CHEMISTRY

Blood Clotting Process

➤ POLYSOAP, a new kind of chemical in which soap-making molecules are combined with substances similar to polymerized plastics, has been produced at Rutgers, the State University of New Jersey.

The large molecules formed by this combination may throw light on the way blood clots form.

Combined from two kinds of chemicals with opposite properties, one part of the polysoap material can combine with water, the other part with oil. Polysoap dissolves in water but forms tiny isolated communities within the solution.

Such communities may enclose drops of oil, fat or other substance not ordinarily dissolved in water, and thus aid mixing of the unlike substances. The isolated communities are called micelles.

The process of micelle formation came into prominence during World War II when it was learned that it is of critical importance in making synthetic rubber.

In polysoap, as announced by Dr. Ulrich P. Strauss, Rutgers chemist, detergent molecules are tied to long-chain molecules in such a way that micelles are permanently formed. The material lends itself to the study of tightly coiled molecular structures, such as are found in proteins and in clotted blood.

Like a circle of swimmers in a water carnival, the molecules of a micelle, if they could be magnified enough to be seen, would show a circle of heads surrounding an area of definite size in the water. The feet of the swimmers would all point toward the center of the circle.

In an ordinary soap micelle such a circle would remain in the same form, but individual swimmers would dive out of it from time to time. Their places would be taken by individuals from other parts of the pool. Polysoap differs from this structure in that the same individuals keep their places and cling to a surrounding rope. Each connected group thus becomes a unit.

Dr. Strauss, associate professor of chemistry, has carried on research at Rutgers since 1948 under the auspices of the Research Corporation and, since 1951, under the Office of Naval Research. He plans to use the new compounds to advance understanding of complicated processes of life chemistry.

Science News Letter, April 28, 1956

MEDICINE

"See" Through Skin

➤ HOW A BLIND BOY, with eyes scarcely developed, was trained to "see" through his skin has been described by Dr. Karl Konig, superintendent of the Camphill Rudolph Steiner Schools, near Aberdeen, Scotland.

When the child, aged four, arrived at the schools, he was regarded as uneducable. He was able to talk only in parrot fashion and was frail, thin and exceedingly shy.

To teach him to see, he was given color-baths. He was placed on a couch surrounded by a screen of white sheets. Colored light was thrown on the white screen and the child was bathed in colors. One color was used for three to five minutes, and then, after an interval of darkness, another was switched on to him.

"It was astonishing to see how the power of sight unfolded," Dr. Konig reported. "The child developed a certainty of movement which gradually made him independent, whereas before he had been full of fear and anxiety.

"He learned to speak properly, to sing little songs and recite poems with full understanding. Through the color-bath, the whole texture of his skin has entirely changed. Whereas formerly it was pale and almost transparent, it is now a living organ, full of color and strength, and the child himself has become a sturdy, healthy boy."

Dr. Konig is now sure that a blind child has great possibilities of unfolding his power of seeing, that is, of perceiving an impression of light and color, by means of its skin, particularly the parts on the forehead and cheeks.

He describes another case of a deaf and blind child. In a darkened room, beams of colored light were thrown on the eyes. Then a lighted candle was placed between the child and a teacher. Soon the child was repeating exactly the same gestures as those made by the teacher.

This child's eyes now "have a vivid expression of personality." He can pick up things from the floor which he "sees" at a distance of two or three yards.

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Questions

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MAMMALOGY—Which popular household pet has the longest life span? p. 265.

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NUTRITION—How can too much iron in a person's body be dangerous? p. 267.

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ENTOMOLOGY

Insect Soloists Now on Records

➤ FOR THOSE who enjoy hearing insects, Cornell University has recorded the voices of 40 crawling songsters.

The Songs of the Insects, released through Cornell University Records, is the ninth in a series of wildlife recordings produced by Drs. P. P. Kellogg and Arthur A. Allen of Cornell.

The insects, all natives of eastern United States, are introduced one at a time by an announcer before their renditions.

Buzzes, trills, chirps and lisps have been immortalized for entertainment as well as for serious study. The long-horned grasshopper can be heard rubbing a sharp edge of one front wing against a ridge on the under side of the other front wing. The cicada can be heard snapping the membranes at the base of his abdomen.

Insects do not have vocal cords, larynx or lungs. Most of their calls are produced by rubbing or hitting together different parts of their bodies.

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