IN THE LABORATORY

Production of Quantitative Infections With the Filariae of the Cotton Rat[1]

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Progress in the study of filariasis has long been retarded by the lack of an animal that can be infected in the laboratory. A step forward was made last year with the production of mass infections with *Litomosoides carinii*, the filaria of the cotton rat. Experiments recently completed in this laboratory have shown that it is now possible to produce quantitative infections with these worms, *i.e.* infections made with a known number of larvae and thus limited to a definite maximum size. This step opens the way for a new approach to the study of filariasis. In chemotherapeutic studies parallel series of treated and control animals infected with an approximately equal number of worms, all of which are of the same age, make possible more accurate determinations than with the wild-caught or mass-infected animals previously used. Moreover, the susceptibility of various species of animals, the possibility of a changing susceptibility with advancing age, and other phases of the immune response can now be studied by this method.

The details of the method are simple. Tropical rat mites, *Liponyssus bacoti* are raised on a white rat in a metal tank surrounded by an oil-filled moat. After three or four weeks an initial 50 mites will have produced a large colony, and an infected cotton rat is then substituted for the white rat. Ten days later this rat is removed, and in a few days the mites begin to migrate up the sides of the container. They are transferred by suction to vials, in which they are held until at least two weeks after their first opportunity for an infected blood meal. They are then examined in saline under a cover glass, and those containing larvae are placed in separate bottles. When a sufficient number is available, each mite is held in a drop of saline under a dissecting microscope by laying the tip of a bent needle across the thorax, and the tip of the abdomen is removed with a knife-edged needle. The viscera are expressed through this opening and the larvae teased free in the saline. These are transferred with a fine pipette to a drop of saline in the "hookworm larva counting slide" designed by the writer and listed by Arthur H. Thomas Company. In this slide the larvae can be easily counted as they accumulate from successive dissections. When sufficient are present, they are drawn from the slide into a #15 hypodermic needle, 3½ inches long. Care is taken not to draw them through the needle into the attached tuberculin syringe, but the syringe contains saline to rinse the larvae out of the needle when the injection is given under the skin of the back. A check against loss is made by again rinsing the needle into the slide.

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A Simple Method for Administering Nebulized Penicillin

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Increasing recognition of the advantages of the inhalation treatment with penicillin vapor has led to the development of many complicated devices. This communication is to suggest a simple apparatus for nebulizing and administering penicillin.

Advantage has been taken of the fact that the De Vilbiss nebulizer #40 has an aperture which exactly fits the BLB "oxygen mask" type A-8-A arctic, manufactured by the Ohio Chemical Manufacturing Company. The mask's rebreathing bag and its side arm are removed, and the glass nebulizer is inserted into the tube leading to the mask. The lower end of the nebulizer is connected to a source of compressed air or oxygen. A T-tube is inserted in the compressed air line so that the patient can control the pressure in the system. This is done by closing the T-tube with the finger, on inspiration, and removing it during expiration. Using a flow of 6 or 7 l. of oxygen/minute, or its equivalent in compressed air, results in nebulization of watery penicillin solutions which are then inhaled via the mask through the nose or mouth with complete comfort to the patient. The simplicity and availability of this apparatus make the administration of penicillin vapor convenient and foolproof.

An Interphase Analyzer of the Electroencephalogram[1]

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Interpretation of the electroencephalogram (EEG) is made at present almost entirely by visual estimate of wave forms, frequencies, phase, and amplitude relationships which are obtained from different areas of the cerebral cortex. Much of the interpretation of these records must always be done in this manner, for as an X-ray diagnosis, for example, there is no substitute for the skilled and experienced interpreter. But it is obvious that any additional objective measure of significant factors in these records would be of value not only in interpreting individual records but in comparing standards from the different laboratories now being established in many countries.

With this in mind, there have been a number of attempts to develop automatic or semiautomatic analyzers of these tracings. Frequency analyses, both manual (*1–4*) and automatic,

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