obtained by Ellis and Grollman (*6*) in hypertensive patients and in animals with renal hypertension. They showed in both cases an increase in urinary excretion of an antidiuretic substance, most striking in eclamptic women (*7*). Marked alterations in water metabolism were also observed by Braun-Menendez (*8*) in hypertensive rats.

Experiments are in progress to disclose whether an antidiuretic substance might originate through the action of other enzymes, including renin, which is related to hypertensin formation.

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An Internally, Electrically Heated, Sintered Glass Filtration Disk[1]

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A new technique for carrying out filtration at elevated temperatures has been developed, employing a sintered glass disk prepared according to the method previously described by the author (*1*). By the simple expedient of embedding a resistance wire in this disk, the sintered glass filter bed can be uniformly electrically heated. The resistance wire is first threaded into a thin-walled glass tube, bent as shown in Fig. 1.

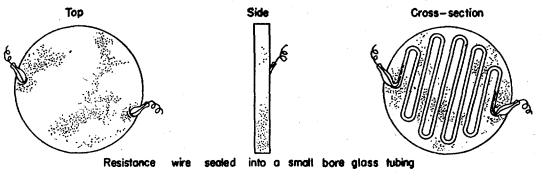

FIG. 1. Internal electrically heated sintered glass disk.

This unit is then embedded in the glass granules and fused in the annealing oven at 600° C. In this way, the heating wires are insulated from contact with the filtering media.

These filtration disks may be constructed in any size or shape, either as independent units, or for incorporation into funnels, tubes, or crucibles (Fig. 2). A glass ring around the periphery of the sintered disk is provided when it is to be used as an independent unit. When the disk is to be incorporated into a funnel or tube, it is first prepared and fused in a carbon mold, which is subsequently removed when the fusion is completed. The disk with its contained heating element is then sealed into the appropriate glass tube or funnel.

[1] Reference may be made to this report noting author, title, source, date, and project and report numbers. The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Department of the Navy.

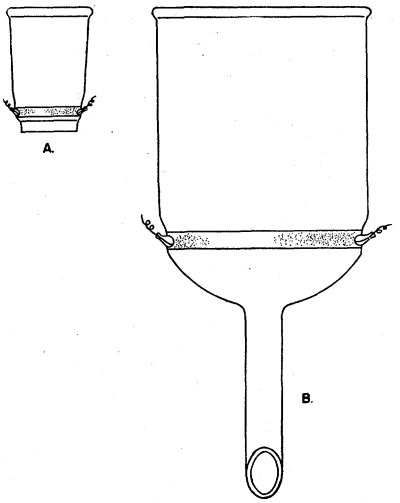

FIG. 2. Electrically heated sintered glass disks mounted in a Gooch crucible (*A*) and a Büchner-type funnel (*B*).

Since the filter is constructed of Pyrex glass granules, the element will withstand temperatures up to 600° C. With rheostatic control of the heating wire, and adequate stirring in the filtering media, proper control of the filtering process can be accomplished. The quantity of material that can be filtered will depend entirely on the area of the filtering disk, and the type of container in which the disk is mounted.

An effective method for the removal of most chemicals that become impregnated on the disk with heating has been found to be the simple procedure of oxidative removal in the annealing oven at temperatures up to 600° C.

The disk described has a number of advantages over other high-temperature filtration units. These consist of (*a*) unobstructed observation of the material during filtration; (*b*) efficient, convenient, and less bulky arrangement for heating and controlling the temperature of the filtering medium; (*c*) relative ease in filtering large or small volumes; (*d*) general versatility, in that the disk can be sealed into any type of apparatus or used in almost any kind of arrangement; (*e*) portability; (*f*) construction of soft glass, Pyrex, quartz, Vycor, etc., to suit the particular needs or the materials available; and (*g*) elimination of the difficulties, so often caused by precipitation resulting from evaporative cooling, where suction is applied to facilitate filtration.

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