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~~X.~~ N. Roth

March 26, 1956

Quarterly Progress Report
October, November, December, 1955

Environmental Surveys

Ninety-nine soil samples, 99 vegetation samples, and ten water samples were collected during the fourth quarter of 1955. Eighty-three of the soil samples, 83 of the vegetation and the ten water samples were analyzed for radioactivity. The remaining ⁵²~~66~~ soil and vegetation samples will be analyzed as soon as the counting equipment is installed. The sampling stations were located in Downey, SRE site area, Canoga Park area and Simi Valley. The first quarterly progress report of 1955 gives the location of the sampling stations for each area except Simi Valley. The Simi Valley stations are all located at the normal drain off points from the Simi Hills with the exception of one station on the north side of the valley in Tape Canyon. The Simi Valley sample sites are shown in Fig. 1.

The type of sampling, processing, etc. has been explained in previous reports and the details are omitted at this time.

The water samples at the reactor site showed a maximum activity of 2.7×10^{-9} $\mu\text{c/cc}$ β and 3.3×10^{-9} $\mu\text{c/cc}$ of α . The other results are given in Figs. 3 through 10. A 24 hour air sampler was in continuous operation at Downey until December 16, the results given in Fig. 12. The automatic air sampler has been in continuous operation at Santa Susana except for minor shutdowns and repairs. The results are shown in Fig. 2.

Seven hundred cc of liquid was collected from the chemistry area sump. The timing mechanism is connected to a 24 hour clock which restricts the sampling period to the normal working hours.

Four sample bottles are placed in tandem which permits four weeks of sampling without maintenance. The liquid is evaporated on a foil and is counted in a large sample flow proportional counter. The results are shown on Fig. 12.

Hanford Works Waste Disposal

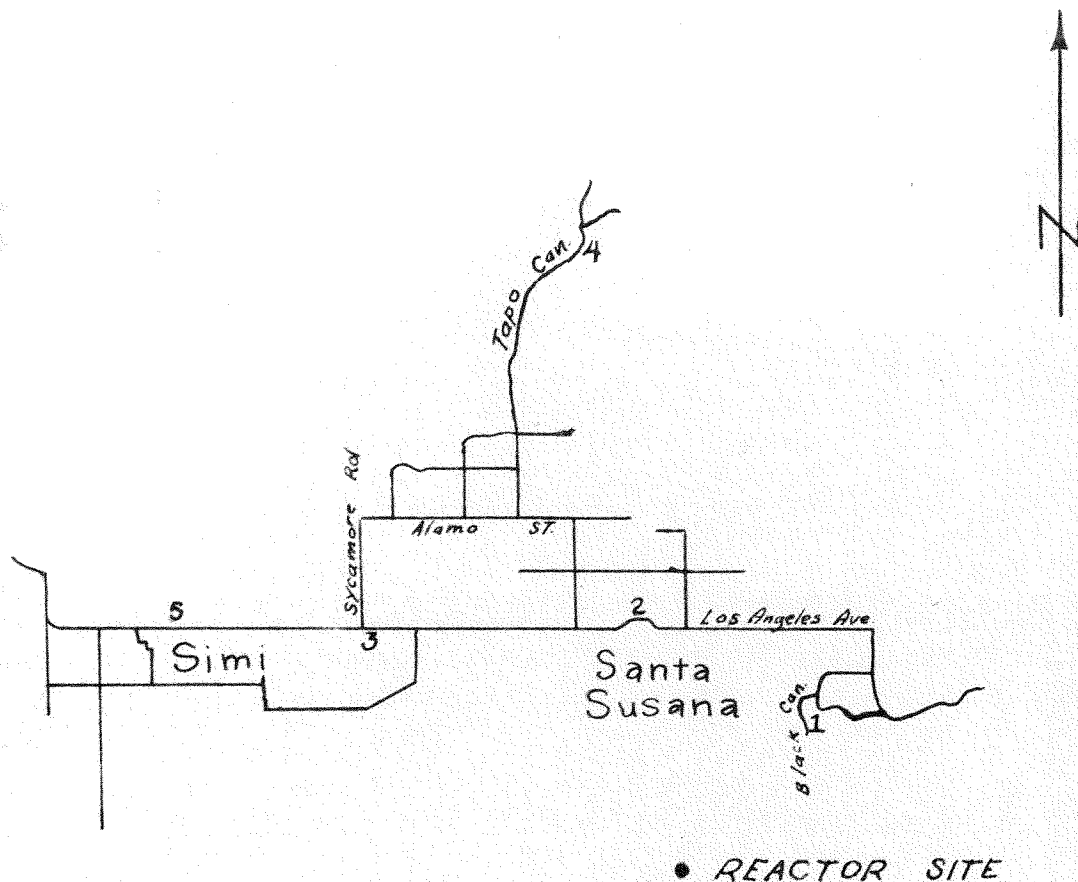
During the week of December 19 to 23, Hanford Works was visited to observe methods of waste disposal. Mr. J. F. Honstead and R. E. Brown provided most of the information.

