

## CHAPTER VIII

## GENESIS OF THE ELECTROPSYCHOMETER

In 1950 I obtained patents on what promised to be a valuable invention--a device to be used in motion-picture theaters to analyze continuously by electronic means the mixture of light frequencies in projection arc lamps, and thereby, through a warning buzzer signal, to enable the motion-picture projectionist to avoid the muddy, brown, or other off-color effects often noted on the motion-picture screen.

Many hundreds of these machines were ordered--then television swept upon the movie field like a hurricane. Business vanished. Orders for the "Arcon Monitor" were cancelled wholesale.

In a very upset state, I went to a psychoanalyst, seeking relief from nervous tensions. Not getting satisfactory results, I next attended a series of lectures being given by a very controversial figure, who several times emphasized that perhaps the major problem of psychotherapy was the difficulty of maintaining the communication of accurate or valid data from the patient to the therapist.

According to the lecturer, the cortically-based analytical awareness level of a human being drops rapidly in

situations of pain and stress, soon going below threshold if the painful event is severe enough to produce "unconsciousness". This word, "unconsciousness", seems to be seriously misleading. A person may faint, may be dazed, or may appear to be unconscious, yet his condition actually involves a relatively minor degree of shut-down on the upper cortical levels. The subject's autonomic nervous system still functions mightily. It continues to direct the operation of the heart and lungs, and of other organs; it continues, in fact, most of the complex functionings involved in the maintenance of a living human organism. One's autonomic or "non-conscious" central nervous system seems to have its own special, if limited, perceptive powers that it uses during and regardless of states of cortical unconsciousness. The perceptions of the central nervous system occurring during periods of unconsciousness of any degree may or may not have the quality of the perceptions of the conscious mind. Nonetheless, perceptions or impingements of the external universe upon the central nervous system during intervals of pain, sleep, or other states of partial or "complete" unconsciousness seem to be able to generate certain electro-colloidal imbalances in nerve-structure areas, the effect of which is AS IF there had occurred an actual "recording" of the painful event. Such psychophysical impingements, if sharp or deep, may seriously affect the individual and later are apt to cause him serious troubles. The worst thing about these troubles is that they seem to be baseless. One just

can't put one's finger on them.

What was needed, then, in psychotherapy, was an instrument that would to some degree "read the mind of the autonomic or central nervous system", disclosing especially painful past events that had impinged upon the central nervous system, or upon the structure of the individual, but which had not been perceived at the time with full consciousness and alertness. OR, events that had been consciously perceived and experienced, but which were so painful that the person had later buried them deeply and then cajoled himself into the illusory notion that he had "forgotten" them.

Examination of psychiatric literature disclosed that there was indeed no "psychic-X-ray" type of instrument in existence. Laboratory equipment supposedly of this nature is of three types: cardiac, respiratory, and psychogalvanic. Cardiac devices undertake to present significant data through recording alterations in heartbeat or blood pressure. Good cardiac instruments accurately indicate data about the organic condition of the heart itself--but the better this instrument is applied the less it indicates about the patient's emotions. Respiratory apparatus seeks to present emotional-response data by registering alterations in the subject's mode of breathing. Psychogalvanometers register variations in electrical ohmic resistance between a pair of clamped skin-contacting electrodes. All of these types of apparatus are costly and cumbersome, and some are painful to

the patient, thereby masking responses by the pain they themselves generate. None seemed to be of use in the field of practical psychotherapy.

Of the three proposed modalities, however, it appeared to me that the psychogalvanometer showed most promise. This instrument functions because of the fact that the average individual has about 300 tiny glands to the square inch in the palms of his hands, insides of thumbs and fingers, and on the soles of the feet--glands that jet saline fluid in an extremely rapid response to the onset of emotional activities in the subject's central nervous system.

