

One fully agrees with Dr. Collin that precocity in a child is more suspicious than slight backwardness, and one only wishes that parents and particularly schoolmasters were of the same opinion.

From one's own observation one would be inclined to say that in many normal children, that is to say in children in whom there was no suspicion of precocity, the *syndrome infantile* commences to break up at an earlier age than two and a half years. J. BARFIELD ADAMS.

Movement Cenesthesia and the Mind. (*Psychological Review*, May, 1916.) Dearborn, George Van Ness.

The importance of cenesthesia from the physiological standpoint has long been admitted; its deep significance with reference to psychology is only beginning to be adequately realised, is probably scarcely realised at all by a great body of psychologists. That a study of it in its more comprehensive aspects is likely to be of supreme value, and is destined to throw a flood of light on our psychical organisation, is made abundantly evident in Dr. Dearborn's paper.

The relation between mind and body is a well-worn theme. It has furnished material for the pens of many writers. It constitutes one of the riddles of the universe which is still unsolved. No will-o'-the-wisp is more elusive than this problem of problems. The writer of this paper is of opinion that there has been an excessive use of the deductive method in psychology, which in its descriptive phases and in the abnormal aspects as well as the normal "has most often not been wisely based, not founded 'flat on the nether springs' of universal bodily movement and function." This concept of *universal motion* is the key to the situation, and the failure to explain mind, whether from the dualistic or monistic standpoint, "seems largely dependent on the presumptuous and dogmatic refusal of many to admit this category, spacial dislocation, motion, into their explanations, and almost into their psychology at all." The tendency of modern physical research is to show that matter is in essence really motion, and motion is the source of all forms of energy. It is in the light of this fact, probably, that Dr. Dearborn argues that "now, all the while and everywhere, the conceptual bounds between mind and energy, before assumed impassable, are felt to disappear like fog as we advance into the clear daylight of understanding." This great central truth that the *organism is in universal movement* must never be lost sight of. It is absolutely indispensable if we are to form any adequate conception of what constitutes Life and Mind. Moreover, this universal movement of the body must mean something in the personality; it must be represented in the concomitant mental aspect of the individual.

A moment's consideration is sufficient to enable us to realise this universality of movement. *Muscular tonus* prevails throughout the entire muscular system. It is constant and spacially general, ranging in various degrees from catalepsy through cramp, exertion, waking activity, lassitude, sleep, coma, and paralysis to death itself, where its zero is reached. In addition to this the *necessity of maintaining equilibrium* is another universal need in the organism; the *reciprocal innervation of functional antagonists* (e.g., flexors and extensors, pronators.

and supinators); the *irradiation of neurility* (as in convulsions, hysteria, etc.); all these imply a continuous activity in the motor fabric of the body. There are besides the great aggregate of voluntary movements, and the probably still vaster range of "vegetative" motions, which include automatic, reflex, autonomic, instinctive, emotional, habitual, and, finally, what the writer terms "mechanical" processes—respiration, circulation, digestion, and excretion. All this mass of intelligent and beautifully adapted movement is practically ignored by the average academic psychologist, ignored because not realised, nor its meaning in the mental control of behaviour appreciated. It is not regarded in its true light as a primary necessity to a successful psychology.

Cenæsthesia consists of two complementary groups of sense experiences: one kinæsthesia, particular sensation of movement; the other cenæsthesia proper. Both together make up the sensation-fabric, the "empiric skeleton of mind." The kinæsthetic functions are numerous, and include (1) the representation to the integrating nervous system of bodily and environmental movement, each of both the active and passive kinds. (2) Posture, in a broad and general sense. (3) Stereognosis, the recognition of shape internal, within the arms or legs, and external, in a room or along a devious pathway. (4) Appreciation of weight, weight of the external bodily parts as well as of external objects. (5) Maintenance of equilibrium. (6) Sensing of jolts, jars, and material vibrations coming from the environment. (7) Pressure and impacts other than jolts and vibrations. (8) Elaboration (and recording?) of the motor ideas through which the body is moved and controlled. (9) The spacial relationship of local sensations, local signs. (10) Rhythmic control of the circulatory compression of the veins.

