jected to intravenous sodium barbiturates.[6-9] In fact, it is stated or implied that there is really an enhancement of the basic alpha pattern following the use of sedatives. This phenomenon, as previously noted, has not been observed in our experiments.

The characteristic wave pattern of approximately 20 waves per second which results from the intravenous injection of sodium amytal is apparently not specific for the barbiturate derivatives. Similar rhythmic, high frequency, electric activity has been observed in certain phases of cyclopropane anesthesia,[10] and in early sleep.[11, 12]

Conclusion. There is a definite and characteristic change in the human electroencephalogram following the slow intravenous administration of sodium amytal. The change is marked by the early appearance of a rhythmic oscillation, with a frequency of approximately 20 waves per second, in place of the individual's "spontaneous", or control, pattern. This action is not specific for the barbiturate derivatives. It is a general concomitant of early "depressed" cortical activity.

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Cine-Photomicrographic Apparatus With Constant Temperature Chamber for Tissue Culture Studies.*

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Sano and Smith[1] reported a simplified technic for tissue culture,

[6] Lennox, W. G., Gibbs, F. A., and Gibbs, E., *Arch. Neurol. Psychiat.*, 1936, **36**, 1236.

[7] Gibbs, F. A., Gibbs, E. L., and Lennox, W. G., *Arch. Int. Med.*, 1937, **60**, 154.

[8] Lemere, Frederick, *J. Neurophysiol.*, 1939, **1**, 590.

[9] Penfield, W., and Erickson, T. C., Chapter 14 by H. H. Jasper, *Epilepsy and Cerebral Localization*, 1941, Charles C. Thomas, Springfield, Illinois.

[10] Rubin, M., and Freeman, H., *J. Neurophysiol.*, 1940, **3**, 33.

[11] Davis, H., Davis, P. A., Loomis, A. L., Harvey, E. N., and Hobart, G. A., *J. Neurophysiol.*, 1938, **1**, 24.

[12] Blake, H., Gerard, R. W., and Kleitman, N., *J. Neurophysiol.*, 1939, **2**, 48.

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[1] Sano, Machteld E., and Smith, Lawrence W., PROC. SOC. EXP. BIOL. AND MED., 1930, **28**, 282.

utilizing a glass (or metal) ring with 2 cover slips as the chamber, this is in turn placed within an ordinary Petri dish for convenience in handling and maintaining sterility. It possessed the advantages of easy accessibility to, and a flat surface for microscopic study of, the culture. The obvious desirability of being able to obtain permanent cinematographic records prompted the authors to devise a compact

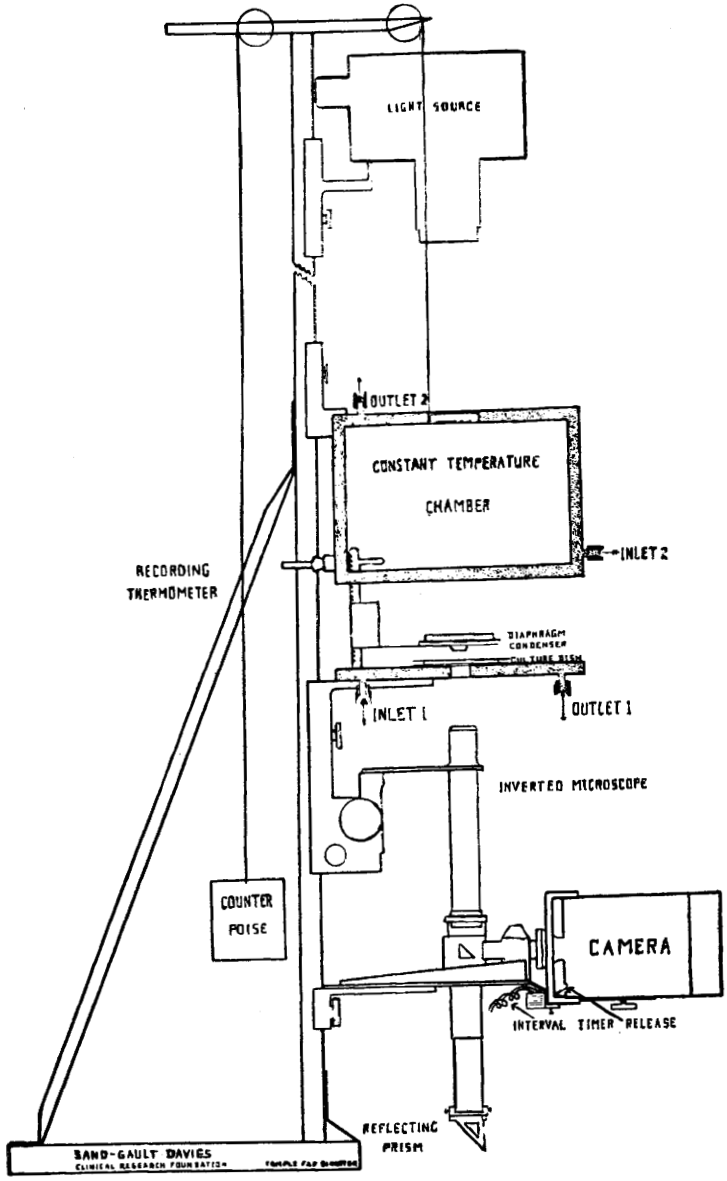

FIG. 1.

