such cases described by other authors are quoted. The author regards these as one end of the series, of which the other end is formed by the fulminating cases of Wilson leading rapidly to death, and by the original Westphal-Strümpell cases with rapid development of dementia, convulsions, and contractures, and he considers that all degrees between these two extremes may be found.

M. R. BARKAS.

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2. Ætiology of Mental Disorders.

An Attempt at Finding a Foundation for a Connection between Elementary Psycho-pathological Symptoms and Alterations in the Physico-chemical State of the Body. Lecture given at the Stuttgart Medical Society, November, 1922 [*Versuch einer Begründung von Zusammenhängen zwischen elementaren psychopathologischen Symptomen und physikalisch-chemischen Zustandsveränderungen des Körpers*]. (*Zeitschr. für die ges. Neur. und Psychiat., February*, 1923.) *Fauser, A.*

This lecture, given to general practitioners, is an attempt to correlate general medicine and psychiatry, and to suggest how a more complete understanding of clinical physiology may throw light on problems of mental disease.

The author holds that the relation between endogenic and exogenic factors in the psychoses is far from simple, and that the result of any mental or other trauma upon any individual depends on the constitution of that individual, and that disease forms are determined by that constitution. He pleads for research directed to finding possible anomalies of the constitution from the standpoint of physical chemistry and physiology, and believes that this, rather than psychology, is the science which will bring a solution of the problems of psychiatry.

Among these he takes first such symptoms of insanity as disorders of movement and behaviour, of sensation, of emotion and of sleep. Histopathology has so far thrown little light on these, and the probability is that they are due to chemical changes affecting the nervous system.

He sets out from two propositions, and suggests that research might well be directed towards establishing their truth. The first is that both mental and physical disturbances, such as are found in insanity, may be caused by disorders in the normal regulation of osmotic pressure and ionic concentration of the body-fluids, and in that of the body temperature, upon the maintenance of which the chemical reactions of the tissues depend. The second is that such disorders may be due to defects of the apparatus which maintains this regulation, probably some part of the central nervous system, so that it maintains an abnormal level instead of a normal one. Such a defect may be the innately imperfect element predisposing an individual to a psychosis.

He discusses at some length the ways in which these disorders

may make themselves manifest and the widespread mental and physical changes thus produced; alterations of metabolism and physiological regulation go hand-in-hand with abnormalities of motility and of emotion, and he gives a table suggesting some parallelisms of this kind.

(1) Regulation of metabolism: Thirst is produced by a hypertonic condition of body-fluids, craving for salts by a hypotonic one. A feeling of gasping for breath and anxiety is associated with disturbance of the hydrogen-ion concentration, feelings of lassitude result from defective oxidation, while excessive motility is produced by lowering of heat production.

(2) Utilization of metabolic products: Hunger, often for specific substances, is produced by their lack; satiation by excessive intake. Fatigue results when the utilization of energy-producing foods is defective, while good utilization of available material produces a keenness for activity.

In mental cases we see how these regulations fail; an emaciated patient who should eat ravenonsly and rest will have the excessive activity proper to the well-nourished, or will refuse food; a cold melancholic will lie inert and stuporose, instead of warming himself by activity. In such cases the apparatus of regulation is working defectively and does not respond to the stimuli in a normal way.

This disorder may be produced in two ways. In some cases the regulating apparatus may be innately defective, and fail with little or no external causation. In others there may be such changes in the metabolic processes that the regulating apparatus, which was at first normal and able to bring about adjustment, ultimately fails, and itself becomes secondarily damaged by the disordered metabolism it has been unable to correct. Many cases of encephalitis suggest that here the infective process has been responsible for the damage to the regulating centres, and the same may hold for other organic lesions. Here it is probable that lesions of the basal grey matter of the brain may form the primary disturbance, and the late sequelæ result from consequent derangement of metabolism and regulation.

The relation of psychoses to ductless gland disorders falls into line with these views, since these glands are an important part of the mechanism by means of which the regulation of the body chemistry is carried out.

The author goes into some detail about the extent to which abnormalities of physical state react upon the mental and emotional life, how paræsthesiæ of all senses play a part in the formation of delusions and hallucinations; but in his partisan attitude of antagonism towards psychological investigation in the psychoses he neglects the other half of the picture—the extent to which emotional and mental stimuli can also bring about physical changes and disorders of metabolism. There can be little doubt that both lines of research will help us to a more complete understanding of insanity, and that neither should be left out of consideration.

M. R. Barkas.