This movement sense thus involves practically every portion of the body, and is linked with a great variety of sensations or different influences, differentiated, no doubt, by a corresponding number of histologic receptors.

Cenæsthesia proper, the sensation-fabric comprising both the subconscious and the fully conscious aspects of mind, is a subject which in its widest relations is beginning to engage the attention of neurologists, physiologists, psychopathologists, and a few academic psychologists who have not remained under "the cataleptic influence of the 'five senses' bugaboo." Vision, hearing, taste are part, but only part. A countless multitude of impressions are every moment of our lives reaching the sensorium, from within and from without. The sensations produced there vary greatly in quality and intensity, and to properly analyse the mere *feeling of being alive*, besides taking into account the influence of environment, it would be necessary to study exhaustively every part of the body, every somatic region from which sensory impressions are ceaselessly streaming inwards and contributing their quota to the content of mind.

To take *the head* alone, apart from sensations of hearing, vision, taste, and smell, which are all located here, a host of other afferent impulses are constantly issuing from the many and diverse structures which are connected with this important region. Quite different sensations arise from such parts as the scalp, eyes, mouth, nasal fossæ, Eustachian tubes,

middle-ear, the teeth, and the vascular system within and around the brain. These are only some of the "sensations" coming from the head.

The same is true of all the various systems of the body. The *respiratory apparatus*, the kinæsthetic factor of which concerns the whole thorax and abdomen, and even the arms and neck, is the source of a flood of impressions proceeding from its special internal parts, nostrils, larynx, etc., down to the pulmonary alveoli. This system "probably makes larger donation to the pleasantness of being alive than does any other process whatever."

The *circulatory mechanism*, including, of course, the heart itself, whose functions in the normal condition are so intimately associated with our emotional life, is an example of the same kind. The mere change in diameter of the blood-vessels, vasomotor phenomena, may make all the difference between the sensations of well- or ill-being, of elation or depression. In connection with this we have well-ascertained facts as regards the effect on the calibre of the blood-vessels of certain drugs and other agents in common use, such as coffee and tobacco, and allusion is made to the "surprisingly general depression of both mind and body late in the afternoon, euphoria depressed into dysphoria, by simply the absence of an accustomed cup of coffee at lunch."

And so the writer points his argument by taking up each of the other systems of the body, the digestive apparatus and nutritive mechanism, the urinary and genital organs, the skin and mucous membranes, the epithelial and gland tissues, osseous and connective tissues, from each and all of which multitudinous afferent impressions, all differing in quality, pass inwards to the central organs. "Here at all events is ample psychophysiologic country for survey, careful study, and cartography. . . . No one has sufficient sanction to categorically deny this flood of neurokinetic influences, dynamic index of the mind in its relationship to matter."

A knowledge of cenæsthesia is not merely of value as regards the science of psychology, but, by being properly developed and adapted to hygienic requirements, it would have practical educative and therapeutic value for every individual. The thorough exploration of the "living executive house in which we live" is the indispensable basis of self-control; the basis also of that generalised skill on which depends the making of a livelihood.

The subconscious phases of the human mind are intimately linked with cenæsthesia. The "sensational flood" may reach subconscious areas without giving rise to recognisable sensations. Of a vast number of afferent impressions from the internal organs and other parts of the body we are unaware; but they have a potent influence nevertheless on our conscious existence. To the deep and wide implications of the subconscious the writer considers that psychologists are not yet awake.

In fine, cenæsthesia is the sensory and subsensory aspect of universal bodily movement, director of the soul's important business. It lends the meaning to life because it is the index of the reactions of the organism, dynamic index of our personal evolution. By elaborating this moto-cenæsthetic relationship can psychology become really explanatory, and take its rightful place as the queen of the sciences.

T. DRAPES.