



**Pinned With Magnesium**

► A RECIPE for making life possible on an uninhabited planet might very well begin, "Use 55 parts carbon, 72 parts hydrogen, five parts oxygen, four parts nitrogen, and one part magnesium."

The "parts" are atoms, and the life-enabling recipe is the formula for chlorophyll a, one of the two green, sunlight-capturing, food-making pigments in all green plants. Its opposite number, chlorophyll b, differs by two atoms of hydrogen and one of oxygen, but winds up with the same single atom of magnesium.

Although the numbers of atoms of constituent elements in a molecule of chlorophyll are known, biochemists are not yet sure exactly how they are put together. Some tentative diagrams of its structure have been drawn up, and in practically all of them, the "Mg" that symbolizes magnesium is shown at the center, as if it were the kingpin of an intricate mechanism.

So it is in a sense; although we do not know what its exact function is in the activity of chlorophyll, it is certain that if that one magnesium atom were withdrawn, the remainder of the complex could no longer be called a chlorophyll molecule.

Chlorophyll, using sun-power to weld water and carbon dioxide together to form sugar, seems to act as a catalyst. That is,

its own substance is neither increased nor diminished, even momentarily, by the process which it promotes, although the greater part of its bulk is made up of carbon, hydrogen and oxygen atoms—the identical elements that are bound together in the foodstuff formed by its action.

There is not even complete agreement about what that first-formed foodstuff is. It is usually said to be some form of sugar, but there are also plant physiologists who believe that starch is made first, then

changed into sugar for transportation to other parts of the plant in solution. Sugars and starches are always found in such intimate association with active chlorophyll that it is extremely difficult to tell which came first.

Of this much, however, we may be certain: that without chlorophyll there would be no trees, no grainfields, no pastures, not even any mosses or green pond-scums. And every molecule of chlorophyll seems to be held together by a single pin of magnesium.

Science News Letter, September 26, 1953

#### NUTRITION

## Antibiotics for Animals

**Betters their general health, puts more meat on them, and increases production. Greatest improvement for those in poor condition.**

► ANTIBIOTICS ARE useful outside their role as "miracle drugs."

Antibiotics can improve nutrition, cause hens to lay more eggs, put more meat on swine and calves, and better the general health of farm animals. Good effects of feeding antibiotics regularly to animals being raised for the market were reported to the American Chemical Society by representatives of state experiment stations, university research departments, pharmaceutical companies, and manufacturers of animal feeds.

The results of experimental feeding, however, show that greater improvement is found among animals which started out with inadequate diets and in poor condition.

Cows and other ruminant animals can have their digestion interfered with if antibiotics are given with their feed, because their ability to digest woody stalks depends on bacteria in the extra stomach, the rumen, with which these cud-chewing animals are provided. Dr. Louis L. Rusoff of Louisiana University, who has studied the effect of administering aureomycin to calves, finds better results from injecting the antibiotic into the muscles than from allowing it to pass through the digestive system. Better growth of calves with this treatment leads him to believe that the antibiotic stimulates growth of bone.

Addition of certain compounds containing arsenic, similar to some that have been used in medicine for human beings, to control disease in animals, was reported to the meeting by Dr. D. V. Frost and Dr. H. C. Spruth of Abbott Laboratories. Arsenicals seem to supplement the antibiotics in improving the health of animals, in the experience of this research team.

Plants, too, are improved by having their diseases curbed by use of antibiotics. Results of research in this field were also reported.

Extension of the application of antibiotics to food preservation was reported to the meeting by packers of everything from fish to spinach. Although certain specific bene-

fits were reported, the general feeling was voiced by Dr. F. E. Deatherage of the Ohio State Agricultural Experiment Station, who said, "Antibiotics may have a place in the meat industry, but much work must be done to determine their proper place."

Science News Letter, September 26, 1953

#### PSYCHIATRY

## "Pygmalion Effect" Noted in Patients

► PATIENTS WHO undergo psychiatric treatment tend to assume the personality traits of the psychiatrist, a condition known as the "Pygmalion effect," Dr. Joseph G. Sheehan, University of California at Los Angeles psychologist, reports.

Pygmalion was a legendary king of Cyprus who made an ivory statue of a maiden and fell in love with it. Aphrodite thereupon endowed it with life.

The modern "Pygmalion effect" was observed in Rorschach ink blot tests given to patients at the U.C.L.A. Student Health Service and at the Psychological Clinic. Seventeen of 21 subjects revealed definite shifts in personality in the direction of the psychiatrist or psychologist treating them.

Patients seemed to acquire some of the liabilities of therapists along with their assets. Outgoing extrovert therapists seemed to bring out extroversive qualities in their patients, while patients of the opposite-type therapists seemed to become more introversive and retiring.

The extent of shift appeared primarily a function of the therapist's personality and was relatively independent of therapeutic techniques.

Patients rated by their therapists as responding best to treatment showed more personality resemblance to their therapists. This could be interpreted to mean either that the psychiatrists or psychologists had healthier personalities, or that they judged personality shifts in their direction as indicative of better judgment.

Science News Letter, September 26, 1953

**Consecutively-Numbered Self-adhesive Labels.**  
For numbering color transparencies—neatly, uniformly, legibly and without error. Always get your transparencies back in the right order.  
To apply: Press them on. To remove: Peel them off.  
Set numbered 1 to 500..... \$ 2.50  
Set numbered 1 to 1,000..... 4.00  
Set numbered 1 to 5,000..... 18.00  
Samples on request. Dept. SNL.

See your dealer or remit direct to:

**R. P. CARGILLE LABORATORIES, INC.**  
117 Liberty Street • New York 6, N. Y.