The Hanford area is underlain by approximately 1000 feet of unconsolidated to semi-consolidated sedimentary deposits. The underlying bedrock consists of about 6000 feet of basalt. The type of rock beneath the basalt is unknown. In the area utilized for waste disposal the ground water table is found at depths ranging between 200 to 300 feet.

Large quantities of liquid waste are disposed of by percolation into the ground. Waste disposal pits, called "cribs", are used for this purpose. These are pits which are lined with timbers on the sides and open on the bottom. The waste is poured into the pit and allowed to percolate out through the open bottom. A large number of monitor wells are located within the waste disposal area. Samples of the ground water are withdrawn from these wells periodically and analyzed. No radioactive isotope is allowed to enter the ground water in concentrations exceeding 1/10 of MPC. The soil is calcareous in character with a high ion adsorption capacity. The high ion adsorption capacity of the soil coupled with the great depth to water enables large volumes of waste to be disposed of before the ground water becomes contaminated.

On the return trip from Hanford a visit was made to the U. S. Geological Survey Offices in Sacramento. Mr. J. Poland and G. Worts were contacted and discussed waste disposal problems in Simi Hills area. Both suggested the possibility of utilizing abandoned oil wells for disposing of waste at a great depth to avoid polluting round water supplies.

Fig. 1



SIMI VALLEY SAMPLING LOCATIONS

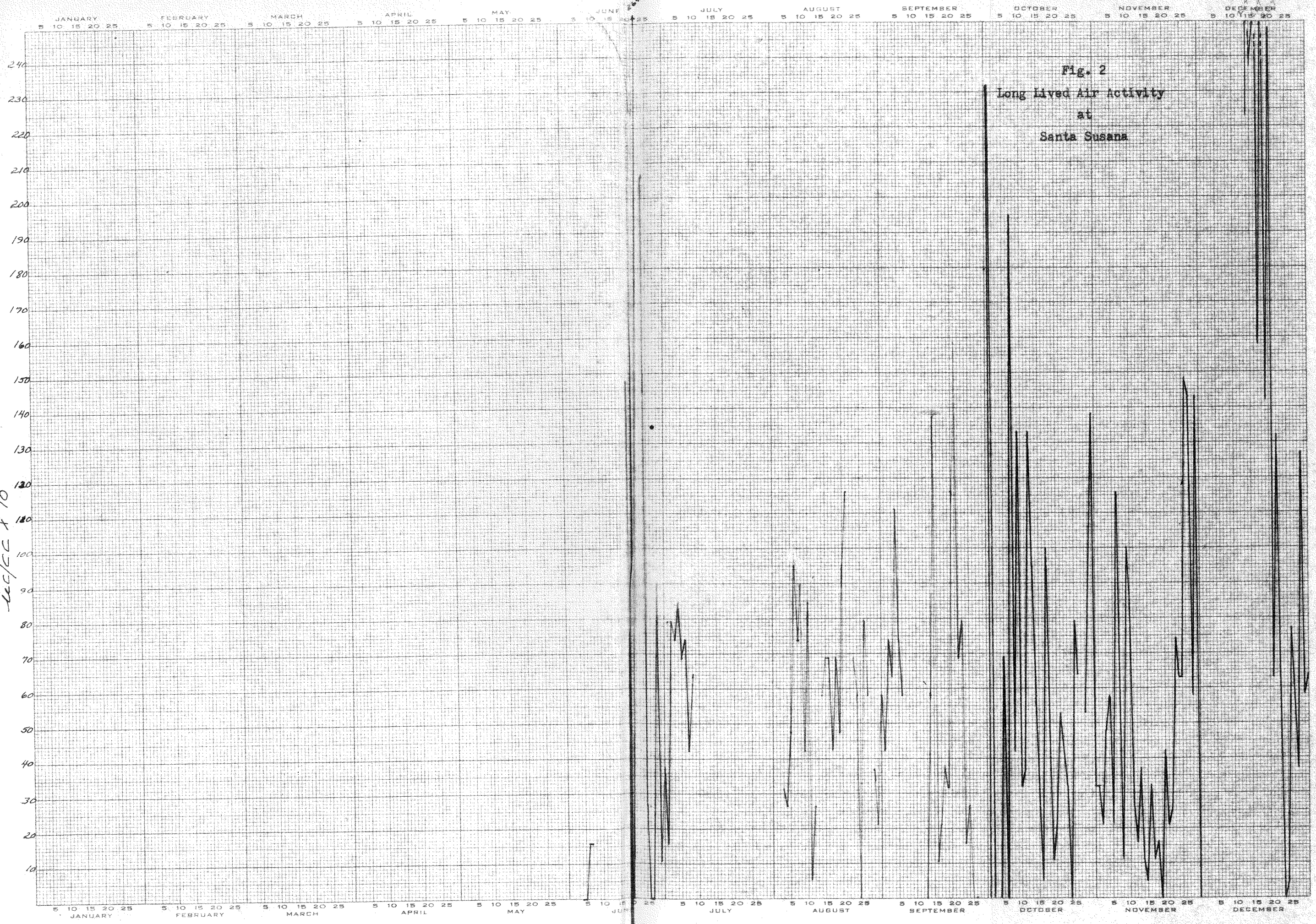
SCALE
1 MILE

EUGENE DIETZEN CO.
MADE IN U.S.A.

NO. 3400 T12 DIETZEN GRAPH PAPER
1 YEAR BY DAYS

$\mu\text{C}/\text{CC} \times 10^{-4}$

Fig. 2
Long Lived Air Activity
at
Santa Susana



EUGENE DIEZGEN CO.
MADE IN U.S.A.



10000

Fig. 4
Vegetation Samples
from
Downey

1000

$4c/gm \times 10^{-7}$

100

10

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH
MADE IN U.S.A.