The ancient purpose of this fluid-jetting mechanism, according to Woodworth's "Experimental Psychology", is thought to have been to increase the effective adhesion of the hands of primitive man as he grasped at tree branches, and to reduce slippage of his feet on rocks as he ran; in short, to facilitate flight from danger.

Not only primitive man, but primitive animal creatures of every type have and still utilize FLIGHT as the major survival device when confronted by danger. There is evidence which indicates that physio-chemical reaction to danger is an extremely ancient one, antedating the evolution of any form of nervous structure in animals. The highly-developed galvanic skin reaction in man, both primitive and modern, is extremely swift, and is now thought to act not only in co-operation with but, to some extent, IN ADVANCE OF impulses originating within the nervous structure.

The second major survival device of both man and animal when confronted by a threat or danger is to STAND AND FIGHT. This is a higher, and in the time-sense a more recently elaborated, mechanism for surviving. To stand and fight implies an intelligent directive nervous organization to take command of the situation, and some sort of muscularly energized structure with which to do the fighting. This alternative survival device is known as the neuromuscular reflex. It manifests itself, that is, through complex activities of nerves that transmit "commands" to muscle structures. It clenches the fist, it bristles our hair--the latter for the purpose of making us look big, menacing, and dangerous to the enemy.

A vast amount of research on the galvanic skin reaction has been done, seemingly reaching a peak around the opening of the Twentieth Century. The over-all results were disappointing, with reference to the use of a galvanometer to disclose the specific nature of psychic disturbances in patients.

The neuromuscular reflex was also extensively studied, SEPARATELY AND APART from the galvanic reflex--again with, generally speaking, disappointing results. By "disappointing results", I mean that the registrations obtained on the apparatus used were confusing and failed to lead--at that time--to the invention and development of a practical, USEFUL instrument for the office of a practising therapist.

There is hardly any question that the main reason for

the non-arrival of a valuable field instrument at that time --between 1890 and 1910--was simply that one of the essentially required components, the electronic vacuum tube, had not yet been invented. Some heated cathode effects had been discovered, but the momentous invention of the vacuum tube GRID ELEMENT by Dr. Lee DeForest had not yet taken place.

An American tycoon has stated publicly that the rotating wheel is modern man's single major invention. One may hesitate to dispute him. Our entire industrial civilization rests solidly upon rotating equipment of millions of types. However, next in significance, it may be submitted, is the electronic vacuum tube. Upon this fragile and somewhat incredible structure wholly rests our MODERN COMMUNICATION SYSTEMS in all the fields of industry and entertainment. The electronic vacuum tube--that is, in its extremely complex developments--can THINK, REMEMBER, COMPUTE, DIRECT, AND SUPERVISE THE CREATION OF OBJECTS; all in addition to resolving mathematical problems in minutes that would take years and years if done by the best and most highly-trained human brains.

And, in the Electropsychometer, the electronic tube is now made available as a useful, practical tool for the ascertaining of the nature and origin of human psychical disturbances.

The stiffly scientific reader need not be outraged when it is stated that the electronic vacuum tube comes near to being a dependable device for the differential perception of

psychic energies. Electronic tubes swiftly control, transform, and handle the completely UNKNOWN FORCE called "electricity". The recent discoveries of nuclear science disclose more and more that electricity approaches something of a "non-physical" or psychical nature.

The busy medical and scientific researchers of the period of 1890 to 1910 in the fields of the galvanic reflex and the neuromuscular reflex accumulated a vast amount of valuable information through the use of the galvanometer, the dynamometer, the ergograph, and the myograph--but they lacked this one essential part of a useful and reliable field instrument--an electronic vacuum tube system.

Also, as previously noted, these earlier researchers rather rigidly studied the galvanic reflex and the neuromuscular reflex SEPARATELY. In fact, they probably had to do this, for there was no practical apparatus or structure available to them whereby neuromuscular and galvanic skin responses could be registered SIMULTANEOUSLY on a SINGLE INDICATING INSTRUMENT. In the Electropsychometer, all of the vitally required components were somewhat accidentally--as if managed by an unseen hand--placed into a working correlationship. The registrations that are observed when the instrument is used by a competent therapist have a value of the first order.

