

## PSYCHOLOGICAL FUNCTIONING OF THE ENDOCRINE GLANDS

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### ABSTRACT

1. Dr. Hoskins, Head of Endocrine Research at Harvard University, is authority for the statement, that "the endocrinologists have shied away from the intangibilities of psychology," the result being that the psychological aspects of endocrinology have received little attention; that is, little use has been made of "hormones as tools for the sympathetic exploration of human personality." Moreover, the secondary or social effects of glandular disturbances are seldom even mentioned in the literature of internal secretions.

However, from the first, endocrine research has contributed abundant proof to the proposition that psychic life proceeds on a physical basis. No one doubts that the glands are living chemical laboratories, and that their cells "communicate," as Dr. Carrell asserts, "by chemical messengers—that is, by the agency of their secretions."<sup>2</sup> Thus it comes about that our body, which is a heterogeneous complex of many elements, is in fact psychically unified and simple.

Our problem concerns the relationship of hormones, on the one hand, and intelligence, instincts and emotions, on the other. In this relationship, we should be able to find much fundamental and

practical knowledge relative to human personality.

2. By the method of indirect approach, it has been discovered that the normal functioning of the interstitial cells of the sex glands, acted upon by the sex-stimulating hormone of the anterior lobe of the pituitary, furnishes the physical basis for initiative, stamina, enthusiasm, vigorous mental, emotional, and social responses, courage, and general effectiveness. Early maturation and dynamic personality are the psychic effects of hypergondism. The most dominating characters in history and fiction are represented as vigorously masculine or feminine.

3. In its direct and indirect functioning, the pituitary gland is extremely versatile. It influences the emotions directly and indirectly, hence is a potent factor in determining personality. Through the pituitary's influence on the interstitial cells of the sex glands, the thyroid and the adrenals, it indirectly affects psychic life. Abnormalities in growth and development, due to improper functioning of the pituitary-growth hormone, produce pathetic results in mental and emotional reactions and in attitudes; personality effects of acromegaly furnish

a striking illustration. But the direct influence of acromegaly is not the whole story; the boney distortions, massive repulsive face, overgrown feet and hands, and gorilla-like appearance act as powerful disintegrating psychic influences. In the early stages of the disease, there may be absentmindedness, irritability, lack of concentration, and moroseness. During the overactive period, there may be hallucinations of taste and smell. In the transition period, there is likely to intervene sluggishness, failing memory, apathy, sometimes stupor. Entire change of temperament is a common characteristic of acromegaly.

4. The relative size of the thyroid gland and its correlation with the brain suggest its unique psychic functioning. The thyroid hormone acts as a fulminate to speed up oxidation, thus giving rise to increased physical and mental activity; that is, the thyroid may be thought of as a controller of short wave radiation, which means that the thyroid is often the basis of more intensive living.<sup>3</sup>

The results of hyperthyroidism are abnormal nervous tension, and a high degree of mental and emotional activity. The outward symptoms clearly betoken marked inner nervousness: meaningless tears and laughter, restlessness, continuous purposeless movements, dissociation, hallucinations, and extreme confusion of thought.

On the other hand, when thyroid secretions are seriously lacking, the mental reactions are listlessness, lack of instinctive drives, colorless emotional life; that is, essentially no personality. Personal adjustments are extremely difficult or impossible. The psychic effects of mixedema are forgetfulness, failing power of concentration, indecision, discontent, mental and emotional depression, various delusions, helpless mental and emotional confusion. The victim may become suspicious, untruthful, and abnormally self-centered.

5. Adrenaline, the secretion of the medulla of the adrenal glands, is a power-

ful stimulant; in cases of complete collapse or shock, it is the only agency that will bring about resuscitation. According to Dr. Crile, "No other drug, no other hormone, no other stimulant, not even electricity, can effect the resuscitation of an apparently dead animal."<sup>4</sup>

Under conditions of quiet existence, adrenaline plays only a small part in the processes of life, since ordinarily the blood stream contains little adrenaline. Anger, pain, fear, and extreme emergencies are among the initial causes of medulla activity. Dr. Cannon's "emergency theory" furnishes an explanation of our ability to meet life's crises and to cope with situations demanding supreme physical and mental exertion. The psychology of this unique functioning is evident: repeated successes in dealing with unexpected difficulties builds an attitude of self-reliance and a feeling of security. Thus as Hoskins asserts, adrenaline is "a factor in the maintenance of temperamental wholeness."

Under-activity of the adrenal cortex gives rise to a lack of energy, depression, irritability, lack of coöperation, and insomnia; these are the early symptoms of Addison's disease. As the disease advances, mental symptoms become marked; the victim finally goes into convulsions, followed by death. With the administration of cortin, the hormone of the adrenal cortex, all symptoms disappear, and the patient returns to normal physical and mental condition. Moreover, normal subjects suffering from tension due to overwork often receive prompt relief by using cortin; their irritability is reduced, their sleep is improved, and they experience a sense of physical and mental well-being. "Cortin would seem to be the ideal physiological cocktail." (Hoskins).

There have been numerous cases of enlarged cortex followed by accentuated virility; these cases may occur in either sex; hence the adrenals are frequently called "glands of masculinity."

<sup>1</sup> "Physiological Factors in Personality," *Occupations, the Vocational Guidance Magazine*, May, 1936.

<sup>2</sup> *Man, the Unknown*, Alexis Carrell, pp. 102-104.

<sup>3</sup> Crile, G. W., *The Phenomena of Life*, pp. 138, 141.

<sup>4</sup> Crile, G. W., op. cit., p. 28.