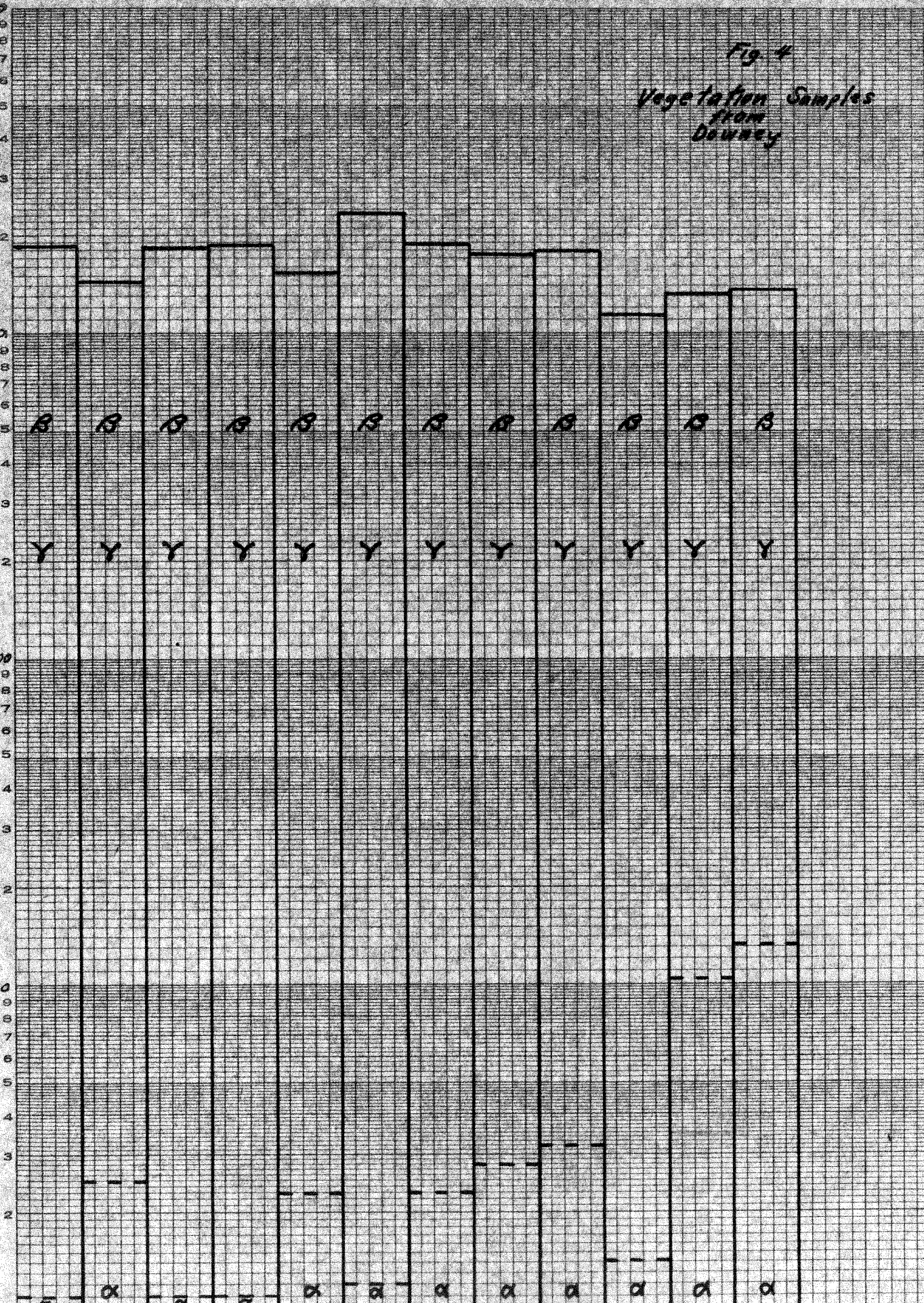
