on Dec. 2...

~~$~~ Ultraviolet irradiation and immunity following

Multiplication in chick embryos — 3 to 6

Multiplication in rhesus monkeys — 2 to 6

Particle size - ultrafiltration

Test for immunity — 2 new on Dec. 14

Repeat filtration

Immunity 4 months after inoculation

Nov. 7 → March 7 [redacted] Mill...

Nov. 18-20 East...

Nov. 13 - [redacted] Sicil...

Nov. 5 -

Oct 25 -

Survival of virus ~~in frozen~~ after 5 or 6 months

a) in frozen state

b) in lyophilized state

Neutralizing antibody in convalescent sera

Immunity following Inoculation with [redacted] Virus Inactivated

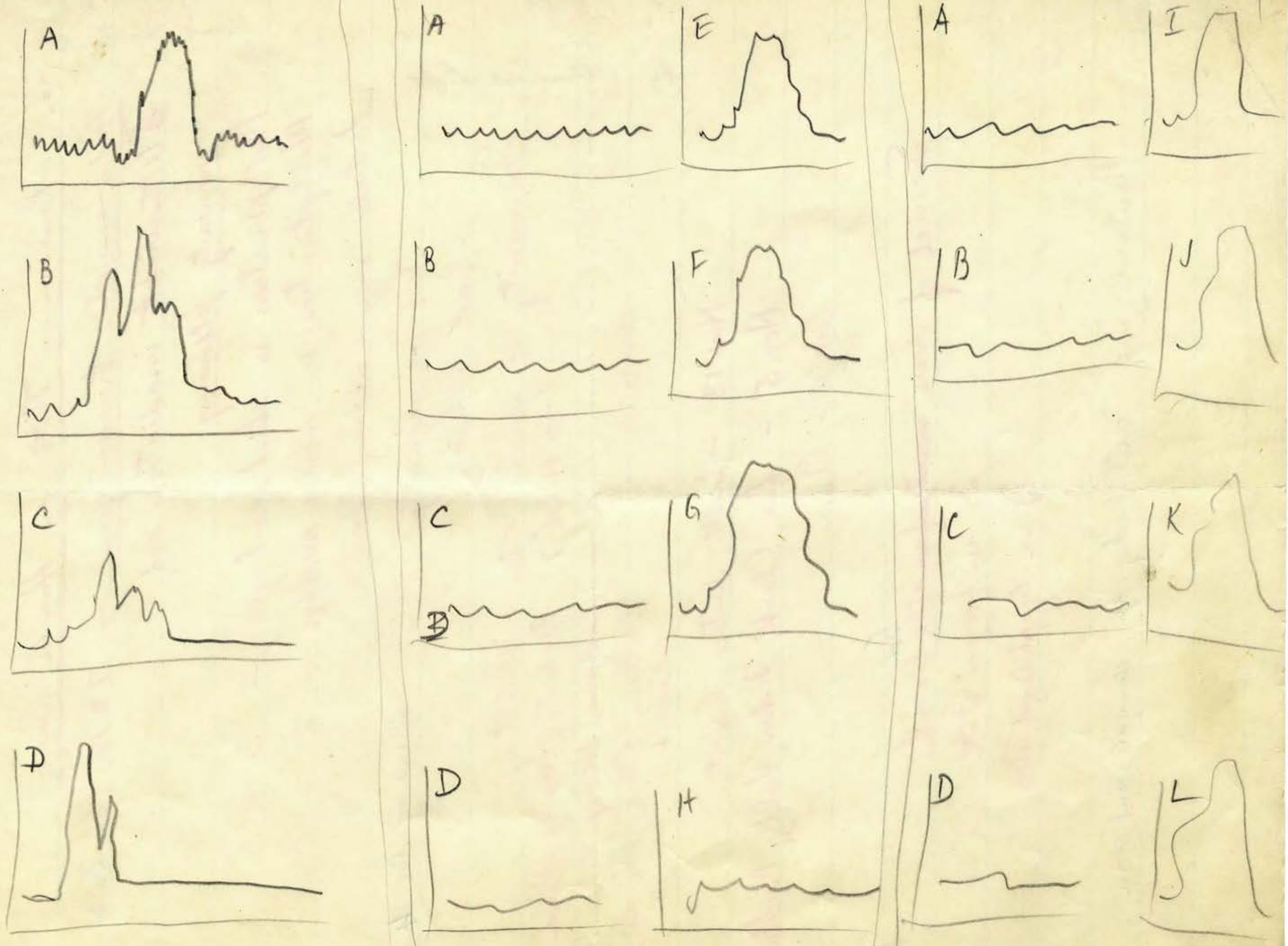
" " " " by Ultraviolet Light

First inoculation

SECOND INOCULATION

CONTROLS FOR 2ND INOC -

The



1. Test of Sicilian Material for Virus — 4
   If active, convalescents are to be tested for immunity to homologous and M.E. strains of virus.

