

thus relieved. In the case of the centrifugal, each particle of water experiences practically the same stress, and only the capillarity of the finest pores and the surface tension of the films on the grains are sufficient to resist its action.

SUMMARY

1—The pore space in a mass of fine grains averages about 37 per cent of the total volume.

2—The amount of water retained when an ordinary filter is used varies from 11 per cent, with 20 mesh material, to 20 per cent with 100 mesh material, one hour being allowed for drainage.

3—The amount of water retained on a filter with 2 in. vacuum averages 7 per cent after 15 minutes for material varying from 30 to 80 mesh.

4—In a layer of material 70 cm. deep on a filter, with 5 in. vacuum, the top layer will average, after 15 minutes, 4 per cent moisture, and the bottom 6.5 per cent; the size of the grains is not of importance within the limits discussed. If the vacuum be maintained for 15 minutes longer, the above figures will be reduced by another half per cent.

5—By the use of a centrifugal, the percentage of moisture, in all the materials employed, may be reduced to an average of 2.5 per cent.

6—In the case of a sand of 30 mesh with 6 per cent moisture, if all the water be distributed over the surface of the particles, each grain would have a film 0.0116 mm. thick; or the water would fill 30 per cent of the pore space.

FACULTY OF APPLIED SCIENCE
UNIVERSITY OF TORONTO
TORONTO, CANADA