

THE PHENOMENA OF LIFE

A Radio-Electric Interpretation

The day after Dr. Crile entered as an interne, his friend, a medical student, was brought there in the state of profound shock, both of his legs having been crushed by the wheels of a streetcar. He was perspiring, his face was pale and drawn, his respiration was hurried, his pulse soft and slow. He had lost but little blood. It became his duty to administer chloroform for an amputation at the thigh.

Following the operation, the patient exhibited a shrunken countenance, a rapid, feeble, failing pulse, pallor, cold sweat, sighing respiration, restlessness, semi-consciousness. He attended him through the night and noted his steadily failing faculties. In the early morning, he died.

Dr. Crile examined the organs of the dead student. They were healthy and sound. Why, then, had he died? What is death? Life?

Dr. Crile dug for facts. Results included the first blood transfusion and first general use of the violent heart stimulant adrenalin. He found that bodies had only three absolutely vital organs – liver, brain and adrenal glands.

Bi-Polar Theory.

Deep in this incredible maze of apparently unrelated work, Crile made this most significant discovery, death, displaced life when the blood lost its alkalinity. From this emerged this monumental Bi-Polar Theory. In each of the body's millions of cells Crile discovered an acid nucleus and an alkaline cytoplasm in effect a miniature electric battery. The electrical potential of every battery provided a ready measure of human vitality. When a man was anesthetized with ether, or when he slept, the potential dropped, if high, the man was full of energy. The investigator found that these cells dumped their energy into nerves – transmission lines– and gave life its driving force; and that when their potential dropped to zero and they ceased furnishing power, the man died.

This startling fact set Crile to measure electricity in apples, men and animals. It was always the same; zero potential meant cellular disintegration and death. He checked back to the beginning of human life and found that the male spermatozoon was electrical negative and formed a living cell when it joined a positively charged ovum.

Among the way of his work he kept an ever-practical eye on practical results. Ether and chloroform, he discovered depressed cellular potential. For example, if a diseased liver had a low cellular potential, ether might push it to zero, hence kill it. A patient would possibly recover from the anesthetic but his dead liver would drag him irrevocably back to death.

Electric Man.

After the war, he went back to his electrical-man theory. The brain fitted nicely into the picture. He estimated that in the cortex -gray matter - there were 1,200,000,000 microscopic electric cells. The brain's white portion contained no electric cells but acted merely as a recording matrix. The brain's generating plant shot electricity through the white matter which established memory patterns.

Synthetic Cells.

He wanted to try to manufacture cell life. From dead brain, he extracted lipoids – cell components. Then he isolated brain proteins. He reasoned that were he to mix these two definitely dead factors, he would crudely reproduce the process of fertilization, the protein furnishing the electrically positive and the lipid the electrically negative integrals. He put the mixture on a

microscope slides. The cellular nucleus he saw looked like life. The synthetic amoebalike structure shot out arms and moved about. Finally, one broke in two pieces – reproduced – and the two new cells moved away from each other. It was an exciting research moment, filled with profound implications.

From October, 1930 to August 1931, Crile kept one batch of cells in an apparently living state. They breathed oxygen, consumed broths and disintegrated when he added poison. Still, he gingerly avoided saying that he had created life.

Hunting.

While hunting he discovered that the animals could travel as far as 150 yards with a bullet in their hearts, but when in the lower part of the neck that struck the pneumogastric nerve killed hem instantly.

In the last chapter of “The Phenomenon of Life”, Crile

Concludes:

“In my quest to find what William Lyndman, his fellow student, was and what caused his death, I found that the slow fading away of every organ to death from shock was not due to failure of the heart – the arteries – the capillaries, nor the pooling of the blood in the large veins, nor to the loss of any elements in the bloodstream. It was not due to accumulation of poison in the blood – to changes in the respiration -- It was not due to fat emboli in the lungs – to the hydrogenion concentration of the blood.

The cause of Wm. Lyndman’s death was an excessive physical stimulation of the sensory nerves. The impulses that finally killed him. Lyndman passed over the nerve pathways to the brain and thence were broadcast throughout the body – activating mechanism – so excessively that complete exhaustion (zero cellular potential) resulted”.

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