NUTRITION

Drug Promotes Growth

The golden wonder drug, in addition to its curative properties, now accelerates growth by as much as 50 per cent.

➤ THE discovery that the golden drug aureomycin is a potent growth accelerator, producing effects beyond those obtainable with any known vitamin, was announced in a report to the American Chemical Society recently.

In animal experiments which cast the antibiotic in a spectacular new role, and which may hold enormous long-range significance for the survival of the human race in a world of dwindling resources and expanding populations, aureomycin has increased the rate of growth of hogs by as much as 50%, declares the report of Dr. E. L. R. Stokstad and Dr. T. H. Jukes of the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

Although aureomycin's hitherto unsuspected nutritional powers promise to be of importance primarily in extending the world's meat supply and decreasing its production costs, they may also prove directly beneficial to human health by aiding the growth of malnourished and undersized children. Clinical investigations of this possibility are now under way.

Up to now aureomycin, like penicillin, streptomycin, and the other antibiotic wonder drugs, has been regarded solely as a weapon for fighting disease. Aureomycin has been found particularly useful against such ailments as virus pneumonia, whooping cough, Rocky Mountain spotted fever, undulant fever, typhus, eye infections, amebic dysentery, streptococcus and staphylococcus infections, and parrot fever.

Aureomycin's growth-promoting value was discovered in the course of research on vitamin B-12, another powerful growth stimulator.

Chicks and turkey poults as well as pigs have registered unprecedented gains upon receiving minute quantities of the drug in the form of a finely ground powder mixed with their feed.

Aureomycin, in the experiments conducted so far, has been found to produce a growth response that "cannot be duplicated by any of the vitamins known at the present time, even when added in many times the normal requirement." No undesirable side effects have been observed.

Aureomycin was first isolated about four years ago by Dr. B. M. Duggar of the Lederle Laboratories and derives its name from its golden color—aurum being the Latin word for gold. It is the first antibiotic to be used to promote growth in farm animals, although laboratory tests of the nutritional value of some other antibiotics have been made.

Exactly how aureomycin works in speeding growth is something yet to be determined. Since other antibacterial agents with widely differing chemical structures can produce similar though less dramatic results, it seems unlikely that aureomycin functions as a vitamin. "It is more probable that it inhibits growth of certain detrimental microorganisms in the intestinal tract. These bacteria may rob the intestine of some unknown vitamin, or they may produce a toxic compound."

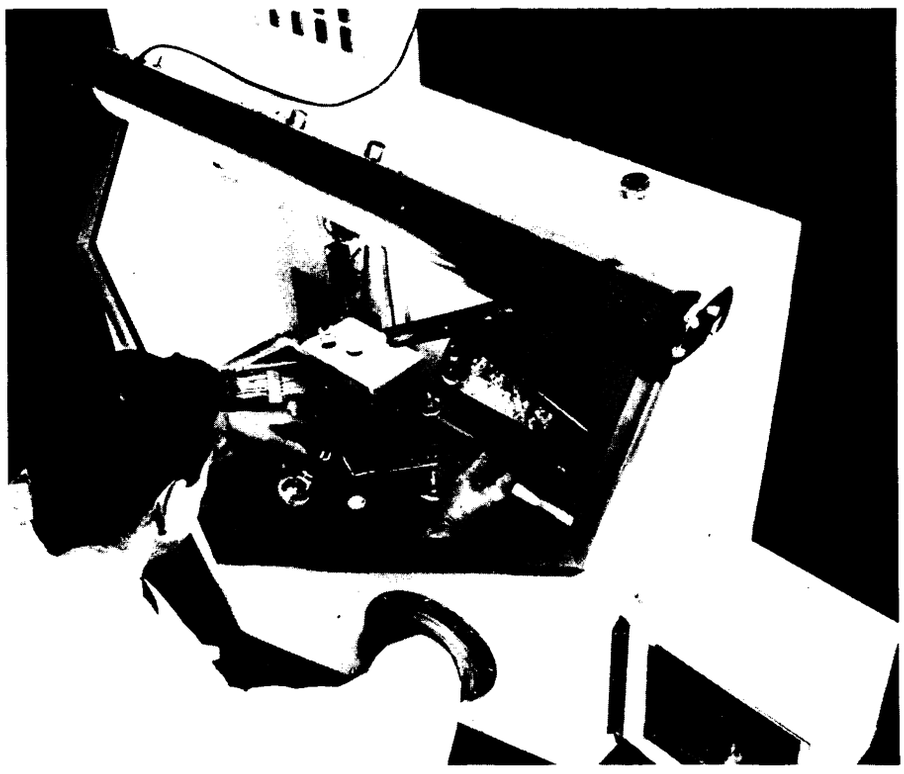
The value of animal protein products as supplements to vegetable protein rations has been known for some time. More recently it has been found that the activity of these animal protein supplements is due to a vitamin which has been designated the animal protein factor, often called APF, and which includes vitamin B-12.