2. Titrate Middle East hyophilized Virus — 12
   Convalescents to be tested for immunity with homologous and Sicilian virus

3. Titrate fresh serum to endpoint of infectivity

4. Test simultaneously — infectivity of CSF — 1st
   Serum — 1st day
   CSF — 2nd day
   Serum — 1st day

5. Effect of repeated inoculations of subinfective amounts of virus

6. Effect of irradiation with ultraviolet light on infectivity of virus — Unirradiated — 2
   10 min — 2
   20 min — 2
   40 min — 2

7. Inoculate Rhesus monkeys — ~~1st day 2 days~~ 1, 2 days — 2
   2nd + 3rd day — 2
   4, 5, 6th day — 2
   7, 8, 9th day — 2
   10, 11, 12th day — 2

8. Egg material

Is the virus attenuated by passage?

For week of 10/25 – Carrol serum – 0.1cc of 1:10-2 – 0.01cc
" of 1:100-2 – 0.001cc
" of 1:1000-2 – 0.0001cc

6 volunteers

CSF
Serum } 8 volunteers

Titration of Sicilian Virus – often outcome of filtration is known.

Egg Passage - Use Woodmansee Strain

Dec. 10 - Inoculate (0.1cc)

Dec 14 - First passage ready - (0.1cc)

Dec. 18 - 2nd " " " (0.1cc)

" 22 - 3rd " " " - Inoculate im lung

" 26 - 4th "

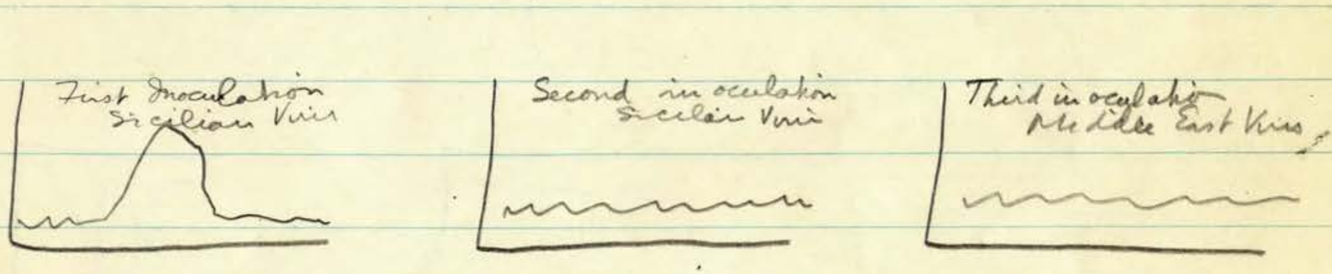
" 30 - 5th " "

Jan. 3 - 6th " " -

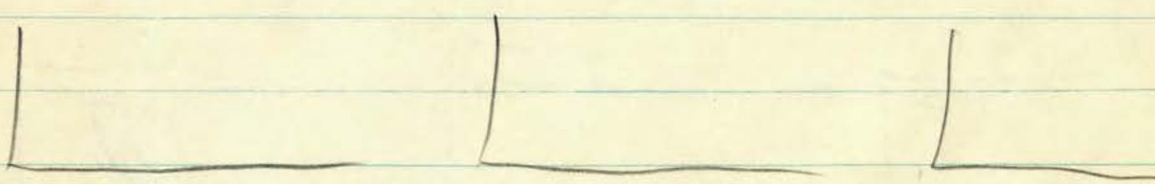
Mosquito Transmission

Expt	Strain of Virus used	Subjects	Total no. mosquitoes ~~engorged with~~ infected blood fed on subjects	Days after engorgement on infected blood mosquitoes bit	Largest no. of mosq. bit in 1 day	Result	Controls: Infect. of blood on which mosquitoes engorged	Controls: Suscept. of subjects bitten by mosq.
I	Middle East	[redacted]	93	6, 8, 9, 10 etc	31	Neg.		
			38		14	NEG	Produced disease in 3½ days	Developed disease after [illegible]
II	Sicilian		185		93	"	2/2	
			180		115	"		
III	Sicilian		400					
			400					

