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NOTES AND COMMENTS:

A Surgical Correlator

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The Surgical Correlator** is designed, as the name suggests, to organize more efficiently the multiple electrical instruments used in the operating room. The Correlator is a stainless steel, wheeled instrument carrier with shelves and drawers for a variety of instruments which are controlled by an electrically wired console (See 1 in photo, Fig. 1). Though originally designed for ophthalmic surgery, several features may make the carrier of interest to other specialties. It is useful in reducing the clutter of tables and electrical cords common in most operating rooms. It provides a protected location for expensive equipment.

The Correlator plugs into any grounded, three pole, 115V wall outlet. The room lights as well as the overhead spotlights are organized into the system so that, during retinal surgery, the room may be darkened effortlessly. The wiring to control room lights (Fig. 1-2) emerges from the top of the Correlator and plugs into hanging outlets brought down from the ceiling.

Tap-type switches are utilized on the control console (Fig. 1-1) so that the surgeon can control room lights and instruments with a cotton-tipped applicator which is then discarded. Instruments are maintained in "factory condition"; i.e., no changes are made in their circuitry. To avoid confusion all instruments are left turned "on," though no current is delivered to the instrument until the "on-off" switch on the console is tapped. Each instrument can be removed by unplugging it from the rear of the console module.

Foot pedals for those instruments requiring them are left attached to the instrument and stored in a compartment designed for this purpose (Fig. 1-3). Because of

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**This instrument was custom built by the Carlson Manufacturing Company, Royal Oak, Michigan.

the occasional failure of electrical equipment, the Correlator has been designed to hold several back-up systems. That is, in addition to the Linde cryo unit (Fig. 1-4), a Frigitronics unit (Fig. 1-5) has been included; and, in addition to the Thermosector (Fig. 1-6), we have included a Scheie cautery (Fig. 1-7) and a MIRA RF unit (Fig. 1-8).

Each of the instruments on the Correlator is provided with a storage drawer (Fig. 1-9). Probes and parts, after being wrapped and sterilized, are stored where they can be quickly located. Larger drawers (Fig. 1-10) are provided for the indirect ophthlamoscopes and "canned" Linde probes.

Specially designed autoclave pans (Fig. 1-11) are used to reduce the clutter of tables in the operating room. These pans are used to sterilize cryo probes, thermosector cords, etc. They are kept sterile until needed and, when hung in place on the sides of the Correlator, the pans themselves serve as sterile tables on which instruments are placed when not in use. The lids of these autoclave pans are flat stainless steel sheet. When opened, the undersurface of the pan (Fig. 1-12) lid serves as a sterile backboard to prevent accidental contamination of the cords, tubes, etc. Four of these pans assure minimum delay when moving from operation to operation or room to room.

Two indirect ophthlamoscopes (Fig. 1-13) and a direct ophthlamoscope are available on the Correlator. Their transformers, rheostats, and tap-type switches are mounted on the central console (Fig. 1-1). Each ophthalmologist may use those instruments stored in the appropriate drawers of the Correlator. Should he prefer using his own equipment, this may be adapted for use with the Correlator by inserting a standard male-female quick-disconnect coupling in the cord of the instrument which he normally uses in his examining room. Standard quick-disconnect couplings are used on every instrument in which this is practical. Coil cords of about eight-foot lengths are gas sterilized and stored in a drawer on the Correlator. The same cords are used to connect ophthalmoscopes, electrotrephines, diathermy units (other than RF units), etc.

In order that auxiliary illumination may be provided for difficult situations and to provide maximal illumination for routine ophthalmic procedures in rooms not designed for eye work, a light is mounted on a Luxor® arm on the Correlator at its upper-right corner (Fig. 1-14). A fiber optics light is also mounted in this area (Fig. 1-15).

Gaseous nitrogen, for the Linde cryosurgical unit, is stored on the Correlator in a "Q" cylinder (Fig. 1-16). Though smaller than the usual tank, it is adequate for multiple procedures. Liquid nitrogen, in a one-liter Dewar flask, is also stored on the Correlator. Because of the weight of the Linde probe when attached to its various wires and tubes, a Luxor® arm (Fig. 1-17) has been modified to hold this instrument. A metal handle (Fig. 1-18) which can be sterilized is screwed into the end of this arm so that it may be controlled by the surgeon.