Aureomycin, like penicillin and streptomycin, is obtained from a mold by fermentation. Fermentation products used in the preparation of antibiotics were found to contain vitamin B-12, and these materials were developed as commercial sources of the animal protein factor for the feed industry. A product prepared from the aureomycin fermentation gave a growth response with chicks which was greater than that which could be obtained with pure vitamin B-12. This precipitated a coast-to-coast series of experiments which yielded the recently reported results.

Experiments showed that while an animal protein factor supplement made from an aureomycin fermentation product produced a marked increase in growth, vitamin B-12 supplements produced no growth response in turkeys.

Similar results were observed with pigs at the University of Florida. Thus, results with chicks, turkeys, and pigs showed that the aureomycin fermentation contained another growth factor in addition to vitamin B-12. This second growth factor does not occur to any appreciable extent in natural feedstuffs, with the possible exception of fish meal. This second growth factor is the antibiotic aureomycin.

The amount of aureomycin needed to produce a response is small, it is emphasized. Twelve milligrams—or about four



TOM THUMB LABORATORY—The use of a miniature laboratory into which only the gloved hands of the technician protrude cuts cost of contamination control necessary in radioactive isotope research. A plywood box and surgical gloves for his hands are sufficient to absorb low energy radiations from many radio-isotopes. Because of the micro-techniques used in such research, practically an entire laboratory can be placed in one box.

ten-thousandths of an ounce—per pound give a marked response.

Since the fermentation product used need not be purified, the cost of adding aureomycin to feedstuffs is not great. This product sells for 30 to 40 cents a pound, and about five pounds of the product is enough to mix with a ton of feed. Pure aureomycin was employed in the tests which established the drug's role in nutrition.

Inclusion of aureomycin in a ration reduces the requirement for vitamin B-12 by 50%. This partially explains the fact that animal protein factor supplements from aureomycin fermentation products apparently contain more vitamin B-12 as measured by chick assay than as measured by microbiological assay.

"The use of feeding supplements containing aureomycin promises to give faster growth than has been obtained on many diets of natural ingredients. This increase in growth has been observed in chickens, turkeys, and pigs. The use of aureomycin as a feed supplement is not limited to vegetable protein rations. It produces an increase in growth when added to diets containing animal proteins as well as when added to all-vegetable protein diets. This promises to give more efficient utilization of feed and to decrease the cost of meat production."

Science News Letter, April 22, 1950

MEDICINE

Leg Cramps Preventive

➤ THE often agonizingly painful cramps that attack the legs at night can be prevented by one of the early anti-allergy drugs, benadryl. Success with this drug in 17 patients is reported by Dr. Meyer Naide of the University of Pennsylvania Hospital in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 15).

Why this drug, one of the first of the now famous anti-histaminics, prevents these cramps is not known. Dr. Naide tried it because it had been reported effective in relieving the muscle rigidity of parkinsonism, or shaking palsy as it is popularly called.

The first patient was a man who had suffered for 17 months from nocturnal leg cramps. Quinidine which usually helps this condition failed to give relief, as did a variety of other medicines. One capsule of benadryl at bedtime has given this patient complete relief since March 14, 1949, when the first one was taken.

Some of the other 16 patients found their cramps failed to return when they stopped taking the drug. Others, however, had to go on taking it.

The benadryl has the added advantage of being safe to give pregnant women who often suffer severe leg cramps and to whom physicians do not like to give quinine or quinidine.

Science News Letter, April 22, 1950

MEDICINE

Infecting Particles Have Been Seen

➤ SCIENTISTS are now convinced that they can see the thing that gives you a cold or 'flu or infantile paralysis or other virus-caused disease. Using electron microscopes they have been seeing particles which were believed to be viruses.

But heretofore there has been some doubt about whether these particles were the infectious virus or something associated with it. Evidence that the particles are the infectious virus was reported by Prof. Max A. Lauffer and Dr. Herman T. Epstein of the University of Pittsburgh at the meeting of the American Chemical Society.

Science News Letter, April 22, 1950

● RADIO

Saturday, April 29, 3:15-3:30 p. m. EST

"Adventures in Science" with Watson Davis, Director of Science Service, over Columbia Broadcasting System.

Dr. Samuel K. Allison, Director, Institute for Nuclear Studies, University of Chicago, and Dr. Victor F. Weisskopf, Professor of Physics, Massachusetts Institute of Technology, will discuss "Is Scientific Secrecy Necessary"?

Question Box

CHEMISTRY

In what way may man outstrip nature? p. 253.

GEOLOGY

How is uranium made by test tube? p. 242.

HYDROGRAPHY

What measures are being taken against the iceberg menace? p. 247.

MEDICINE

How can nocturnal leg cramps be prevented? p. 244.

What are the newest chemical conquests? p. 245.

METEOROLOGY

What may be used in the future to control thunderstorms? p. 246.

NUTRITION

What is the latest role of aureomycin? p. 243.

PSYCHOLOGY-EDUCATION

What should be done to utilize and cultivate talents? p. 242.

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