New Vitamin Hinted

➤ HINT of a new vitamin or food element essential for rats at least and maybe for animals including man appears in a report from three Italian scientists to SCIENCE, (Feb. 16).

The substance is found in crude casein, which is a protein from milk. It is an animal protein factor but is not the same as vitamin B_{12}, state its discoverers, M. Piccioni, A. Rabbi and G. Moruzzi of the University of Bologna Institute of Biochemistry.

The factor is "indispensable for normal growth and reproduction of rats," they report. It is stored in the animal's body but can be exhausted in two generations. A deficiency of it causes a high mortality, 70% in the first generation and 100% in the second generation. The whole litter always dies and in a very short time.

Newborn rats of the second generation deprived of this factor were saved by small quantities of whole cow's milk, but vitamin B_{12}, one of the animal protein factors, completely failed to save the animals.

Science News Letter, February 24, 1951

MEDICINE

Dyes Cause Cancer

➤ LIVER CELLS turn cancerous when some of their protein content is "deleted" by an azo dye, according to a deletion theory of cancer formation reported by Dr. Harold P. Rusch at an American Chemical Society sectional meeting in Binghamton, N. Y.

Dr. Rusch is director of the McArdle Memorial Laboratory for Cancer Research in the University of Wisconsin Medical School.

Azo dyes are among the 400 chemicals which will cause cancer in laboratory animals. They induce cancer of the liver. Because of their intense color in acid, they are easily traced through the animal's body.

The azo dye forms a complex or chemical union with the protein of the experimental animal's liver cell, Dr. Rusch reported. The amount of this dye-protein chemical complex formed is directly related to the cancer-causing power of the dye.

When the protein is taken out of the cell by the dye, the cell loses some of its specialized features. But it keeps its ability to multiply into more new cells.

From studies such as this, Dr. Rusch said, it should be possible to establish the causative links between application of a cancer-causing chemical, its handling by the body, the immediate and progressive changes in cell structure and chemistry and the appearance of a cancer.

"Only when these salient features of the carcinogenic (cancer-causing) process are know in some detail," Dr. Rusch said, "can one hope to prevent it, to interrupt it or to eradicate its product, the tumor, by rational means."

Science News Letter, February 24, 1951

ENTOMOLOGY

Powerful Wasp Venom For New Insecticides

➤ FROM the powerful venom of a tiny parasitic wasp, scientists of the Connecticut Agricultural Experiment Station hope to be able to produce new poisons to fight insects.

The wasp venom produces a paralysis that affects the nerves and acts fatally in a different way from DDT, parathion (a nerve gas insecticide) and any other commonly used insecticides.

Caterpillars of the wax moth attacked by the wasp experience a sort of living death, with digestion unharmed, heart beating, and even muscles remaining in good working order even though completely paralyzed and dying after a few days.

Dr. R. L. Beard, entomologost, who made the studies, hopes that by determining the mode of action of the powerful venom, similar synthetic materials may be produced in the laboratory that would have the same deadly effect on insects.

One drop of wasp venom barely seen through a microscope can kill more than 1,600 caterpillars, each many times the wasp's size. This was proved by injecting successively caterpillar blood into other caterpillars. The wax moth upon which these tests were made is notorious for its ability to resist insecticides.

To human beings who suffer from wasp stings, there may come some help from understanding just how the venom does its damage. Scientists recognize that different people react differently to stings.

Some wasps paralyze the larvae of other insects in order to provide a fresh supply of food for their young when they hatch out and start to grow.

Science News Letter, February 24, 1951

MEDICINE

Dye in Veins Measures Flow of Blood

➤ A NEW medical technique, developed from an old-fashioned engineering process, may become a tool for studying congenital heart defects.

Dr. A. E. Lewis, Dr. Raymond D. Goodman and Dr. M. L. Pearce of the University of California's Atomic Energy Project have adapted the engineering process to research which measures the amount of blood flowing away from the hearts of rabbits.

"Actually, the method is not new," said Dr. Lewis, "but modern electronic equipment made it possible to 'rediscover' this technique of blood flow measurement."

Here is how it works:

Engineers have long known how to measure the rate of water flow through pipe lines by adding a dye to the water and then measuring the concentration of the dye at the point of outlet. The faster the flow, the more diluted the dye.

The U.C.L.A. scientists injected a blue dye into the veins of rabbits, and, with the aid of a new type of photoelectric cell, known as a "photomultiplier," were able to measure the amount of dye in the arteries of the rabbits' ears.

Although the experiments were conducted on rabbits, it may be possible some day to adapt such research to studies of congenital heart defects in human beings, Dr. Lewis said.

Science News Letter, February 24, 1951

INVENTION

Abaca Fiber Used in Artificial Leather

➤ IMPROVED artificial leather bases and shoe stays are promised with rubberized abaca (Manila hemp) fiber paper in patent 2,541,763 issued to William A. Hermanson, Brookline, Mass. It is claimed to be a product far stronger than similar materials used, and more resistant to moisture and wear. It is also flexible and substantially non-stretchable.

This material is made of a pre-formed paper web of new abaca fibers which has been impregnated with rubber latex. Also glycerine and a blue fluorescent dye are incorporated, the dye being a stilbene derivative. The fluorescent dye absorbs ultraviolet light and protects the material from deterioration due to sunlight.

Science News Letter, February 24, 1951