



#### PSYCHIC MACHINES CAN LEARN AND FORGET

Dr. Clark Hull (right) is "teaching" the machine in the background. Before learning, only one of the buttons will light the light, but after two buttons have been held down together for a time, then the second button alone will light the light. This ability is soon forgotten. The machine in the foreground, operated by Dr. George K. Bennett, is capable of spontaneous unpredictable variability, discouragement, and the human frailty of persisting in error after a correct response is learned and forgotten.

PSYCHOLOGY

## Psychologist Offers Proof That Man's Mind is Physical

President of American Psychological Association Shows Machine Capable of Much of Human Behavior

**D**EMONSTRATING a "psychic machine" which can learn, forget, become discouraged, and show spontaneous and unpredictable variation in behavior, the president of the American Psychological Association told some 750 of his colleagues at the meeting of that Society that the mind of man is purely physical in nature.

Criticizing the British physicist Sir Arthur Eddington for making the statement that "rational man, morally responsible" cannot be reached from a world of ether and electrons, and for failing to offer any supporting scientific evidence for his statement, Prof. Clark Hull, of Yale University's Institute of Human Relations, in his address as retiring president, did furnish to scientists

partial proof of his opposing view.

It is a curious paradox, Prof. Hull said, that although Eddington the physicist insists that man's behavior is at bottom non-physical, Albert P. Weiss, renowned psychologist, held that it is fundamentally non-psychological and analogous to the raindrop which "purposes" to reach the ocean. But neither did Weiss present any scientific support for his bald statement.

"This paradox is particularly astonishing in the case of Eddington because he has been active in the field of physical theory and should, therefore, be thoroughly sophisticated regarding the essential methodology involved in scientific theory in general," commented Prof. Hull.

As his contribution to the proof that man conforms to the physical laws of nature, Prof. Hull handed his listeners copies of thirteen theorems reminiscent of geometry in which adaptive behavior is explained without reference to the psychic or to the conception of consciousness. They were based on six postulates relating to human learning and behavior.

If a machine could be built which would display the elementary behavior characteristics represented by these eight postulates, then it would show conclusively that these forms of behavior are at bottom not necessarily psychic, but may be purely physical, Prof. Hull argued.

He then demonstrated the "psychic machines." One was constructed by Dr. Robert Krueger, now of the U. S. Employment Service in Washington, D. C. It can learn and forget and demonstrate many other processes familiar to the experimental psychologist. The second machine goes a step further than the first. Devised by Drs. George K. Bennett, of the Psychological Corporation, and Lewis B. Ward, of Wayne County Training School, Mich., this remarkable machine shows spontaneous variability and the human frailty of persisting in error.

Seemingly fighting a strong tendency to do the wrong thing it will gradually give up in "discouragement" its attempt to do the right.

The machines are simple contrivances in which batteries such as you have in your automobile are rigged up with push buttons and a light. Before "learning," only one button will light the light, but after two buttons have been held down together for a time, then the second button alone will light the light. This ability is soon forgotten and again it is necessary to push the first button. In the Bennett-Ward machine, two lights are originally lighted by separate buttons. But a third button can be "taught" to light either of the lights.

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