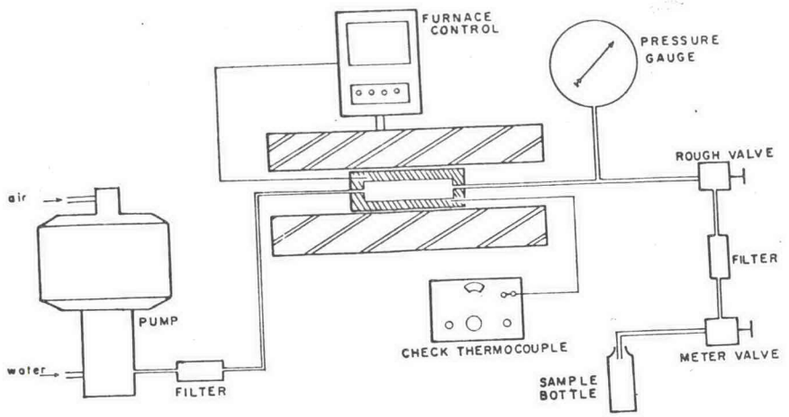

Fig. 1. Schematic diagram of the experimental apparatus.

solutions passed from the bomb into an 18 inch cooling tube, through a metering valve into polyethylene bottles. Approximately one liter was collected at rates varying from 40 to 60 milliliters per hour. A diagram of the apparatus is shown in figure 1.

Albite pegmatite from Amelia County Court House, Virginia, was used as experimental material so that the results could be compared with previous work on the same material by Morey and Hesselgesser (1951). The raw material, procured from Ward's, was crushed, and the fraction passing a four mesh screen and retained on an eight mesh screen used for experiment. Prior to a run the material was washed successively with dilute HCl and distilled water and handpicked to remove small amounts of white mica adhering to the cleavage fragments. A chemical analysis of the experimental material is given in table 1.

TABLE 1

Chemical analysis of experimental material

SiO_2	68.0
Al_2O_3	19.8
Fe_2O_3	0.09
CaO	0.22
MgO	0.04
Na_2O	11.42
K_2O	0.32
H_2O	0.03
	99.9

Analysts: G. R. Lachance, J. L. Bouvier

Assuming that all the magnesium and iron are in the An molecule the analysis computes to feldspar of composition $Ab_{97.5}\ An_{1.1}\ Or_{1.4}$.

ANALYTICAL METHODS

The experimental solutions were analyzed for silica, alumina, soda, potash, lime, iron, organic matter, and pH. Gravimetric analysis by the method of double evaporation was used to determine silica (Kolthoff

and Santell, 1952, p. 387) and yielded reproducible results. The molybdate method of determination which is easier and more rapid (Am. Soc. Testing Materials, Pub. 148D, 1959, p. 278) gave much lower and erratic values, even after digestion of the sample Na_2CO_3. When the sample was digested overnight in NaOH, the molybdate method gave results in fair agreement with gravimetric results.

Gravimetric analysis for alumina gave reliable and reproducible results but required large amounts of time and sample. Titration with EDTA was used in the later stages of the reported experiments and gave comparable results.

Soda and potash were determined by flame photometer after tenfold dilution of the sample. Analysis failed to detect calcium in any

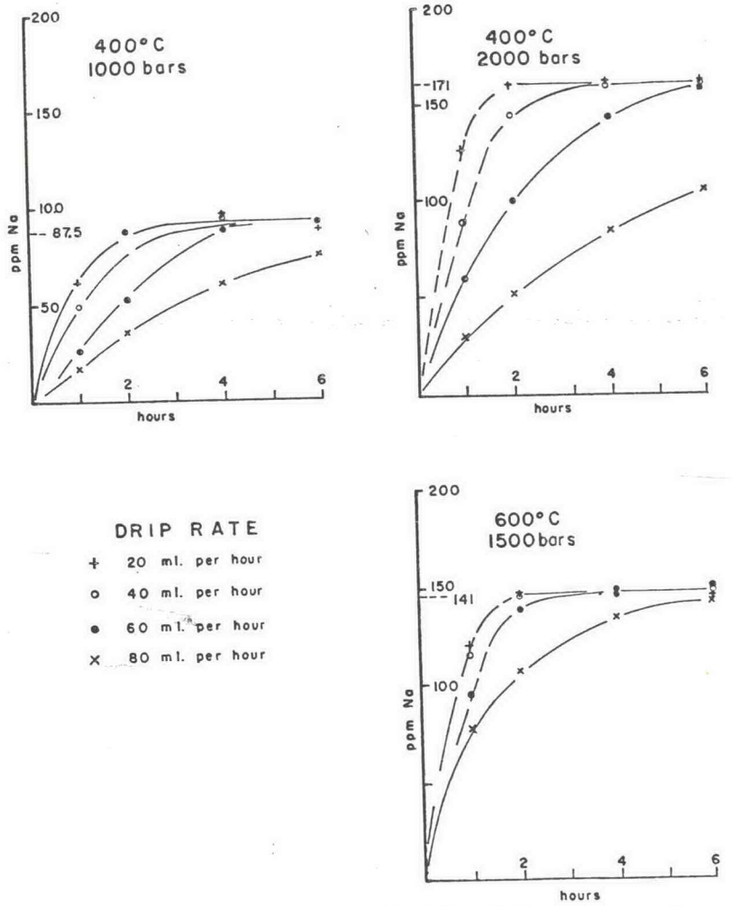

Fig. 2. Rate of attainment of a steady state by albite solutions. Na content in ppm.