



FIG. 2. Circuit. The plate supplies of the two tubes are not shown. These come from a single power pack utilizing an Inca C-65 transformer, a 5Y3 tube, two 12 henry chokes, two 4 microfarad condensers, and a 50,000 ohm resistor from which the 250-volt line is taken. The transformer heats the rectifier filament and supplies the heaters of 885 and 6L6 using a separate secondary and resistances of 3.4 and 1.38 ohms, respectively. R_1 —50,000 ohms; R_2 —20,000 ohms; R_3 —5,000 ohms; R_4 —100,000 ohms; R_5 —ganged resistors of 10 meg, 5 meg, 2 meg, 1 meg and 0.5 meg each; R_6 —two ganged zero to 500,000 ohm resistors. C_1 —0.5 mf; C_2 —0.02 mf; C_3 —0.5 mf; A—zero to 200 copper-oxide rectifier type microammeter. T_1 —Thordarson 67 D 50; T_2 —Thordarson 14 A 29.

fixed negative potential impressed upon the grid of amplifier 6L6 to allow current to flow in this tube, T_2 , and the output circuit. Average current is read directly on microammeter, A. Peak values are arrived at by multiplication by a constant for the unit. The stimulator has been used on patients on the service of Dr. Leo Eloesser at the San Francisco Hospital and on animals for direct and through-the-skin stimulation of peripheral nerves and for stimulation of the cortex cerebri.

It is felt that if faradic current used in a given project is accurately characterized as regards intensity, frequency and wave form there may be more uniformity in results of electrical stimulation of nervous tissue. We are left with two objectionable variables: the physical status, degree of narcosis, etc., of the subject; the complex phenomenon "spread." Concerning the second we are attempting to gather some information in the surgical laboratory at Stanford.

FREDERICK A. FENDER

STANFORD UNIVERSITY SCHOOL
OF MEDICINE

AN APPARATUS FOR REMOVAL OF DELETERIOUS BACTERIA FROM CERTAIN PROTOZOAN CULTURES

PROTOZOA cultures periodically become contaminated with deleterious bacteria. When this occurs the metabolic activity of the culture is lowered and often the clone is lost.

The following is a description of an apparatus based on the migration which protozoans show in an electric field towards the cathode. This enables the operator to remove a high percentage of harmful bacteria, and allows the culture to resume its normal growth.

Two platinum wires are fused into the side of a pyrex petre dish. A U-shaped piece of glass tubing is closed at both ends and the longitudinal surface ground, until an open channel results. This channel is filled with sterile hay infusion. The two platinum wires are placed at the extreme end of the glass channel, while the free ends are connected to a suitable electric current.

The protozoa to be partially sterilized are placed near the anode and the current turned on. Under the influence of the electric field the protozoa swim towards the cathode, leaving the bacteria behind them. They are then removed from the fluid by means of a capillary pipette as they near the cathode.

Paramecia treated as described above were no longer seriously contaminated by harmful bacteria. Although far from completely sterilized, they were able to resume normal growth.

WALTER STEWART

THE JOHNS HOPKINS MEDICAL SCHOOL

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