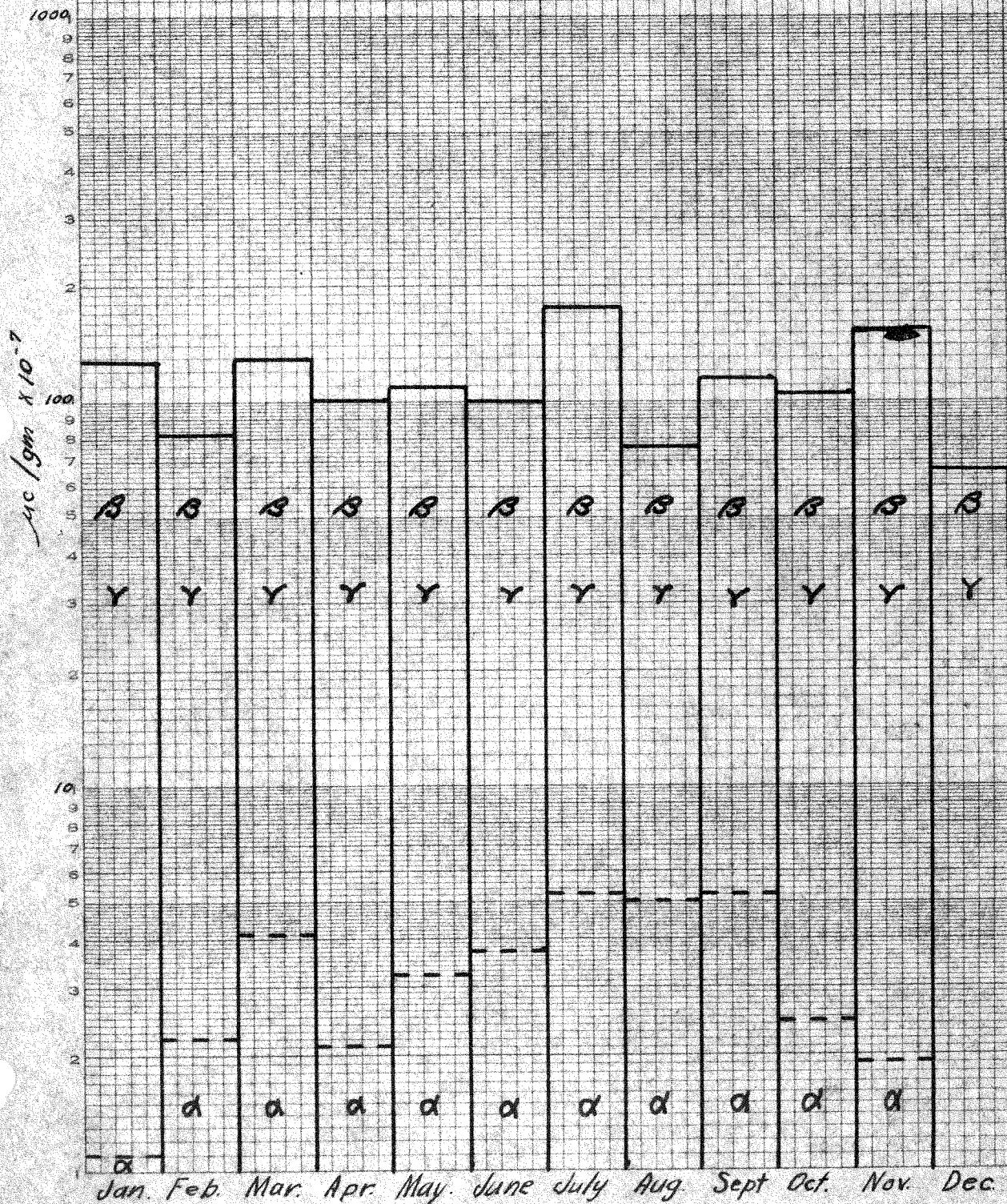
