



**NEW PICTURE-MAKING TECHNIQUE**—A plastic picture, hot from the oven was developed by baking it like a cooky for five minutes at 320-350 degrees Fahrenheit. Heat alone brings out the image, thus eliminating dark-room or photographic chemicals. An asbestos glove is used to remove the picture which has been mounted on a sheet of aluminum to insure even distribution of heat.

## CHEMISTRY

## Synthesis of RNA

► THE CREATION of life in a test tube is now closer than ever before.

Work by an international group of scientists has led to the laboratory synthesis of RNA (ribonucleic acid), the energy-packed cell machinery that manufactures protein. RNA is also found in the genes of cells in another form (DNA or deoxyribonucleic acid) and holds the secret of heredity.

The synthesis of RNA was made possible by an enzyme called polynucleotide phosphorylase, which is able to weld together all the small molecular parts that make up the long-chained RNA molecule.

The enzyme was isolated by Dr. Severo Ochoa, New York University-Bellevue Medical Center. It has been extracted from several kinds of bacteria, plants and yeast.

The synthetic RNA has been formed by adding this enzyme to a water solution of the four bases of nucleotides. These nucleotides, when strung together in a very special way, make up the long RNA molecule. The nucleotides themselves are formed by a combination of sugar (ribose), phosphate and any of the four chemical bases, adenine, guanine, uracil and cytosine. Nature carries on life by transferring energy-laden phosphate groups into, out of and between these nucleotides.

The RNA molecules that have been pro-

duced in the laboratory appear to be either identical with nature's RNA, or at least very similar to them. The synthetic molecules behave in much the same way as natural ones do in sedimentation tests, structure studies, and X-ray diffraction tests.

But there is no way at present of being absolutely certain that these synthetic molecules are exactly the same kind that nature builds. The bacterial enzyme used in the laboratory has been able to make a copy of nature's RNA molecule by using any one of the four chemical bases. Nature, on the other hand, uses all four of them and in special amounts, Dr. Leon Heppel, National Institutes of Health, Bethesda, Md., explained.

"We must still learn how to make the specific RNA that nature does," explained Dr. Heppel, who carried on a joint study of the chemical composition of these new synthetics with Dr. Ochoa's group. "Although we can duplicate the mechanics of nature's construction now, the process is still uncontrolled."

Other scientists taking part in the research included Marianne Grunberg-Manago, Priscilla J. Ortiz, R. C. Warner, Sanae Mii, M. C. Schneider, D. O. Brummond and M. Staehelin, New York University; A. Rich, National Institutes of Health, Bethesda, Md.; J. D. Smith, Molteno Institute,

Cambridge, England; and R. M. S. Smellie, University of Glasgow, Scotland. The research was supported by the American Cancer Society, National Institutes of Health, Office of Naval Research, New York University College of Medicine, and the Rockefeller Foundation.

Science News Letter, January 26, 1957

## PSYCHOLOGY

## Dreams Come Easier When Dreamers Together

► DREAMS come thick and fast when dreamers get together in groups to discuss their latest reveries, Dr. Norman Locke, Consultant, Group Psychotherapy Center, New York, reported to the annual meeting of the American Group Psychotherapy Association in New York.

When emotionally disturbed people are treated in groups, they remember more dreams than they would have if treated individually, Dr. Locke said, and the dreams they do have are more charged with emotion.

Patients in group therapy help themselves by analyzing their fellow patients' dreams, the psychologist reported, since they all get a chance to comment on what a particular dream means. This way, they bring out their own fears, wishes, and attitudes by the way they interpret someone else's dream. The dream of one member then becomes the dream of the whole group, said Dr. Locke.

As each patient reports his dream and then listens to all the different interpretations, he "reacts" to the group therapy also.

All the new ideas from the group help to "fertilize" his own fantasies and multiply them far beyond what he could have done by himself, Dr. Locke reported.

Science News Letter, January 26, 1957

## VETERINARY MEDICINE

## Chickens Not Calmed By Tranquilizers

► CHICKENS are not tranquilized by tranquilizers.

Leghorns are highly excitable fowl. Scientists at Rutgers University, New Brunswick, N. J., reasoned that if the Leghorns could be quieted down some, they would eat less feed. Or, at best, they would need less feed for their retarded activity and utilize what they did eat more efficiently.

Experiments with feeding the tranquilizing drug, meprobamate (trade named, Miltown) to the Leghorns along with their regular chicken-feed changed the reasoning.

The tranquilizer did not calm down the birds.

Drs. MacLean Jack Babcock and M. Wright Taylor of the University's agricultural biochemistry department reported that when week-old White Leghorn cockerels were given a dose higher than that considered therapeutic for man, neither growth, nor activity, nor feed efficiency improved.

Science News Letter, January 26, 1957