0.2 cc of a fibrinogen solution was added to the mixture. Fibrinogen preparations from human and sheep plasma gave essentially the same results. In the control experiments 0.06 cc of saline were substituted for the heparin. The tubes were examined for clots at fixed intervals in order to avoid unnecessary agitation. The concentration of the protein solutions used in the experiments reproduced in Table I is expressed in mg N per cc of protein solution.

As shown in Table I, the crystalline albumin fraction even when tested in fresh solution is entirely inactive as a complement of heparin. The activity appears to reside in the most soluble fraction of the serum albumin. It might be mentioned that the albumin solutions prepared by Howe's method retained their activity for more than 50 days. It is not possible to state definitely whether the activity is due to a single component of the albumin fraction. Additional work will have to be carried out with respect to this question. A detailed report on this work and related aspects will be published at a later date.

It might be mentioned that occasionally individuals are encountered whose clotting time responds to heparin to a slight degree only. It will be of interest to see whether the heparin complement here discussed is lacking in the serum of these patients.

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Chloride Excretion in Hypothyroidism.

D. J. STEPHENS. (Introduced by W. S. McCann.)

From the Department of Medicine, University of Rochester School of Medicine, and the Medical Clinic, Strong Memorial and Rochester Municipal Hospitals, Rochester, N. Y.

Cutler, Power and Wilder,[1] using a standardized sodium chloride depletion test, have shown that the chloride concentration in the urine of patients with Addison's disease is significantly and consistently higher than in controls. These observations have been confirmed by others.[2] Six of 8 patients with clinical hypopituitarism, studied under similar conditions, have shown increased concentrations of chloride in the urine comparable to those found in patients with

1 Cutler, H. H., Power, M. H., and Wilder, R. M., *J. Am. Med. Assn.*, 1938, **111**, 117.

2 Dryerre, H. W., *Edinburgh Med. J.*, 1939, **46**, 267.

Addison's disease. Symptoms suggesting those of the Addisonian crisis developed in 4 of the 6 patients with abnormal chloride excretion, and were promptly relieved by the administration of sodium chloride and adrenal cortex extract. These observations were interpreted as evidence of the occurrence of chronic adrenocortical insufficiency in clinical hypopituitarism, presumably secondary to withdrawal of the adrenotropic anterior pituitary principle.[3]

Decourt[4] has recently reported lowered blood chloride levels in myxoedema and suggests that the thyroid gland may play a rôle in the regulation of chloride metabolism. Lowering of the basal metabolic rate is a prominent characteristic of hypopituitarism, and is occasionally observed in patients with Addison's disease. However, in such patients, the administration of thyroid substance for the purpose of raising the metabolic rate may precipitate the crisis of acute adrenal insufficiency.[5, 6] Similar reactions have not been reported in myxoedema. In the present study of a group of patients with primary hypothyroidism, normal values for serum chloride were found and a normal response to sodium chloride restriction was observed.

Six patients with the clinical and laboratory characteristics of primary hypothyroidism were studied. In 2 patients the hypothyroidism was post-operative. In each instance there was a satisfac-

TABLE I.
Chloride Excretion in Hypothyroidism.

Patient	BMR	Urine chloride (as NaCl) 4-hr spec., 3d day. Mg per 100 cc
E.E.	—24	50
M.I.	—24	95
A.T.	—25	58
M.H.	—27	79
D.B.	—30	140
M.K.	—42	49
Controls, 17 cases		111 35-244
Addison's disease, 8 cases*		487 382-593
Hypopituitarism 6 cases		518 364-690
2 cases		65, 240

*Includes cases of Cutler, Power and Wilder.[1]

[3] Stephens, D. J., *Am. J. Med. Sci.*, 1940, **199**, 67.

[4] Decourt, J., *Ann. d. med.*, 1938, **44**, 133.

[5] Means, J. H., *The Thyroid and Its Diseases*, J. B. Lippincott Co., Philadelphia, 1937, p. 530.

[6] Lerman, J., and Salter, W. T., *Endocrinology*, 1939, **25**, 712.

tory response to the subsequent administration of thyroid substance. The standard procedure described by Cutler, Power and Wilder[1] was used. The chloride concentration of a 4-hour urine specimen collected on the third day of chloride restriction in each of the 6 patients is shown in Table I. In each case, this value falls well within the range which has been found in control subjects. No significant change was observed in the serum concentration of chloride, the carbon dioxide combining power or the blood nonprotein nitrogen. None of the patients experienced any untoward symptoms during the period of sodium chloride restriction.

Conclusions. Six patients with primary hypothyroidism, in whom chloride excretion was studied during periods of sodium chloride restriction, showed no evidences of limitation of adrenocortical function.

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Dissociation of Pneumococcus by Radon Irradiation.

T. T'UNG AND CHIEN-LIANG HSÜ. (Introduced by S. H. Zia.)

From the Departments of Bacteriology and Immunology and Radiology, Peiping Union Medical College, Peiping.

Although extensive studies have been made on the bactericidal action of various rays emanated from radio-active substances[1] very little attention has been paid to the cultural and morphological changes that may follow such irradiation. Spencer[2] first called attention to the possibility of producing in a certain number of instances, distinct and stable morphological variants by exposing *Streptococcus hæmolyticus* and *E. typhi* to the *gamma* rays of radium. While some changes were noted in the cultural characteristics of these variants, few details were given. It has occurred to us that in addition to the morphological changes observed by Spencer, variations in cultural characteristics, serological specificity, and virulence might also result from irradiation. A comparison with another dissociant obtainable by the conventional method seems desirable. For these purposes, we have chosen the pneumococcus in our studies as the dissociants of pneumococcus are well known and readily ob-

1 Spencer, R. R., *Public Health Report* (Wash., D. C.), 1934, **49**, 183.
2 Spencer, R. R., *Ibid.*, 1935, **50**, 1642.