A

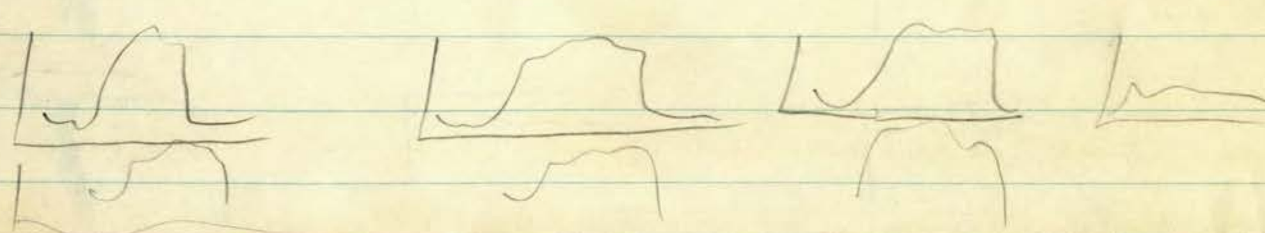


B

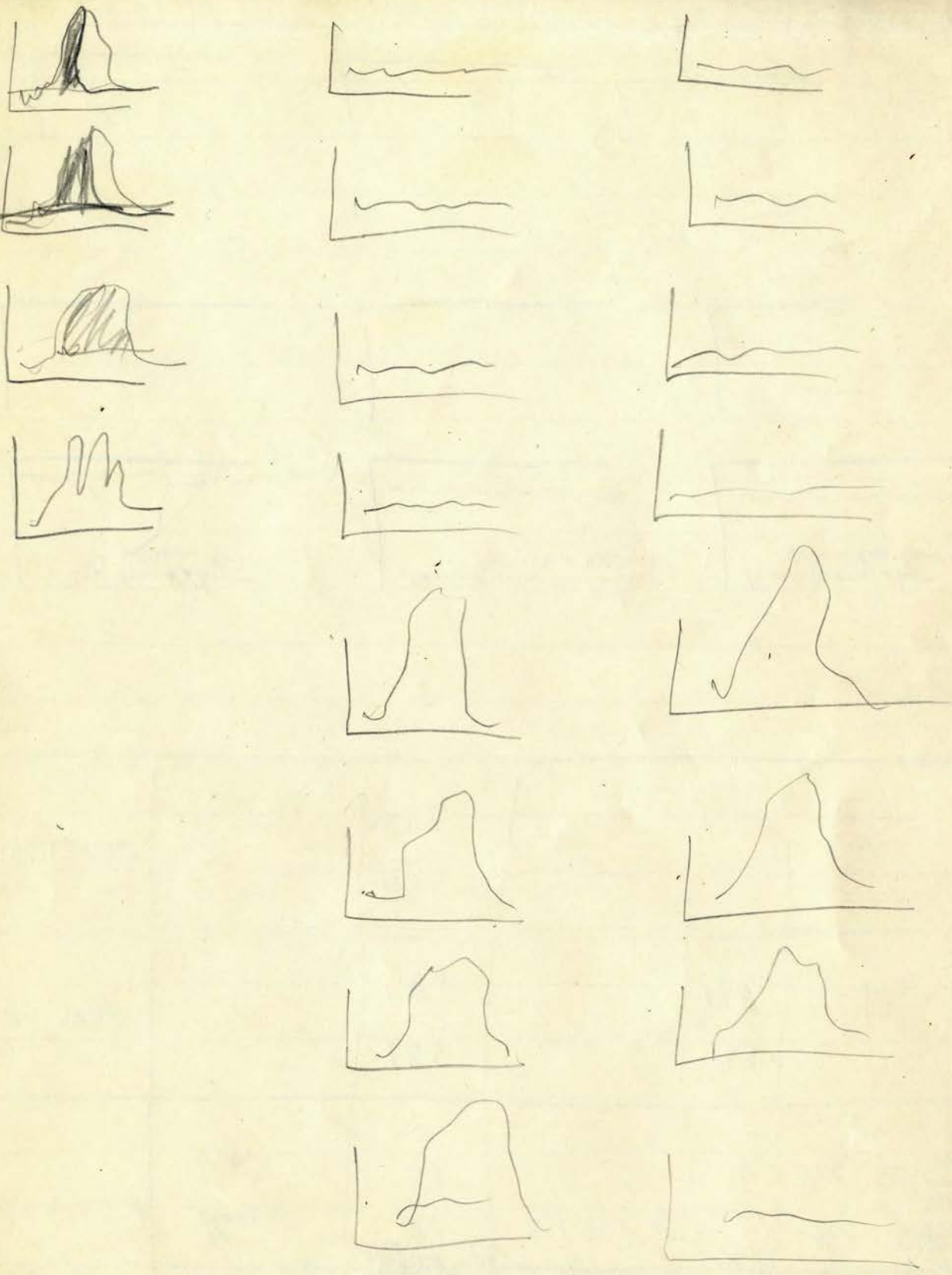


C

Controls for 2nd inocul.



Controls



200 | 91 | 2.2
182
180

400 | 91 | 4.
364
360

400 | 8 | 4.7
340
600
595