

they give the same fundamental reactions known for other mammals. Yet these differences may be only apparent and due to some factor not controlled in the experiments.

5799

New Studies on the Filtrability of the Tubercle Group.

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A grass bacillus indistinguishable in the characteristic cultural and morphological earmarks from the tubercle bacillus was isolated 6 years ago. Its acid fastness was variable even in cultures isolated from a single cell. Under certain conditions it developed non-acid-fast granules which were filtered through a Berkefeld N candle. These underwent slow and capricious germination to a non-acid-fast, diphtheroidal bacillus whose cultural characters were quite different from the antecedent strain. Microscopically, however, the strains were almost indistinguishable.

In 4 out of 6 years of the intervening period, and always in the spring of the year, the identical diphtheroid has spontaneously dissociated from the original strain, indicating that the mechanism for such dissociation is *via* the filtrable gonidial granule. (Much.)

More recently, by employing a modified K-medium (Kendall) these observations have been repeated and extended; for in addition to the diphtheroidal form, the original cultural stage of the organism has been recovered from the filtrates. A strain of bovine tubercle bacillus has also dissociated a very similar diphtheroidal strain, often containing numerous acid-fast granules.

These strains differ in no essential particular from the diphtheroids of Hodgkin's disease, benign lymphogranulomatosis and Boeck's sarcoid, making it highly probable that their origin *in vivo* is also the tubercle bacillus. No opinion is vouchsafed in respect of their rôle in the pathogenesis of such diseases.

For almost 30 years non-acid-fast forms have been described for tubercle bacillus by various workers, but their mechanism of origin has never been clear and the strains themselves were viewed as contaminants.

This final demonstration that single-celled cultures of the acid-

fast group possess filtrable phases, biologically distinct, should settle this moot problem of the filtrability of acid-fast bacilli; it explains in addition the origin of certain non-acid-fast strains and may lead to their better evaluation in certain atypical forms of tuberculosis.

5800

Effect of Giving Digitalis on the Volume Output of the Heart and its Size in Normal Individuals.

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It was first shown by Harrison and Leonard¹ that digitalis decreased the cardiac output in normal dogs. In repeating these experiments, Cohn and Stewart² were able to confirm the observation that digitalis decreased the volume output of blood from the heart in normal dogs, but that at the same time it *decreased* the size of the heart although it *increased* the extent of ventricular contraction. Results similar to these were obtained when the drug was given to dogs in which the hearts had become pathologically enlarged, but in which there were no signs of heart failure.³ In a parallel study, Burwell, Neighbors and Regen⁴ by an unsatisfactory method published data which suggested that taking digitalis decreased the cardiac output of normal men. Since the publication of their paper, Grollmann^{5, 6} has introduced a more accurate method of measuring the cardiac output than that formerly used. In the study here reported, this method has been used, which so far as can now be judged gives accurate and reliable results. The nature of the changes which Burwell, Neighbors and Regen found resemble those described in this report.

There are observations on 4 subjects. Digitan (Merck) 0.8 to 1.0 gm. was given in a single dose. Observations were made immediately before the drug was given and at frequent intervals afterward. All observations were made with subjects in a basal

¹ Harrison, T. R., and Leonard, B. W., *J. Clin. Invest.*, 1926, **3**, 1.

² Cohn, A. E., and Stewart, H. J., *J. Clin. Invest.*, 1928, **6**, 53.

³ Cohn, A. E., and Stewart, H. J., *J. Clin. Invest.*, 1928, **6**, 79.

⁴ Burwell, C. S., Neighbors, D. W., and Regen, E. M., *J. Clin. Invest.*, 1928, **5**, 125.

⁵ Grollmann, A., *Am. J. Physiol.*, 1929, **88**, 432.

⁶ Baumann, H., u. Grollmann, A., *Z. f. klin. Med.*, 1931, **115**, 41.