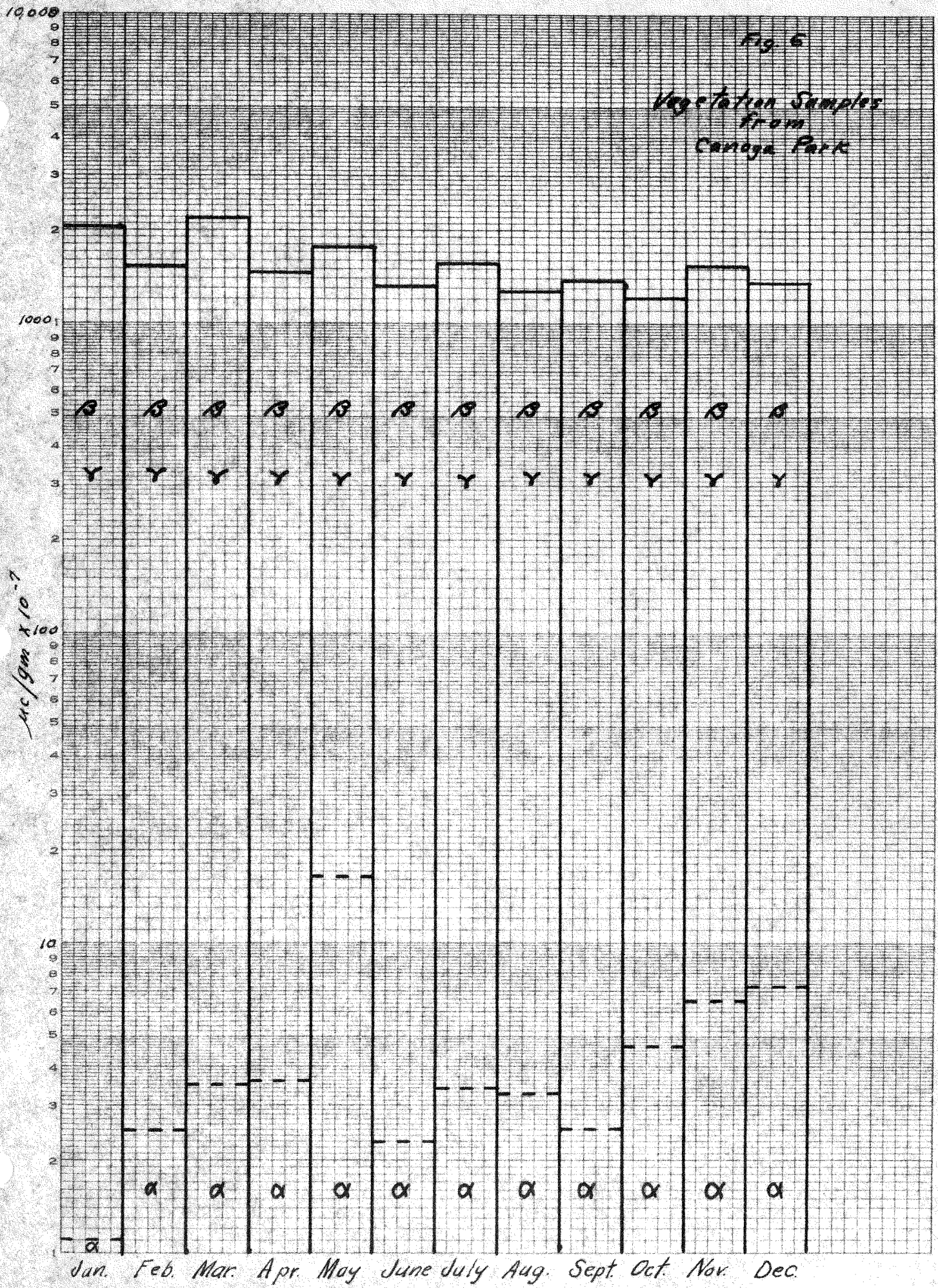


