

BIOCHEMISTRY

Progress in Mental Study

DR. LINUS C. PAULING, the Nobel Prize Winner in chemistry in 1954, reported that he is making considerable progress toward understanding the causes of mental deficiencies on a chemical basis.

In investigating the causes of a hereditary type of anemia, he had discovered for the first time evidence of molecular hemoglobin that brought a greater understanding of this disease and indicated that other diseases that plague mankind might be similarly attacked, on a chemical basis. He told SCIENCE SERVICE that he is using this approach with considerable progress toward understanding the causes of mental deficiencies.

His research at the California Institute of Technology, where he teaches, is supported by a Ford Foundation Grant of \$450,000.

Presently, he is focusing on an hereditary mental disease, phenylketonuria, which accounts for one percent of all institutionalized mental defectives.

He also is continuing his work on the nature of molecular structure and chemical bond as they relate to proteins. "I could use \$10,000,000 to support our work on the structure of globular protein. We now have the technology required to find out what we need to know about enzyme catalytic reactions."

Nobody knows how the enzyme works in the body; but it is known that its malfunctioning can be harmful. Dr. Pauling believes that a basic understanding of this most fundamental body reaction can lead to the conquering of most of the diseases and ills that beset mankind.

Science News Letter, July 2, 1960

MEDICINE

Marrow Shots for Cancer

HEALTHY BONE MARROW extract injected into cancerous patients may hold the secret of a possible cure for cancer.

Dr. Paul Rosenstein of Rio de Janeiro, formerly a Berlin surgeon, is continuing experiments on animals to follow through on work he began in Germany with cancer patients before political events compelled him to leave.

He writes in the Journal of the International College of Surgeons, June, 1960, that further research is needed, although the influence of young bone marrow upon the growth of cancer seems to be of immense importance.

Dr. Rosenstein is proceeding slowly to build up a sufficient number of results to justify his hopes. In 1933, he says, the Ministry of Propaganda in Germany plagiarized his research, proclaiming a new cure for cancer prematurely and thus ruining for many years all confidence in the investigation he had begun.

Three German cancer patients on whom Dr. Rosenstein tested his extract showed disappearance of malignant tumors after treatment, he reports.

He believes that cancer is due to deficiency brought about by failure of the internal glands to function properly and that perhaps it can result from the fact that "a hormone present in the red bone marrow and consequently only in youth, which influences the proportional growth of the organs, is absent."

In his animal experiments, Dr. Rosenstein removed the marrow from the leg bones of young calves, sheep and goats and demonstrated that in comparison with unoperated animals they remained dwarfs.

Then he injected into mice, rabbits and guinea pigs bone marrow taken from other healthy young animals. Within a few weeks the test animals began to grow faster than normal and soon became giants in their species.

Evidence points to a hormone in the marrow that has some influence on the body's endocrine glands, especially the pituitary gland at the base of the brain.

Science News Letter, July 2, 1960

PHARMACOLOGY

Common Drug Found To Be Anti-Convulsant

A COMMON DRUG has been found to possess anti-convulsant properties. The drug may have potential use in the treatment of epileptic seizures, but scientists warned the research to date is not conclusive.

Dr. Eugene Roberts of the City of Hope Medical Center, Duarte, Calif., reported the research at the American Chemical Society's Medicinal Chemistry Symposium in Kingston, R. I.

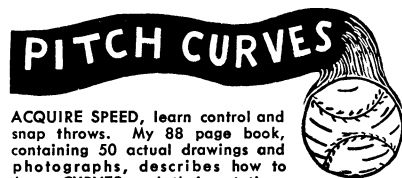
He said the compound hydroxylamine had been found to help prevent epileptic-like seizures induced in laboratory animals.

At the same time that the compound

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produced an anti-convulsant effect, Dr. Roberts said, it also raised brain levels of another substance, gamma-aminobutyric acid (GABA).

Dr. Roberts' earlier research had shown GABA to be present only in the brain and in the spinal cord. Later studies by him and others showed that GABA plays a key role in regulating electrical activity in nerve cells, possibly by inhibiting or modulating the transmission of nerve impulses.

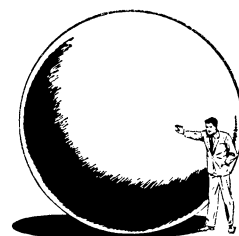
"Investigations at the City of Hope and elsewhere have outlined the formation, metabolism and other mechanisms in the biochemistry of GABA with increasing clarity," he said.

The search for a way to raise the brain levels of GABA in normal animals was begun in 1951.

"Many gaps exist in the knowledge of GABA's biochemistry," Dr. Roberts said. "Increasing collaboration between the biochemist, pharmacologist, neurophysiologist and physician will be needed to fill these gaps."

Science News Letter, July 2, 1960

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