equipment. Nickel-cadmium cells require a constant current charger, and therefore a standard battery charger (car or motorcycle) will not be effective. The firm's apprentices

Photograph of electrically heated gloves.

eventually managed to design and build a constant current supply. This system proved satisfactory and has now been used for over a year by the patient.

In ordinary use, including boosting when necessary, the gloves provide heating for up to five hours of use each day and are recharged overnight. As they are not needed indoors or in bed, this is quite adequate. Tests in a refrigerated compartment at an ambient temperature of 32° F. (0° C.) showed that the gloves maintained a skin temperature of 112° F. (44.4° C.) when on boost and 72° F. (22.2° C.) when on the lower running current. This is quite adequate, but in extremely cold weather it might be advisable to insulate the gloves exteriorly with outer gloves to reduce current requirements.

Cold agglutinins in the blood are rare and the cause is unknown. There is no known curative treatment. Symptomatic treatment by warming the extremities to about body temperature is important to prevent digital gangrene. In other conditions giving rise to secondary Raynaud's phenomenon, especially scleroderma, heated gloves may well prove to be a valuable symptomatic treatment.

EQUIPMENT MANUFACTURERS

Gloves.—Vacuum Reflex Ltd., Prestige House, 50 Coombe Road, New Malden, Surrey.

Nickel-cadmium Cells (sintered cadmium type, 1.2V, 7AH) (Ex. W.D.).—Obtainable from Service Trading Co., 57 Bridgman Road, London W.4.

New Nickel-cadmium Cells (DEAC).—Obtainable from G. A. Stanley-Palmer Ltd., Elmbridge Works, Island Farm Avenue, West Molesey Trading Estate, East Molesey, Surrey.

Silver Zinc Cells—Type H 10.—Venner Accumulators Ltd., Kingston By-Pass, New Malden, Surrey.

Constant Current Charger.—Obtainable from Cadmium Nickel Batteries Ltd., Spedant Works, Park Royal Road, London N.W.10.

I would like to thank Mr. H. A. McDonald, of Great Yarmouth General Hospital, and Mr. Peter Martin, of the Hammersmith Hospital, for their help in the management of this case. The rechargeable nickel-cadmium battery system was developed by Messrs. John Self, Rodney Myall, and Brian Troise, apprentices of Erie Electronics Ltd. (Great Yarmouth), for whose help, and the co-operation of the management, I am grateful.

Modified Needleholder for Microsurgery

Dr. R. D. ACLAND, surgical registrar, Princess Margaret Hospital, Swindon, writes: The delicacy of a needleholder is limited by the coarseness of the movements required for gripping and releasing the needle. In the modified Barraquer's needleholder described here these movements are controlled pneumatically by a foot pedal. The instrument can be held in the same position as a pen, and the hand can concentrate on fine movements.

The instrument is held closed by an elastic net, made by cutting slits in a 1-cm. length of the butt of a latex Foley catheter. This net encloses the balloon of a No. 20 Foley catheter, which is inserted between the arms

of the instrument. The whole of the catheter is cut away except for the balloon in continuity with its side-tube. Fig. 1 shows the instrument partly assembled.

The side-tube is connected by a length of transfusion tubing to a 10-ml. syringe. The syringe is held in a foot pedal (Fig. 2) with the piston fixed and the barrel movable. The hinge of the pedal is placed 10 cm. in front of its heel end so that the pedal can be moved in either direction by plantar flexion and dorsiflexion at the ankle. Plantar flexion causes the jaws of the needle holder to open. The pedal is constructed so that the stroke-volume delivered by the syringe is 6 ml. The piston and tubing contain water, the quantity

being adjusted so that the top of the water column is 15 cm. from the top of the tubing with the syringe closed. The valve on the Foley side-tube enables the balloon to be primed with a few millilitres of air before being connected to the transfusion tubing.

No originality is claimed for the principle of this device (Buncke and Schulz, 1966). It has the merit, however, of being easily made from parts readily available and of being extremely effective in action.

I wish to thank Mr. D. J. Drury for the photographs.

REFERENCE

Buncke, H. J., and Schulz, W. P. (1966). *Brit. J. plast. Surg.*, 19, 15.

FIG. 1

FIG. 2