Fig. 5
Soil Samples
from
Canoga Park



EUBENE DIETZEN CO.
MADE IN U.S.A.
SEMILOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH



10000

$\mu\text{c/gm} \times 10^{-7}$

Fig. 7
Vegetation Samples
from
Santa Susana

1000

8

7

6

5

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Jan.

Feb.

Mar.

Apr.

May

June

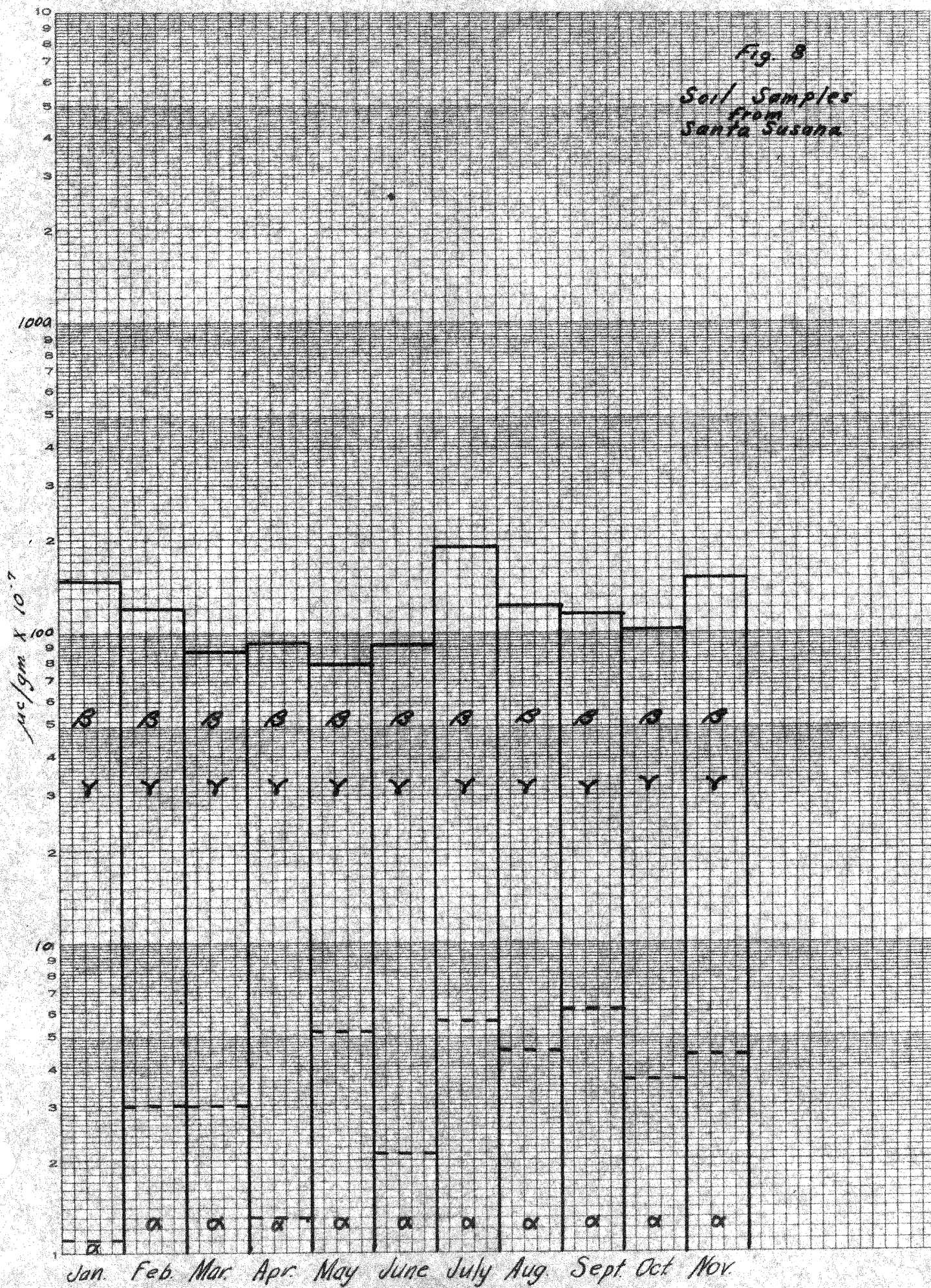
July

Aug.

