

NUTRITION

Folic Acid and Blood Cells

Discovery links new B vitamin with the production of white corpuscles. Acid cures blood disorders in rats caused by sulfa drug.

➤ A DISCOVERY linking a new B vitamin, folic acid, with blood cell production in the body has been made at the National Institute of Health. This is the first time a vitamin has been linked with white blood cell production, although a relation between vitamins and red cell production has been hinted by two or three previous reports.

Folic acid will cure the anemia and white blood cell destruction caused in rats by sulfa drugs, Dr. Floyd S. Daft and Dr. W. H. Sebrell, U. S. Public Health Service, report. (*Public Health Reports*, Oct. 15)

Sulfa drugs sometimes cause the same white blood cell destruction, called leukopenia and granulocytopenia, and anemia in human patients. The first practical result of the discovery, therefore, will probably be greater safety in sulfa drug treatment.

White blood cell destruction, or a condition in which there are too few of these cells, however, occurs also in patients who have not been getting sulfa drugs. Some of these cases have been attributed to other chemicals, such as those used in formerly popular headache remedies. In other cases no cause for the condition could be found. The findings on the rats suggest pretty strongly that in all such cases the underlying cause may have been a diet deficient in the folic acid vitamin.

Whether this vitamin plays as important a part in blood cell production as vitamin D plays in bone formation remains for future studies to determine. Folic acid was first introduced to the world under that name by Dr. Roger J. Williams at the University of Texas in 1941, but its only significance heretofore known was the cure of anemia in

chickens. It is a member of the vitamin B group and is found more abundantly in liver, kidney, yeast and immature grass than in other materials analyzed, according to a report from John Bowden, E. B. McQuarrie and W. H. Peterson, of the University of Wisconsin. It got its name from the same Latin word that gives us the word "foliage," because it was found abundantly in leaves.

Prof. C. A. Elvehjem and associates at the University of Wisconsin have also found that, although rats can thrive on a diet lacking both folic acid and another B vitamin, biotin, they stop growing and get sick when given a sulfa drug while on such a diet. The ill effects of the sulfa drug, they reported, could be both prevented and cured by adding folic acid and biotin to the diet. Without the sulfa drug, the bacteria in the rat intestine presumably manufacture enough of these vitamins for the animal's requirements.

Dr. Daft and Dr. Sebrell were able to pin the blood disorders in rats definitely to lack of folic acid because they were able to use pure folic acid, instead of a vitamin concentrate, for curing the disorders. This material, which has only been isolated in the past few months, was furnished them by Dr. A. D. Emmett of Parke, Davis and Co., and Dr. E. L. R. Stokstad, Dr. B. L. Hutchings and Dr. N. Bohonos of Lederle Laboratories, Inc.

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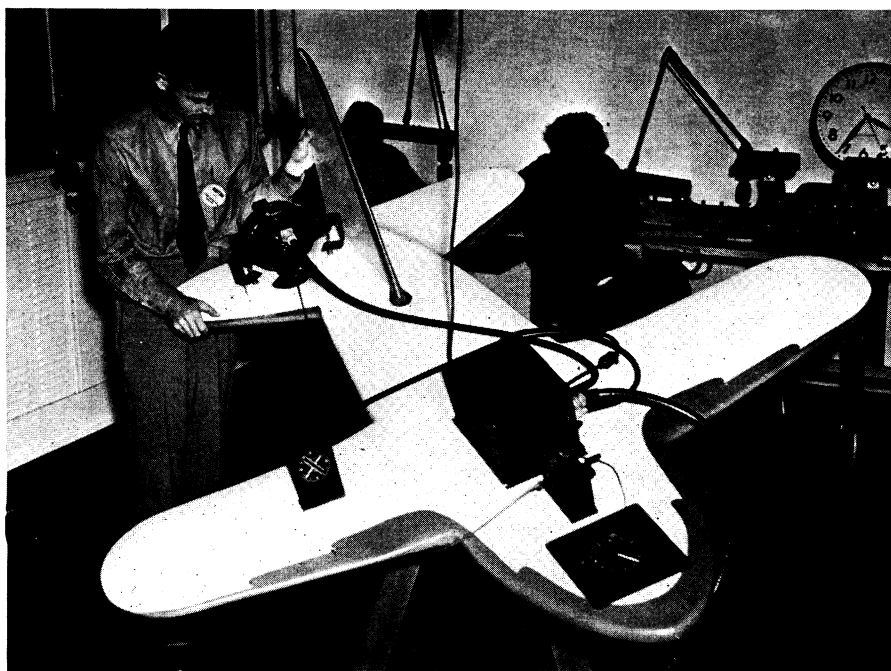
Pet Dog May Give Clue To Family's Diet Illness

➤DIAGNOSE my dog, diagnose me, may become the new scientific version of the old saying, Love me, love my dog.

