group becomes involved in a few months. These acute cases may run a course in three or four months. Chronic cases may last for three or four years. Periods of quiescence are not uncommon. The tumors may not only cease to grow, but gradually diminish and even disappear, without special treatment. Usually a cachexia develops, the anæmia progresses, and there are dropsical symptoms. The mode of death is usually by asthenia; less commonly by pressure from a tumor; and occasionally by coma.

**Treatment.**—When small and localized the glands should be removed. Local applications are of doubtful benefit. I have never seen special improvement follow the persistent use of iodine or the various ointments.

Arsenic has a positive value in the disease. It should be given in increasing doses, and stopped when unpleasant effects are manifested. The results have in many instances been striking. Due allowance must be made for the fluctuations in the size of the growths which occur spontaneously. I have seen no ill effects from the administration of Fowler's solution for months at a time, and many patients have taken from fifteen to twenty minims three times a day for weeks, and in some instances for months. Recoveries have been reported under this treatment. Personally, no instance of recovery has come under my notice in the cases of which I have notes. Phosphorus is recommended by Gowers and Broadbent, and should be used if the arsenic is not well borne. Quinine, iron, and cod-liver oil are useful as tonics. Every possible means must be taken to support the patient's strength.

## IV. ADDISON'S DISEASE.

**Definition.**—A constitutional affection characterized by asthenia, depressed circulation, irritability of the stomach, and pigmentation of the skin. In a majority of the cases it is associated with tuberculous disease of the adrenals, in other instances with wasting of these organs or with changes in the abdominal sympathetic system.

The recognition of the disease is due to Addison, of Guy's Hospital, whose monograph on The Constitutional and Local Effects of Disease of the Suprarenal Capsules was published in 1855.

**Etiology.**—Males are more frequently attacked than females. In Greenhow's analysis of 183 cases 119 were males and 64 females. A majority of the cases occur between the twentieth and the fortieth year. A congenital case has been described in which the skin had a yellow-gray tint. The child lived for eight weeks, and post mortem the adrenals were found to be large and cystic. Injury, such as a blow upon the abdomen or back, and caries of the spine have in many cases preceded the attack. The disease is rare in America. Eight cases have come under my personal observation, either clinically or anatomically.



**Morbid Anatomy and Pathology.**—There is rarely emaciation or anæmia. In a great majority of the cases the adrenals are affected. There may be (*a*) atrophy of one or both glands, due to an interstitial cirrhosis, of which cases have been described by Hadden and Goodhart. (*b*) Tuberculosis, which is the common condition. The capsules are thickened and present firm caseous masses, surrounded by connective tissue. There is usually much fibrous thickening and matting of the adjacent structures, and the affection has definitely been shown to be tuberculous. Tuberculous lesions are common in other parts, particularly in the lungs, though in a number of the cases tuberculosis has been limited to the adrenals. (*c*) There may be malignant disease of the adrenals, which has been present in a few instances of genuine Addison's disease. Among other anatomical features the condition of the abdominal sympathetic has been specially studied. The nerve-cells of the semilunar ganglia have been described as degenerated and deeply pigmented, and the nerves sclerotic. The ganglia are not uncommonly entangled in the cicatricial tissue about the adrenals. The spleen has occasionally been found enlarged; the thymus may persist and be larger than normal.

It is difficult to explain satisfactorily all the symptoms of this remarkable disease. The theories which have been advanced are briefly as follows: (*a*) That the disease depended upon the loss of function of the adrenals. This was the view of Addison. It is held that the blood is gradually poisoned by the retention of some material, the destruction or alteration of which is a function of the suprarenals; (*b*) that it is an affection of the abdominal sympathetic system, induced most commonly by disease of the adrenals, but also by other chronic affections which involve the solar plexus and its ganglia. According to this view, it is an affection of the nervous system, and the pigmentation has its origin in changes induced through the trophic nerves. The pronounced debility is the outcome of disturbed tissue metabolism, and the circulatory, respiratory, and digestive symptoms are due to implication of the pneumogastric. The changes found in the abdominal sympathetic are held to support this view, and its advocates urge the occurrence of pigmentation of the skin in tuberculosis of the peritonæum, cancer of the pancreas, or aneurism of the abdominal aorta. Opposed to it are the facts that the lesions described in the sympathetic system are indefinite, and identical changes occur without the symptoms of Addison's disease.

**Symptoms.**—In the words of Addison the characteristic symptoms are "anæmia, general languor or debility, remarkable feebleness of the heart's action, irritability of the stomach, and a peculiar change of color in the skin."