The instrument, in the hands of the skilled user, sometimes appears to function on a somewhat psychical level; it seems to facilitate the transfer from patient to

therapist of incredibly accurate image-of-the-past event data. And at the hands of most ANY user, skilled or not, it indicates the relative intensities of complex painful chain-reactions originating at the seat of life itself within the central nervous system. By painful chain-reactions, I refer to our elaborate neuro-electrical responses to painful impingements upon us by the external universe. "External universe" includes everything outside our skins. Blows, burns, falls, harsh words, the event of being born are examples of the external universe impinging upon us.

In order to present a bird's-eye view of the progress of scientific thought, I shall digress for a moment. When Copernicus mapped the solar system, he had to keep this data hidden in his desk for 45 years. In those days, "everybody knew" that the earth was flat, that the sky was a massive rigid dome with stars stuck into it, and that the sun was cranked up and down on some sort of massive gearing. Had Copernicus too hastily presented his data, he would have been--as he was in some quarters--denounced as "insane", and might have been burned at the stake, as Galileo nearly was.

Also, in the time of Copernicus, a stone was, as "everybody knew", a cold, dead, motionless, and everlasting thing. What could be more motionless and inert than a chunk of granite?

But now we have developed new viewpoints. We investigate the nature of, or, at least, the effective relationships of molecules, atoms, and electrons. As the field of nuclear



science has rapidly expanded, it has become apparent that even electrons, which were for a time considered to be ultimately small particles of "matter", are probably really something else entirely. The indications are that the universe and everything in it, including, for example, both "cold" granite and living human beings, may be a vast display of powerful electrical and other energy manifestations in enormously rapid motion. Where lines of electrical or other energies intersect appear kinks, knots, or ridges, forming networks. Some of these networks of intersecting forces as visible to, or perceivable by, human beings are called "matter". In short, matter may be the effect of the intersecting actions of two or more free energies. Other energy manifestations, not visible to the eye or to any of the other physical perceptive powers, are perhaps erroneously called non-existent or "imaginary" by the stupid.

Others, with at least a better intuition into the essence of reality, apply the term "spiritual" to these invisible energies. The nuclear scientist may place some of them under such symbols as X-factor or X-prime-cause-factor. The scientist thus calmly avoids sticking his neck out in any direction and at the same time gets for himself some possibly useful mathematical symbols which he may employ in furthering investigations.

Some of these further investigations become fascinating. For example, the major "material" of the universe appears under the electroscope to be hydrogen, the lightest

element, from which all other known elements are presumably built. The vast galaxies of the cosmos, aswirl with motion, are mainly hydrogen. Under certain spirallings, titanic tensions are created that condense hydrogen into heavier elements. The human structure is composed mainly of hydrogen, nitrogen, oxygen, and carbon, and is perhaps a special inspiralled condensation or knot of the same filmy stuff of which the mighty universe with all its suns, planets, and vast plenums is constituted. Furthermore, human beings possibly may be repeating certain actions of cosmic forces. According to Wilhelm Reich--the world's most shocking psychiatrist--man, in his sexual acts and orgasms, may be imitating in a tiny fashion the whirling spirallings and superimpositions of the universe-creating energy forces. Perhaps the sexual act is well come by.

The above abbreviated theoretical remarks avoid just one vital point--BASIC CAUSE. Billions of religious and philosophical words have been strung together in dreary sentences, in vain, arbitrary, arrogant, and psychotic attempts to resolve this question. In this area, some scientists merely venture the postulate that life itself IS the X-prime-cause-factor acting through a vast array of swiftly-moving forces or energies in powerful electronic and other-energy fields.

