PSYCHOLOGY

Rat Experiments Give Clue To Creative Thinking in Man

Process By Which Problems Are Solved Can Survive Brain Injury, But Cannot Be Acquired Afterwards

"THE idea popped into my head."

This expression has its scientific basis in an unconscious or subconscious mental process which has been the subject of experiments conducted at the University of Michigan, by Dr. Norman R. F. Maier.

The suddenness with which the solution of a bothersome problem may strike us often gives us quite a jar. It may seem like an inspiration from without. But Dr. Maier's experiments indicate that the solution is made up of facts already in our possession as memories, now put together in altogether new relations. In the new combination the facts have new meaning, Dr. Maier explains, and it is this that produces the surprise.

But how does this new combination happen to be formed? That is the whole basis of creative thinking. Psychologists call the process "direction."

Positive evidence of "direction" is provided by Dr. Maier's experiments. (*Comparative Psychology Monographs,* April)

The experiments were with rats. Yes, they have "direction" and are capable of creative thinking, too.

The direction was established through solving certain problems previous to a brain operation. They were still able to solve the problems after the operation. Animals which do not have the "direction" process established before the operation can not establish it afterwards and fail on the problems.

"Direction," Dr. Maier found, once established can survive brain operation but cannot be acquired after certain brain injuries. Memories, on the other hand, may be lost through brain injury, but can be acquired afterward. This distinguishes clearly between memories and the "direction" process. They are not the same.

"Since the 'direction' process is not a memory it has less specific conscious states and human beings are therefore quite unaware of how and where they find solutions to problems," Dr. Maier said.

"They may have the consciousness of playing with thoughts and suddenly find that they have a solution. The 'direction' process has been doing its work in producing an integration and is not wholly in a person's awareness until it has produced a new combination of old elements."

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AERONAUTICS

Multi-Engined "Airacuda" Invades Pursuit Ship Field

A NEW conquest for the big plane, America's primary contribution to aeronautics during the last decade, and the eclipse of the romantic single-seat pursuit ship are foreseen in the U. S. Army Air Corps order for 13 "Airacuda" fighters, the world's deadliest wasps.

Under test for a year, the "Airacuda" is the first fighter in the world in the "big plane" class. It is the first fighter with a range comparable to that of the medium-sized transport.

Designed to meet the Army Air Corps aim of being able to strike with lightning-like rapidity anywhere within the western hemisphere in defense of the Monroe Doctrine, the "Airacuda" and the fast-flying, long-range flying fortresses pioneered by American military aviation promise an immediate revolution in aerial strategy.

With its two rapid-fire cannon and four machine guns, the "Airacuda" is probably capable of taking care of more than one pursuit ship at a time. It is too big to be as maneuverable, but it doesn't need such great shiftiness because of the many directions in which its arsenal is aimed.

Certainly three years ahead of anything else in the aeronautics field with which it can be compared, it is comparable in its advanced design to the four-engined bombers which are now in regular combat use in the U. S. Army. Four-engined bombers are still several years from combat use in Europe.

The plane is unorthodox in many more ways than one. In the first place, it is powered by pusher-propellers, directly contradicting recent aeronautics practice. An advantage gained from this type of propulsion is the freedom of the machine-gunner from a propeller slipstream.

Its Allison engines, of secret design, are among the most powerful liquid-cooled engines ever built. The plane is completely fitted for night flying and has the most advanced navigation equipment. The crew members work in heated compartments, which are necessary because of its unusually high service ceiling, 30,000 feet.

So unusual is the "YEM-1" fighter, as it is known in the Army, that it is believed that it definitely opens a new era in military aviation. Its effect on comparable planes may even be compared to the effect of the dreadnaught, which immediately outdated all existing battleships when it was introduced at the beginning of the twentieth century by the British Admiralty.

Science News Letter, June 11, 1938

• Radio

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