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HOT BATH FOR SAMPLES IN VOLUMETRIC FLASKS

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## HOT BATH FOR SAMPLES IN VOLUMETRIC FLASKS

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It is often required to heat volumetric flasks containing liquid samples in a bath of a definite, uniform and controllable temperature. For instance, many spectrophotometric analyses depend upon the proper color development, which should, furthermore, be reproducible. Care must be exercised in not overheating and thereby possibly destroying the reagent, particularly when organic chromogenic or volatile substances are present in the system. Such consequences often occur when the flasks are resting directly on a hot plate or touch the bottom of a bath which is in contact with the heater. Suspending the flasks individually from clamps attached to ring stands is cumbersome, demanding unnecessary work, space and equipment.

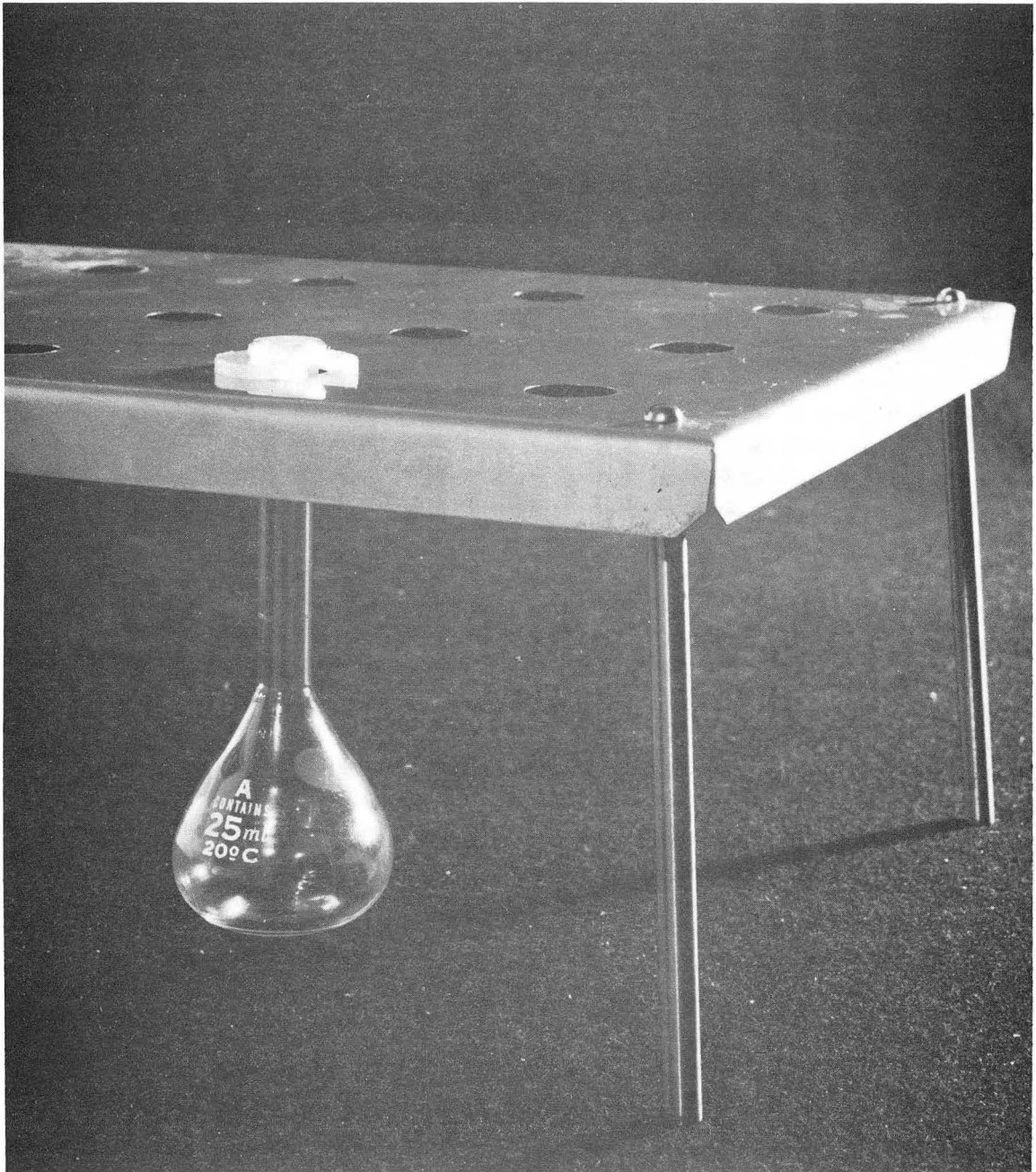
A simple, inexpensive bath was designed in our laboratory which fulfills the above-mentioned requirements. A perforated, stainless steel "table" top, consisting of a 14 × 8 in. stainless steel sheet was cut and supported at each corner by a 4 1/2 in.-long screw "leg". Eighteen 5/8 in. holes, punched through the sheet, allow easy insertion and withdrawal of 25-ml and 50-ml volumetric flasks. The flasks are secured within the holes by retainer rings just below their ground glass joint. Cut from hard nylon (or teflon) 3/32 in. sheeting, the o.d. of the ring equals 1 in. and the i.d. equals 7/16 in. A 1/2 in. section is cut out of the ring, permitting it to be slipped around, or removed from, the neck of a volumetric flask.

A thermometer is inserted vertically through one of the holes to the level of the bottom of the flasks. Either the entire table, or the flasks and thermometer alone, are suspended in the bath recommended in a given procedure.

The bath container may be of any appropriate size and material available. We used a 20 × 15 × 2.5 in. Pyrex pan filled with water, placed on top of a thermostatically-controlled heating unit, to maintain a sample temperature of 85° C for several hours. A constant bath level can be held against evaporation by use of a "chicken feeder".

The size of the table, the length of the supporting screw legs, the number and diameter of the holes, are optional to suit individual needs. Greater versatility of the table can be obtained by using removable legs, i.e. screws of different, interchangeable lengths to accommodate 100-ml and 250-ml volumetric flasks also. If the holes were made to be 1 in. in diameter, retainers having a 1 1/2 in. o.d. but different i.d.'s would serve to secure a variety of volumetric flask sizes.

The table is easily disassembled and can be stored in a minimum of drawer space.



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Fig. 1. Hot bath for samples in volumetric flasks.

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