and simple apparatus in which constant temperature of any desired degree could be maintained, and with which filming of the culture could be carried out at will. Because of the apparent widespread interest in the apparatus, as expressed by many fellow investigators in this field, we felt it might extend its field of usefulness if we published a brief memorandum regarding its construction. A diagrammatic sketch, Fig. 1, is appended to make clear the mechanism. It should be mentioned that this is an original experimental model, and that certain obvious refinements could be incorporated in any subsequent unit.

Actually the apparatus was built around our special tissue culture dish, to permit the culture to remain in its normal upright position. This required the inversion of the microscope in order to obtain high power photomicrographs, as otherwise the depth of the culture chamber interfered with any but extremely low magnification projection. Partly to decrease the length of the optical system and partly because a side arm viewing prism was not available, the camera (a Bell-Howell 16 mm cartridge type) was interposed horizontally by the intervention of a prism in the projection system (see diagram). The light source was a standard Bausch and Lomb ribbon filament lamp of the projection type. So far as the optical system is concerned there is nothing unusual about it other than its inverted position.

The constant temperature chamber (or incubator as it might be termed) is the important feature of the apparatus. This consists of a hollow stage, and a double walled, square, box-like cover which fits closely over the stage, measuring 0.8 cm in total thickness. The stage and the roof of the cover each have a window to permit illumination. The cover is suspended by a steel wire which is counterbalanced, thus making the chamber instantly accessible. Fluid is circulated through the hollow walls of the stage and cover at any desired temperature, and this temperature level can be maintained with no more than $\pm 0.2^{\circ}$ variation. The condenser rack and pinion system was relocated, so as to be wholly within the constant temperature chamber.

The temperature of the fluid is maintained constant by the use of some type of mechanical compressor. If only temperatures in the lower range are needed any ordinary electric refrigerator unit could be used. Actually the equipment which we have used is a small bedside unit made by the Therm-O-Rite Corporation of Buffalo, N. Y., for the clinical studies relating to hypothermy carried out under the direction of Dr. Temple Fay.[2] Using freone as the refrigerant and

[2] Fay, Temple, *Proc. Inter-State Postgr. Med. Assn. N. Am.*, Oct. 14-18, Cleveland, Ohio, 1940.

by inserting a heating unit in the same machine a temperature range of over 100°C can be obtained which will remain constant within very narrow limits.

A resistance thermometer with a self-recording mechanism (Micromax-Leeds and Northrup Company, Philadelphia) is introduced into the chamber so that any deviation from the constant temperature may be noted, and the cultural results interpreted accordingly.

An interval timer with an automatic release is attached to the camera which permits a wide range of interval-timed photography ranging from seconds to hours. The most practical of such apparatus we have found to be the extremely compact unit made by J. W. Robbins of Philadelphia. In this way the entire procedure is automatic with the exception of critical focusing. Particularly with rapidly growing cells such focusing must be carried out at frequent intervals to secure satisfactory photographic results. In our apparatus this can be done directly through the microscope eyepiece or with the intervention of a removable prism in the system which makes the focusing somewhat more convenient.

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Susceptibility of Syrian Hamsters to Leptospirosis.

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Packchanian[1] studied the susceptibility of 32 species and subspecies of rodents to virulent strains of *Leptospira icterohemorrhagiæ* and concluded that certain species of American deer-mice, genus *Peromyscus,* are suitable as susceptible small laboratory animals for experimental studies of icterohemorrhagic spirochetosis and for the diagnosis of Weil's disease. He did not, however, include hamsters in his studies. Larson[2] reported that white mice *(Mus musculus)* are extremely sensitive to *L.icterohemorrhagiæ*. He emphasized that young animals be employed. The mortality rate approximates 100% in 3-week-old mice, but falls rapidly as age increases. At this time we wish to report on the susceptibility of Syrian hamsters to *L. canicola* and *L. icterohemorrhagiæ*.

[1] Packchanian, A., *Pub. Health Rep.*, 1940, **55**, 1389.

[2] Larson, C. L., *Pub. Health Rep.*, 1941, **56**, 1546.