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Studies in thyroid activity.**I. THE CHEMICAL CONSTITUENTS OF THE THYROID GLAND.**By **E. C. KENDALL.**

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Interest in the chemical examination of the thyroid gland centers around the iodine-bearing compound. The first attempt made in this laboratory to separate and purify the iodine-bearing compound consisted in dialyzing under varying conditions. The entire gland was dissolved in sodium hydroxide and dialyzed from collodion sacs. With running tap water only ten per cent. of the total iodine would pass through the sac. At a temperature of 60 to 70° C. and under proper conditions of acidity, eighty per cent. of the iodine would pass through the sac. These experiments led to a study of the diffusibility of certain cleavage products of the thyroid. As this study of the chemical constituents of the thyroid is still being carried on, the details will be published later. The results, however, may be briefly described as follows:

A new method of treatment has been found by which the complex proteins of the thyroid gland may be broken down into simpler constituents which have not been described by previous investigators. Among the products obtained uric acid and tryptophan in large amount are found. There are several non-iodine-bearing compounds. The iodine has been found to exist in two distinctly different compounds. These have been partially purified and a compound containing 23.3 per cent. of iodine in organic combination has been separated. Of the non-iodine-bearing compounds two are of especial interest. One reduces silver, gold, and mercury in alkaline solution, and the other absorbs free iodine very readily. In all, twelve distinct chemical compounds have been separated. The properties of three of these show them to be still of high molecular weight and they may, by further treatment, be divided into still simpler compounds.