29–30 December

## Sentics, Brain Function, and Sources of Human Values

This symposium is a continuation of a symposium held last year, "Biocybernetics of the Dynamic Communication of Emotions and Qualities." Sentics is the science of auto- and cross-communication of emotion in the present moment through natural biologic spatio-temporal forms—as distinguished from conventional signs—that are called essentic forms.

This mode of communication acts in symbiotic, biologic design cooperation between two neurophysiologic data processing codes—the expression and the recognition of precise spatio-temporal entities. The inflections of smiles, tone of voice, gesture, dance steps, and so on, are subject to a precision both in their generation and recognition. This symposium studies the origin and function of this precision.

It appears that for each emotion, of the spectrum of emotions, there exists a brain algorithm that determines a spatio-temporal form (or essentic form) common to the expression of that emotion, regardless of the particular output modality chosen. It has therefore been possible to standardize the measurement of essentic form by using the expression of transient pressure of the finger, measured in two dimensions. Differential equations describing these forms were found, and cross-cultural and other measures were obtained that indicate their biological origin.

Communication in the present moment is more powerful the more closely the essentic form approaches the "pure" form for that emotion. (Gain of the communication channel is a form function.) Studies are reported on the auto-communication functions of expression, as well as of cross-communication.

Repeated production of essentic forms in this manner at appropriate, nonrhythmic time intervals shows that they are auto-generative—an effective method for the generation of fantasy emotion states.

Sentic cycles are a self-generated series of fantasy emotion states, using the expression of essentic form and finger transient pressure, repeatedly initiated by appropriate random timing signals. A series of eight such fantasy states are produced in sequence (3 or 4 minutes for each state) in such a cycle —traversing, substantially, the spectrum of emotions in approximately half an hour—no emotion, anger, hate, grief, love, sex, joy, and reverence.

It was found that such emotion states can be experienced without specific situational content, as an idiolog (as also is evident in music).

The symposium will survey aspects of the theory of sentics, the role of idiologs in wakefulness and dreams, biologic foundations of essentic form, and the relation of purity and function of essentic form to qualities and the source of human values. New concepts extending last year's findings will be introduced. Psychometric investigation of sentic cycles will be presented, aspects of the relationship of physiologic effects of sentic cycles and meditation will be discussed (including cardiovascular, respiratory, metabolic effects), and also the use of sentic cycles in psychotherapy and psychosomatic therapy of individuals and groups.

Some cross-cultural, anthropologic and psychologic, and musical aspects of essentic form production and recognition will be examined.

The concluding sessions will concern the role of sentics in society, and examine possibilities of planning which may include the sentic basis of communication of human values.

MANFRED CLYNES
*Biocybernetics Laboratories Research Center, Rockland State Hospital, Orangeburg, New York*

29–30 December

## Regulation of Organ and Tissue Growth

The body as a whole is the sum of its parts. Each part is represented in proportion to how much it is needed. When functional demands increase, overworked organs enlarge. Disuse, on the other hand, leads to atrophy. The "normal" dimensions of our tissues and organs reflect a balance between the ever-present tendencies to grow and shrink, tendencies which account for the ceaseless turnover of bodily components and the renewal of tissues throughout life.

The importance of these mechanisms cannot be exaggerated, the more so for our profound ignorance of how physiological activity is translated into growth. In some cases there are humoral agents which seem to communicate insufficiencies to homologous tissues, thereby triggering compensatory reactions. In other cases, it is nerves which mediate adaptive growth responses. One way or another new proteins are elaborated as RNA synthesis and, in most cases, DNA synthesis, too, are turned on.

Charles P. Leblond (McGill University) will deliver the keynote address of the symposium, focusing on those aspects of growth and renewal that apply to organs and tissues in general. This will be followed by several papers on tissues which grow primarily by cellular hypertrophy. The growth of the brain will be particularly interesting, especially as it may be affected by fetal malnutrition brought on, for example, by intrauterine competition. Equally important is the problem of how skeletal muscle fibers respond both physiologically and morphologically to exercise, denervation, and severed tendons. The heart is another organ which lends itself to the exploration of factors responsible for muscle growth. The theoretical upper limit of heart size is an intriguing problem from which we might learn why some cells stop increasing in number but continue to grow in size at a preordained point in ontogeny.

Among the more proliferative tissues, skeletal elements are instructive in seeking explanations for how things grow. They, perhaps more than most tissues, are subject to both genetic and environmental influences. Where the one leaves off and the other begins can be profitably probed in studies of bone growth. Few tissues have yielded more valuable information than blood cells. The ease of sampling, coupled with the