apparatus of Redwood. I have found the following results using a cylinder oil :—

Temp.	*No. of Tests.*	*Max.*	*Min.*	*Mean.*
250° F.	11	34.0 sec.	33.0 sec.	33.5 sec.
200° F.	16	45.3 "	44.5 "	44.8 "

In order to determine the change in the rate of flow due to lowering of the level, I made series of tests taking, in each case, three successive portions of 50 cc. The initial level is always 2½ inches above the upper surface of the nozzle :

1. Temp. 250° F. (means)—

1st, 50 cc.	2nd, 50 cc.	3rd, 50 cc.
33.5 sec.	34.7 sec.	36.0 sec.

At 200° F.—

44.8 sec.	47.2 sec.	50.6 sec.

The withdrawal of 150 cc. causes the level to fall about three-eighths of an inch, corresponding to an increase in time of about 2½ seconds at 250° F., and about 5½ seconds at 200° F., a guarantee that any slight error in the adjustment of original level can have but a very trifling effect on the rate of flow. The following experiments were made with a sample of glycerine diluted to the density of Redwood's standard rape oil, viz. :—1.226 at 15.5° C.

Redwood's Viscometer.—The temperature of the laboratory during these experiments was 68° F. I attempted to keep that of the dilute glycerine at 60°, but found this to be impossible. The following series of *seven* tests were made at 59.5° to 61.5° :—

Max., 483 sec. *Min.*, 460 sec. *Mean.*, 469.5 sec.

With the form of instrument which I have described above, I found it quite easy to keep the temperature constant to within 0.5 degree during the time of the experiment :—

No. Expts.	*Temp.*	*Max.*	*Min.*	*Mean.*
5	60.0° F.	313.5	310	311.7 sec.
5	60.5° F.	308.4	306	307.0 "
7	61.0° F.	305.0	300	302.1 "
6	70.0° F.	209.0	205	207.0 "
4	75.0° F.	166.0	164	165.0 "

The above represent consecutive series of tests, and illustrate the extremes of experimental error. (See note p. 168.)