TABLE I.

Adrenalectomized Males			Controls
Age at Operation in days	Age at Death in days	Weight of Testes in gm.	Weight of Testes in gm.
26	29	.320	.405
26	29	.360	.410
26	29	.430	.440
26	30	.490	
26	30	.305	.530
26	30	.340	.605
26	30	.340	.620
26	30	.400	.560
26	30	.410	.650
26	30	.450	
26	30	.410	.520
26	30	.480	
27	31	.345	
26	32	.690	.320
27	33	.370	.710
27	33	.335	.700
27	33	.330	.810
30	34	.610	
30	35	.580	
30	35	.500	
30	36	.620	.840
30	38	.890	1.130

of the cortex which returns to normal on replacement therapy. Absence of the anterior lobe results similarly in atrophied testes. There is a possibility that adrenalectomy might injure the hypophysis and so destroy the testes.

Daily injections of 1 to 2 cc. of urine of pregnancy containing maturity hormone is capable of stimulating readily the accessory sex organs in the male. After adrenalectomy, 4 or 5 daily injections will double the size of the immature seminal vesicles; the testes in the meantime, however, are rapidly degenerating in spite of the abundance of hypophyseal sex hormone.

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Bacteriology of Skin Lesions of Tuberculin Reacting Cattle.

LYMAN L. DAINES AND HAROLD AUSTIN. (Introduced by John F. Kessel.)

From the Department of Bacteriology and Pathology, University of Utah Medical School.

This is a preliminary report on the bacteriology of 189 cases of so-called skin tuberculosis of cattle.

In recent years, as the tuberculosis eradication program is succeeding in reducing the number of typical cases of bovine tuberculosis in cattle, there is a marked relative increase in the number of so-called skin lesions and no-lesion-reactors. In Utah, this has resulted in a large majority of the cattle, which react to the tuberculin test, and which on post-mortem examination, fail to show any lesions, or lesions which are confined to the skin or to the subcutaneous tissue.

More than 90% of the lesions studied in this series came from animals which had given a positive tuberculin reaction. The remainder had not been tested because they were obtained in routine examination of regular abattoir material.

Only one of the 189 skin lesions yielded a typical *Mycobacterium tuberculosis* (bovine type) and this came from an animal which appeared to have generalized bovine tuberculosis. This suggests the occurrence of true bovine tuberculosis skin lesions, but it also indicates the probability that the rather rare positive animal inoculation tests of Day,[1] Watson,[2] Mitchell,[3] and others might have been from similar unusual cases.

Careful search of these skin lesions from tuberculin-reacting cattle revealed the presence, in all of them, of acid-fast rods, as well as one or more forms of acid-fast or non-acid-fast coccoid, diphtheroid, or streptococcoid organisms, or branching filaments. These are all probably different stages or forms of a pleomorphic organism.

All but one of the 189 skin lesions, as well as organs from several no lesion-reactors yielded in culture one or more forms of markedly pleomorphic, facultative acid-fast, Gram positive organisms. Of these, a few strains—the only ones tried up to the present—produce fairly constant results when inoculated into male or pregnant female guinea pigs.

These results are probably more nearly typical of the Preisz-Nocard bacillus *(Corynebacterium ovis)* than of any other known organism.

Morphologically and physiologically these organisms resemble very closely not only *Corynebacterium ovis* but also the Actinomyces described by Walker[4] as the cause of human leprosy and by Walker and Sweeney[5] as the cause of rat leprosy. It is possible

[1] Day, L. Enos, *J. A. V. M. A.*, 1921, **59**, N.S. 12 (6), 769.

[2] Watson (Discussion of paper by Traum, Jacob), *J. A. V. M. A.*, 1929, **74**, N.S. 27 (4), 576.

[3] Mitchell, Chas. A., *J. A. V. M. A.*, 1928, **73**, N.S. 26 (4), 493.

[4] Walker, E. L., *J. Exp. Med.*, 1929, **8**, 167.

[5] Walker, E. L., and Sweeney, M. A., *J. Exp. Med.*, 1930, **4**, 331.

that we have in these organisms a new, undescribed species. The possibility that these pleomorphic forms may be stages in the life cycle of a true, attenuated, mammalian tubercle bacillus must be kept in mind.

Because of the constant occurrence of these forms, practically always in pure culture, in skin lesions of tuberculin-reacting cattle and in the organs of no-lesion-reactors, we are led to believe that they are the cause of nearly all of the skin lesions and of the tuberculin hypersensitiveness of most of the reactors in Utah.

If these organisms are finally shown to be the cause of the usual skin lesions of tuberculin-reacting cattle, their cultural reactions and their effects on guinea pigs may offer a means of definite early diagnosis and probably make unnecessary the slaughter of large numbers of cattle.

Extensive animal inoculations and cultural tests are now under way in an attempt to establish definitely either the positive or the negative rôle of these organisms in the skin lesions of cattle and also in the production of tuberculin sensitization in cattle.

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An Improved Gasometric Apparatus for Estimation of Amino Nitrogen.

MAX S. DUNN, B. W. SMART AND K. E. BROWN.

From the Chemical Laboratory, University of California at Los Angeles.

The first apparatus for the quantitative determination of amino nitrogen was devised by Sachsse and Kormann.[1] It consisted essentially of a cylinder for deaminizing the aliphatic amine and a buret for purifying and measuring the nitrogen. Mallet[2] described minor modifications in the form of the apparatus. Brown and Millar[3] proposed an elaborate set-up for carrying out the amino nitrogen determination. Van Slyke[4] devised an apparatus giving satisfactory accuracy yet requiring only relatively simple manipulations. Klein[5] described an all glass deamination chamber to replace the bot-

[1] Sachsse, R., and Kormann, W., *Die landwirthschaftlichen Versuchs-Stationen*, 1874, **17**, 321. *Z. Anal. Chem.*, 1875, **14**, 370.

[2] Mallet, J. W., *U. S. Dept. Agri., Div. of Chem., Bull.*, 1898, **54**, 7.

[3] Brown, H. T., and Millar, J. H., *Trans. Guinness Research Lab.*, 1903, **1**, 18.

[4] Van Slyke, D. D., *J. Biol. Chem.*, 1909-10, **7**, XXXIV. *Ber.*, 1910, **43**, 3170.

[5] Klein, D., *J. Biol. Chem.*, 1911, **10**, 287.