The pigmentation is the symptom which, as a rule, first attracts attention. The grades of coloration range from a light yellow to a deep brown, or even black. In typical cases it is diffuse, but always deeper on the exposed parts and in the regions where the normal pigmentation is

most intense. At first it may be confined to the face and hands. Occasionally it is absent. Patches of atrophy of pigment, leucoderma, may occur. The pigmentation is found on the mucous membranes of the mouth, conjunctivæ, and vagina. A patchy pigmentation of the serous membranes has often been found. The anæmia, upon which Addison laid stress, is of a moderate grade. It was not present in a marked degree in any of my cases.

Gastric disturbances are common; nausea and vomiting may be early and prominent symptoms; diarrhœa, too, is frequent, and may come on without cause. The pulse is small and rapid, and the heart's action feeble. Sometimes there is a special liability to syncope. One of the most pronounced features of the disease is the profound asthenia, which is out of all proportion to the general condition. The patient complains of a lack of energy, both mental and bodily; the least exertion is an effort, and may be followed by giddiness or noises in the ears. Headache is a frequent symptom. With the advancement of the disease the prostration becomes more marked, the patient remains in bed, the voice gets weak, the intelligence dulled, and death occurs either by syncope or gradual asthenia. Occasionally there are convulsions. The urine is usually normal. Polyuria has been described. The urinary pigments have been found increased.

**Diagnosis.**—Pigmentation of the skin is not confined to Addison's disease. The following are the conditions which may give rise to an increase in the pigment:

(1) Abdominal growths—tubercle, cancer, or lymphoma. In tuberculosis of the peritonæum pigmentation is not uncommon.

(2) Pregnancy, in which the discoloration is usually limited to the face, the so-called *masque des femmes enceinte*. Uterine disease is a common cause of a patchy melasma.

(3) Hepatic disease, which may induce definite pigmentation, as in the diabetic cirrhosis. More commonly in overworked persons of constipated habit and with sluggish livers there is a patchy staining about the face and forehead.

(4) The vagabond's discoloration, caused by the irritation of lice and dirt, which may reach a very high grade, and has sometimes been mistaken for Addison's disease.

(5) In rare instances there is deep discoloration of the skin in melanotic cancer, so deep and general that it has been confounded with *melasma suprarenale*.

(6) In certain cases of exophthalmic goitre abnormal pigmentation occurs, as noted by Drummond and others.

In any case of unusual pigmentation these various conditions must be sought for, and the diagnosis of Addison's disease is scarcely justifiable without the asthenia. In many instances it is difficult early in the disease to arrive at a definite conclusion. The occurrence of



fainting fits, of nausea, and gastric irritability is an important indication.

**Prognosis.**—The disease is usually fatal. The cases in which the bronzing is slight or does not occur run a more rapid course. There are occasionally acute cases which, with great weakness, vomiting, and diarrhœa, prove fatal in a few weeks. In a few cases the disease is much prolonged, even to six or ten years. In rare instances recovery has taken place, and periods of improvement, lasting many months, may occur.

**Treatment.**—The causal indications cannot be met. When there is profound asthenia the patient should be confined to bed, as fatal syncope may at any time occur. In three of my cases death was sudden. When anæmia is present iron may be given in full doses. Arsenic and strychnia are useful tonics. For the diarrhœa large doses of bismuth should be given; for the irritability of the stomach, creosote, hydrocyanic acid, ice, and champagne. The diet should be light and nutritious. Many patients thrive best on a strictly milk diet.

## V. DISEASES OF THE THYROID GLAND.

### Goitre.

**Definition.**—Hypertrophy of the thyroid gland, occurring sporadically or endemically.

In this country sporadic cases are common. Endemically it is found particularly in the mountainous regions of Switzerland and in parts of Italy. No satisfactory explanation has been given of the existence of the disease in this form.

Anatomically the following varieties may be distinguished: (*a*) Parenchymatous, in which the enlargement is general and the follicles, usually newly formed, contain a gelatinous colloid material. (*b*) Vascular, in which the enlargement is chiefly due to dilatation of the blood-vessels without the new formation of glandular tissue. (*c*) Cystic goitre, in which the enlarged gland is occupied by large cysts, the walls of which often undergo calcification.

**Symptoms.**—The enlargement may be uniform throughout the entire gland, or affect only one lobe, or the isthmus alone. When small, a goitre causes no inconvenience. In its growth it may compress the trachea, causing dyspnœa, or may pass beneath the sternum and compress the veins. These, however, are exceptional circumstances, and in a large proportion of all cases no serious symptoms are noted. The affection usually comes under the care of the surgeon. Sudden death occasionally occurs in large bronchoceles. In some instances it may be difficult to determine the cause and it has been thought to be associated with pressure on the vagi. I have reported an instance in which it resulted from hæmor-