related to an increased rate of protein metabolism. It is perhaps significant that adrenal cortical hypertrophy, well known to occur under thyroid treatment, is also thought to be a response to an increased rate of protein utilization.[17] In addition, evidence has recently been presented that lymphoid tissue may represent an important source of metabolic protein[4]—a source limited in volume, but of extreme lability. While the present experiments record only gross structural alterations, and the possible contribution of these changes to the physiology of the organism must remain in the realm of speculation, it is suggested that an increased rate of nitrogen metabolism may well represent the common denominator underlying the many changes noted in this investigation.

Summary. The administration of thyroxine to adult male mice resulted in an increase in the organ weights of the kidneys, spleen, and peripheral lymph nodes. Similar treatment of adrenalectomized animals resulted in an increase in the weights of the spleen and peripheral lymph nodes over and above that which followed adrenalectomy alone. It is concluded that thyroxine produces an increase of lymphoid tissue mass which is independent of the rate of body growth and of the level of adrenal cortical activity.

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[16] Kochakian, D. C., in Recent Progress in Hormone Research, Vol. 1, New York, Academic Press, Inc., 1947, p. 177.

[17] Tepperman, J., Engel, F. L., and Long, C. N. H., *Endocrinol.*, 1943, **32**, 373.

Failure of Aureomycin in the Treatment of Experimental Tuberculosis. (17327)

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The failure of streptomycin, p-aminosalicylic acid and the sulfone compounds to prove ideal agents for the treatment of tuberculosis has stimulated the testing of many new agents. Because of the remarkably wide anti-microbial spectrum of aureomycin, it seemed worthwhile to study its effect upon experimental tuberculosis.

Guinea pigs weighing 400 to 500 G each were inoculated subcutaneously with 0.02 mg tubercle bacilli from a recently isolated, virulent, streptomycin-sensitive human strain. After 28 days, the animals were divided into two groups. The 12 animals in Group A were treated with daily subcutaneous injection of 5 mg aureomycin hydrochloride, 6 days a week for 6 weeks. The 11 animals in Group B served as infected, untreated controls.

A third group, Group C, consisted of 6 uninfected guinea pigs given aureomycin in the same dosage as Group A, in order to observe possible toxic effects of the drug.

Animals were autopsied as they died, and those surviving after 6 weeks of treatment or 10 weeks after infection were sacrificed and autopsied.

In Table I, it can be seen that mortality was higher in the treated than in the untreated group. Both treated infected and uninfected groups showed marked weight loss, and one of the uninfected animals died during treatment.

All the infected animals showed widespread tuberculous involvement of the regional lymph nodes surrounding the injection site, the liver, spleen, and lungs. Gross and microscopic examination failed to show any appreciable difference between the treated and untreated animals. Acid fast bacilli were demonstrated

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TABLE I.
Effect of Aureomycin on Weight and Survival of Tuberculous Guinea Pigs.

Group	Avg wt start, g	Avg wt start treatment, g	Avg wt death, g	No. animals start	No. animals surviving 10 wks
A. Infected, aureomycin treated	501	556	440	12	5
B. Infected, untreated	471	529	552	11	10
C. Uninfected aureomycin treated	465	652	578	6	5

in the microscopic sections of tuberculous tissue from the 5 animals which survived the full 6 weeks of treatment, and tubercle bacilli were readily cultured from the lung in one of these animals.

All the animals treated with aureomycin showed definite evidence of local drug toxicity. There was marked fibrosis of the anterior abdominal wall, where the injections were given, and there were extensive peritoneal adhesions, which, in a few animals, constricted and partially obstructed loops of small intestine. This mechanical obstruction may have accounted for the weight loss in some of the treated animals. In 6 of the treated animals, intercellular material that stained blue with hematoxylin was observed in the liver, spleen, or renal medulla. In 2 of the treated animals, focal hepatitis and hepatic necrosis were observed.

The *in vitro* aureomycin sensitivity of the original organism used, when grown in a modified Dubos liquid medium, was 100 μg/cc. The sensitivity of the strain recovered from the guinea pig after 6 weeks of aureomycin treatment was unchanged.

These results confirm the findings of Steenken and Wolinsky,[1] who failed to influence favorably guinea pig tuberculosis using a considerably lower dosage of aureomycin. It is shown here that aureomycin given in parenteral per kg dosage approximately 10 times the maximum used for other infections in man fails to influence favorably the course of guinea pig tuberculosis, and, indeed, exhibits definite toxicity.

1 Steenken, W., Jr., and Wolinsky, E., *Am. Rev. Tuberc.*, 1949, **59**, 221.

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"Crystalline" Virus-Like Particles from Skin Papillomas Characterized by Intranuclear Inclusion Bodies.* (17328)

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This is a report of the observation with the electron microscope of virus-like bodies that have been obtained from skin papillomas. These papillomas are characterized by the presence of intranuclear inclusion bodies, and the elementary bodies obtained from them tend to be arranged in a crystalline-like pat-

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