A THERMOSTATICALLY CONTROLLED MINIATURE GLASS-HOUSE

IN physiological studies in the uptake of metabolites and consequent tissue changes in plants under the influence of antibiotics in the soil, the need for a constant temperature miniature glass-house became urgent. One such was constructed and is described here (for the benefit of workers in this and related fields of research)

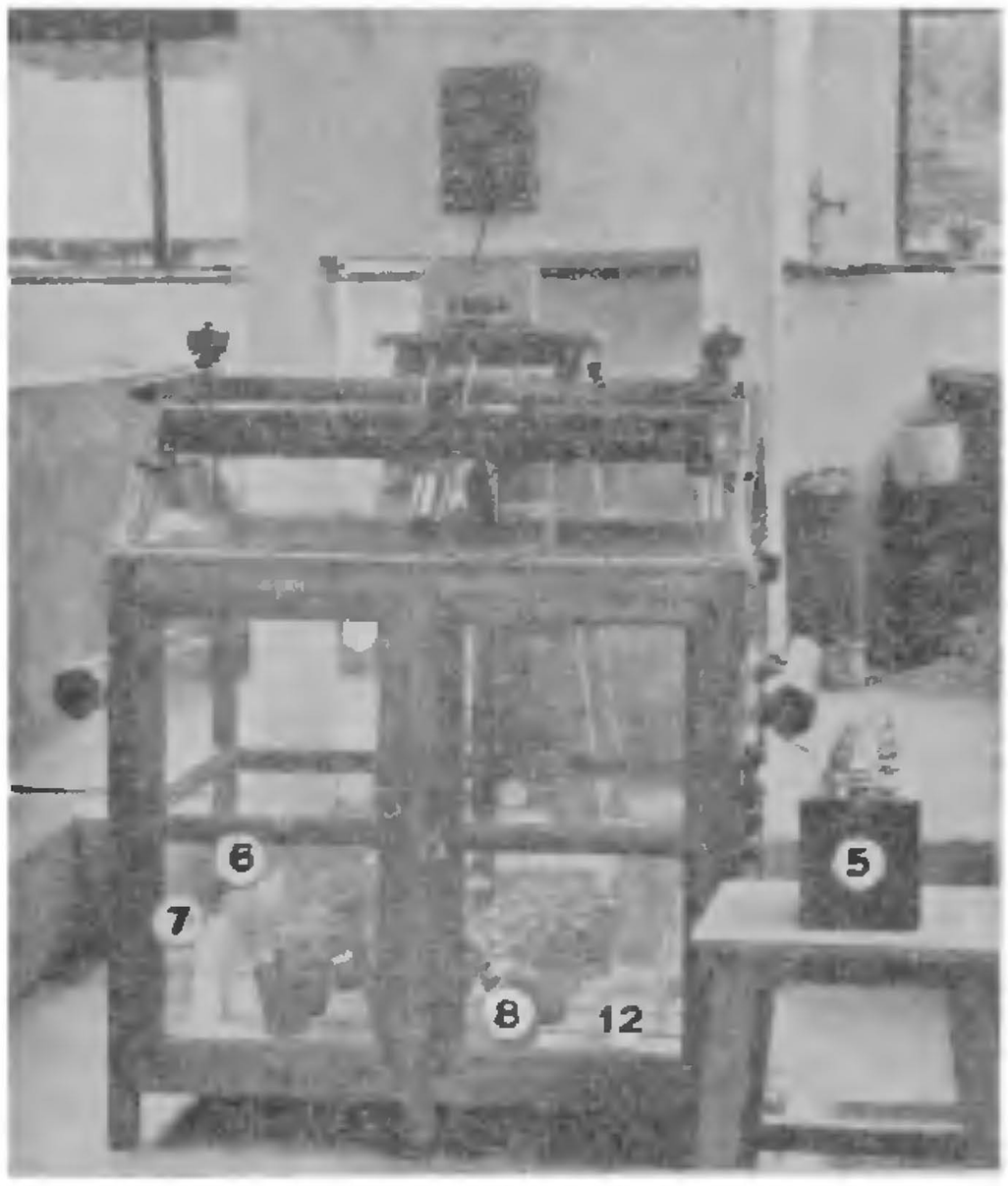

FIG. 1

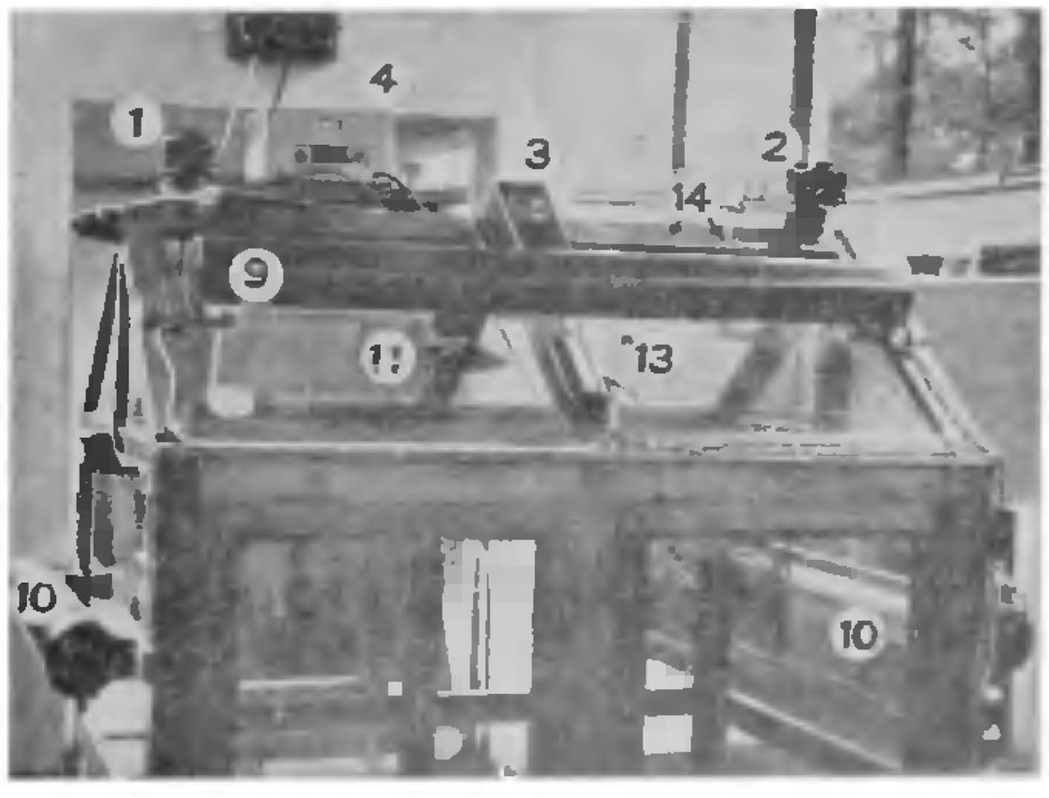

FIG. 2

1 and 2—Thermostats, 3—HVS relay, 4—battery charger; 5–6-volt battery; 6 and 7—200-watt heating units (4 nos.); 8—plants; 9, 10—four tube lights; 11—fan; 12—slatted floor board with wire-gauze support; 13—thermometer; 14—¼″ air-holes on ridge.

as it has been found a most useful acquisition in experimental physiology.

The chamber is a wood and glass structure (Figs. 1 and 2) measuring 40" long, 28" wide, 45" at the ridge and 35" at the door with sloping roofs. Two sunvic dry thermostatic controls (Type TS. 3) connected in parallel through a HVS relay (Type F 102/3) operate four 200-watt dry heaters mounted on the floor in four corners protected by asbestos sheet baffles preventing direct radiation of heat on to plants. A miniature rubber blade 6-volt autofan is mounted on the roof operating on a 6-volt floating battery circuit (with a trickle charger unit). This fan keeps a feeble air circulation, as any large agitation would result in an exaggerated transpiration and vitiation of results. A number of ¼" holes, drilled into the wooden ridge, allows sufficient air inlet for the fan. Four tube lights are mounted on the outside of the cabinet, two on the sides and two on the roof with suitable reflectors and these are of known lux value to enable the investigator to undertake photoperiod work also (for instance, a miniature chamber covered with black cloth can easily be pushed into the cabinet for dark phase observations).

The chamber has been in continuous commission for months at various temperature levels and is not only trouble-free but also maintains accurately $\pm 0{\cdot}2^\circ$ C., a couple of degrees above the atmospheric air temperature The chamber is compact, takes as many as 16 fair-sized potted plants (4" pots) and can be used with advantage inside air-conditioned rooms, should the investigator desire to have lower temperatures in warmer parts of this country. Other details of the construction are clear from the labelled photographs. It is obvious that the chamber can be put to multifarious uses in plant physiological laboratories (including tissue culture work) and also for enzyme work in microbiological laboratories.

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