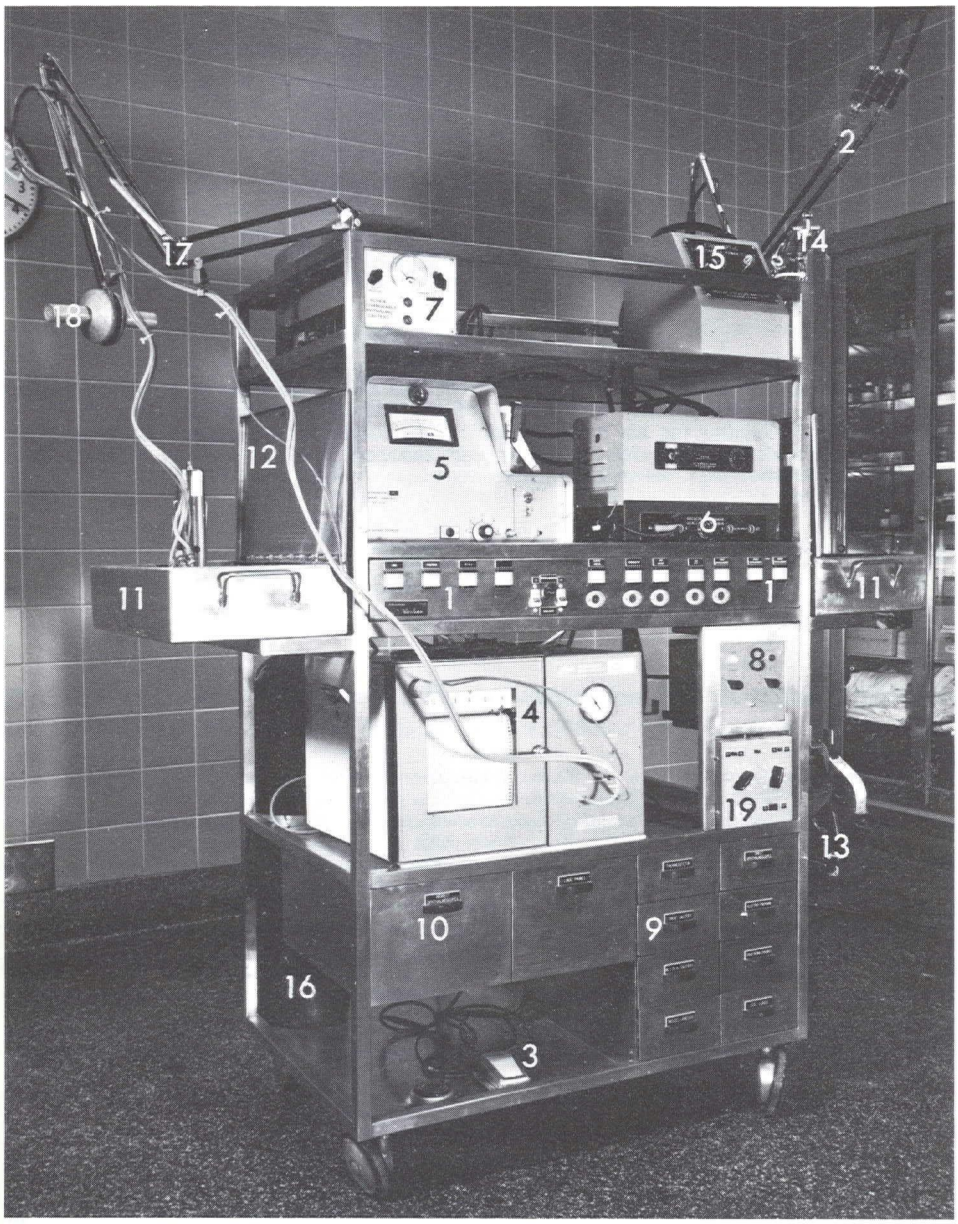

Figure 1: (1) Control console (2) Electrical wires controlling room lights (3) Foot pedal compartment (4) Linde cryo surgical unit (Type CE-3, Union Carbide Corporation, Indianapolis, Ind.) (5) Frigitronics unit (Model No. 4DS 473, Frigitronics Inc., Bridgeport, Conn.) (6) Thermosector (The Thermosector Co., Oak Park, Ill.) (7) Scheie cautery (Model No. C-630, American Cystoscope Makers, Inc.) (8) M.I.R.A. RF unit (Medical Instrument Research Associates, Inc., Boston, Mass.) (9) Small instrument and probe drawers (10) Drawers for indirect ophthalmoscope and large probes (11) Autoclavable trays (12) Sterile tray lids (13) Indirect ophthalmoscope (14) Auxiliary lights with Luxor® arm (Model No. L-3) (15) Fiberoptics Light (Model No. FCB 100 Series 32-22, American Cystoscope Makers, Inc., Pelham Manor, N. Y.) (16) "Q" cylinder of gaseous nitrogen (17) Luxor® arm (Model No. L-3) for Linde probe connections (18) Autoclavable handles (19) Heathkit phototimer to automatically time Linde cryo probe (Model PT 15)

A Heathkit Phototimer (Fig. 1-19) has been modified and installed in the Correlator. When cryotreating large areas, one may set the instrument to deliver known temperatures for known periods of time. That is, if the timer is set at -40°C for six seconds, it will drop the probe tip to -40°C when the foot switch is depressed. After this temperature is reached, it will hold this temperature for six seconds prior to automatically warming the probe. The automatic cycle may be interrupted at any time by removing the foot from the foot pedal, or the timer may be removed entirely from the cryo therapy system by flicking it to the "off" position, in which position the instrument is used in the conventional fashion.

Acknowledgment

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