Sept.

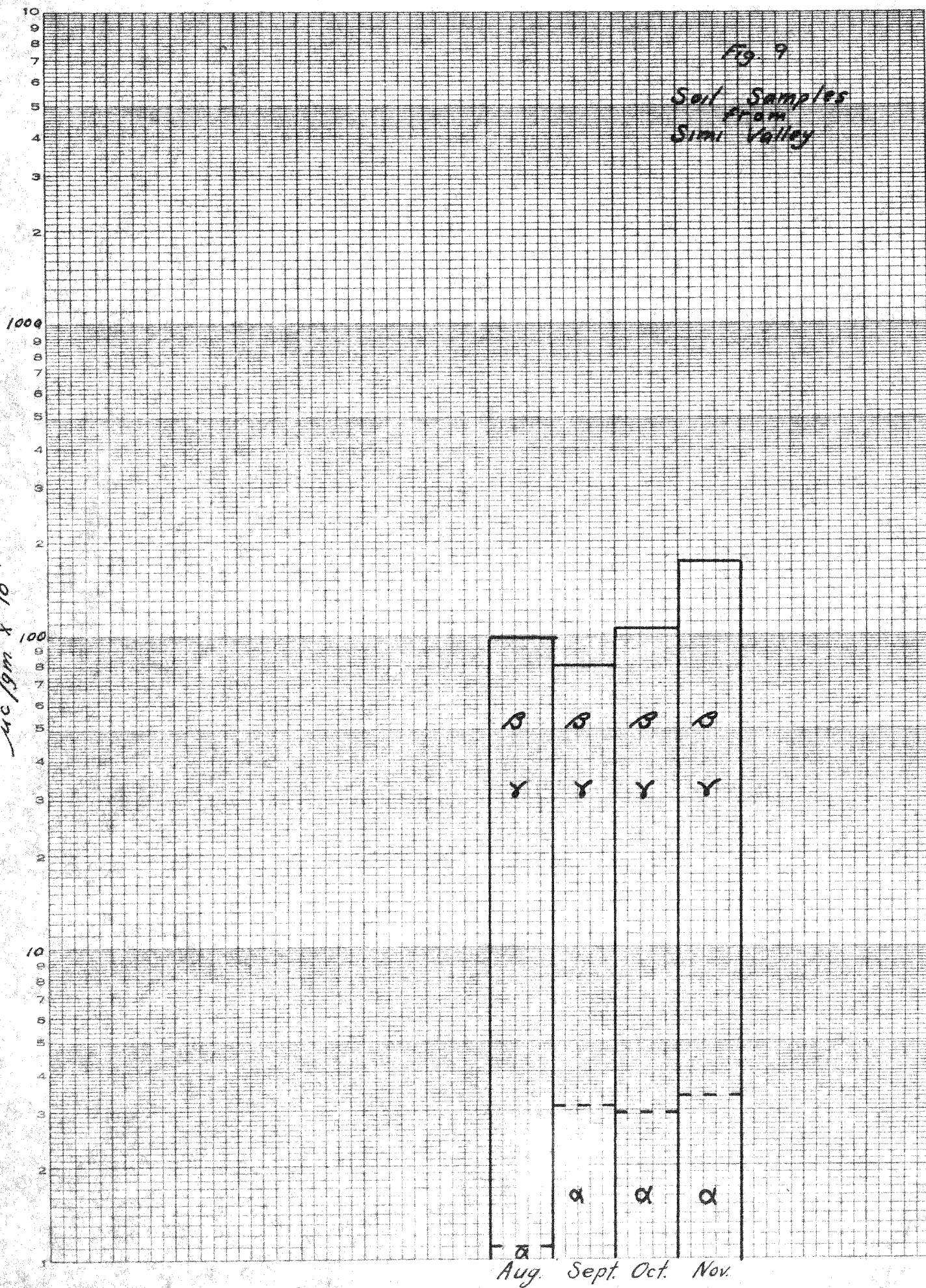
Oct.