In at least one instance, signs of hidden hunger in a dog eating scraps from the family table led to better understanding of why all the members of the family, though not actually sick, were complaining of weakness, nervousness, irritability and loss of appetite, Dr. Tom D. Spies, of Hillman Hospital and the University of Cincinnati, reports. (*Science*, Oct. 22)

The family's vague symptoms, it turned out, were due to hidden hunger from lack of vitamins. The pet dog which lived on the same diet showed the symptoms more clearly.

Lack of two B vitamins, riboflavin and niacin, may both be detected in dogs eating scraps from the family table, Dr. Spies reports. The niacin lack, it has long been known, leads to pellagra in



REVOLUTIONARY—It is rare that a new type of compass is developed. This one, in production for the Army and Navy at the Philadelphia division of the Bendix Aviation Corporation, is not thrown off by metal nearby (See *SNL*, Oct. 23). The compass transmitter is shown at upper left, on the tail of a model plane; the amplifier on the center of the "fuselage"; the master indicator on the plane's "nose" and a secondary indicator on the wing at left.

the family and to black-tongue in the dogs. Lately Dr. Spies has noticed in pet dogs the same eye symptoms of riboflavin deficiency that appear in humans whose diet lacks this vitamin. As in humans, the condition in dogs can be rapidly cured by doses of riboflavin and can be prevented by proper diet.

Since marked symptoms of pellagra

and riboflavin deficiency usually do not appear in people until after they have been on poor diets for some time and have for months or years been weak, listless and vaguely ill, examination of the family's pet dog may in future be added to other diagnostic tests for human illnesses.

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ARCHAEOLOGY

Prehistoric Baths

Discovery of archaeological expedition in Colombia reveals that Indians had advantages of running water and artistic decoration.

► COMPLETE with running water facilities, three bathtubs hewn from a rocky slope approximately 2,000 years ago in the San Agustin region of Colombia, South America, may be the key to a prehistoric civilization. Unearthed during an archaeological expedition six years ago sponsored by the Colombian government, this treasure was described for the first time in this country in an exclusive interview by one of the explorers, Dr. Gregorio Hernandez de Alba, director of the National Archaeological Museum of Colombia.

The three prehistoric baths, Dr. de Alba explained, cause scientists to wonder whether this is proof that modern

Indian tradition is actually a carry-over from as far back as 500 B. C.

Bathing is symbolic of purification in modern Indian culture, he explained. Before a tribal mother who has borne a child can return to her family, both she and the baby must bathe in a nearby creek. After a burial, all members of the mourning party, fully clothed, must splash around in the creek, ridding themselves of evil spirits. Any Colombian Indian upon seeing a rainbow in the sky must immediately rush to the creek and, fully clothed, wash the devil away.

That this modern custom has been derived from ancient tradition has long

been the archaeologist's theory. The remains of the prehistoric baths give tangible evidence to such reasoning.

The baths are approximately nine feet long, four feet wide, and from one to three feet deep. Variation in depth occurs because the baths face across the slope; one nine-foot side being three feet deep, the other being only one foot deep, allowing a steady stream of water to flow across the bather and out of the bath.

No pipes or tubing were required for the running water arrangement. But the prehistoric plumbers showed great skill in their plans. The main stream on the slope was diverted into a series of little canals headed downstream, providing a continuous water supply.

Elaborate carvings were found on all sides of the tubs. Water animals such as snakes, lizards and frogs predominate, all facing inward. There are also human heads, Indian figurines and monkeys. High on the hill overlooking the baths is a seat hewn from the slope. On the left side of this seat is carved a human arm, and on the lower part are carved two human feet. On these carvings the chief or ruler or priest rested his arm and legs while he presided over the ceremony.

"Customs and traditions associated with these ancient remains are buried in the past," says Dr. de Alba. "We can only guess that the elaborately carved baths had religious implications. But from the ingenious canals diverted from the main stream to create a gentle and continuous water flow, it is easy to surmise that we have here represented a high plane of ancient culture."

A wearisome 16-day mule trek for early expeditionary parties from Bogota, the capital of Colombia, the 560-mile trip to San Agustin now takes two days by train or auto.

Dr. de Alba was invited to come to this country by the Committee of Artistic and Intellectual Relations of the Coordinator of Inter-American Affairs to make a report on the manners and customs of the Indians living in the Andes in southern Colombia. He is also preparing a survey of the archaeology of this area for the Institute of Andean Research, a research organization composed of scientists interested in the anthropological problems of the Andean and adjacent areas. While in this country, Dr. de Alba has been commissioned by the Secretary of Education of Colombia to study the organization of our anthropological museums.

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ANCIENT INDIAN BATHTUB—Using an ingenious arrangement of canals, the prehistoric plumber designed these 2000-year-old tubs complete with running water facilities. Hewn from the bedrock of a stream, the elaborate carvings on the bath are symbols of an ancient culture.