It might also be postulated that there may be an optimum distribution of the intersecting energy-force lines in a healthy and happy person. But when painful or injurious

external impingements occur, there may be a knotting up of energy-force lines in the distressed area, and a bunching or ridging of force lines in adjacent areas--hence the generation of relatively denser or more "tense" electropsychophysical local fields.

One finds odd connections between the theories of nuclear science and religious and other old literature that suggests an intuitive awareness of the actual situation. Consider the sayings: "My heart is heavy", "My feet are like lead", "I am burdened with sorrow". And the like.

Conversely, there are statements that could symbolize a lightening of the supposedly bunched electropsychophysical fields: "My heart is so light and gay!", "I feel as if I were walking on air", "A great load has been lifted from me", "I feel light as a sea breeze!" And so on.

According to the above theories, painful impingements upon us cause various alterations in our electropsychophysical fields. This generates a variety of chain-reactions. One of these reactions produces the end effect of causing acid-based fluids to be jetted from special glands in the palms of the hands and on the soles of the feet. The jetting of this fluid against the electrodes of the Electropsychometer is just one of three major reasons why the instrument works.

The second instrument-operating factor, usually overlooked, is that the chemical content of the jetted fluid varies somewhat in accordance with one's over-all psycho-

physical condition. The perspiration of deathly ill patients often turned the copper electrodes--formerly used--with a corrosive greenish film. On the other hand, the sweat of a gay and healthy adolescent--tested after sharp physical exercise--produces no such effects. Perspiration discharged as a consequence of pleasant physical activities, including pleasant sex acts, apparently does not cause the registration of low Tone Scale readings on the Electropsychometer.

In studies of animals, it has been noted that various internal fluids undergo alterations in situations of danger --and also that there is a tendency to discharge these fluids in sundry ways. Consider the skunk!

As has been previously stated in these pages, the third major factor utilized in electropsychometry is the neuromuscular reflex. It has been shown many times that tensional nervous reactions generate electrical voltages in the subject's neuromuscular structure. (See the oscillographic illustration in the Addenda.) A shortening or tightening of muscles also occurs, especially in arms, wrists, hands, and fingers--preparatory to fight or flight.

The Electropsychometer, then, through the use of special electrodes and circuits, operates through three combined end effects of mental or physical pain. These effects are: the jetting of fluid; chemical alterations of the fluid; and, thirdly, the tightening of hand and finger grip under the action of the neuromuscular reflex.

These important reflexes have not been previously used

in combination. One wonders why bio-electronics has lagged so far behind in the general field of electronics. Possibly the reason is that the electronic expert is rarely, if ever, a successful psychotherapist, while the physician, with years of training invested in his profession to stand upon, may not be interested in electronics, especially after his college experiences with psychogalvanometry. In short, the average electronics engineer knows little about people, while the doctor cares little about electronics. At any rate, all previous equipment appears to me to be extremely antiquated.

--for it quite often does--but because it takes far more time than the professional therapist feels able to give to the average case.

This technique consists, basically, in having the patient redramatize--that is, relive or as fully as possible re-experience--the traumatic event from beginning to end--not once, but over and over, in complete detail, until the Electropsychometer registers a distinct tone rise.

A brief example of this procedure has been given in a previous paper, with reference to reducing or exhausting the effect of a sharp physical pinch. The subject is pinched, then is instructed to close his eyes and repeatedly feel the pinch. After a few times of mentally re-feeling the pinch, the charge on the event dissipates.

This technique may be applied to complex and interrelated chains of traumatic events. It is essential that the patient not be permitted to recount details of the painful past event in some detached and casual fashion. On the contrary, the patient is required to narrate and at the same time as fully as possible relive the whole experience. Of course, the patient will probably say: "But how can I remember precisely what I said and what she said, and what they said, and so on?" The best thing to do about this seems to be to instruct the patient somewhat as follows: "Make up the approximate words as you go along. Just say whatever words come into your mind. The main thing is to feel the experience over again, from beginning to end. Especially feel the emotions and all the physical efforts you made at