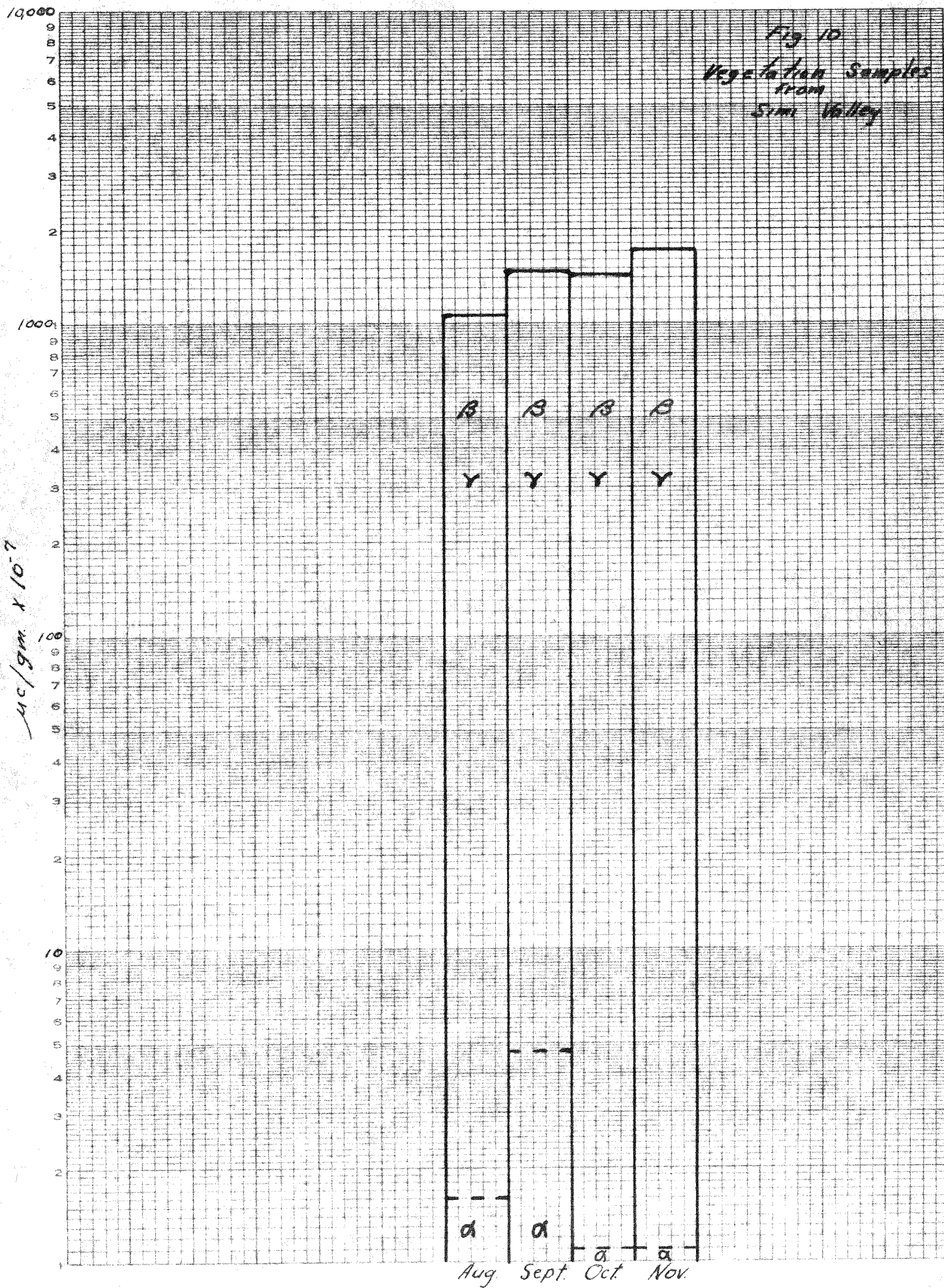
Nov.



$\mu\text{C/gm} \times 10^{-7}$

Fig. 9
Soil Samples
from
Simi Valley





$\mu\text{c/cc} \times 10^{-13}$

Fig. 11

Air Activity at Downey

--- Maximum
— Average

