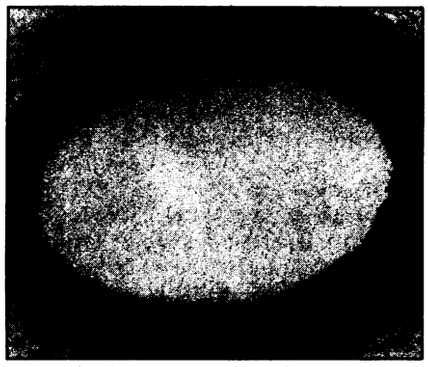
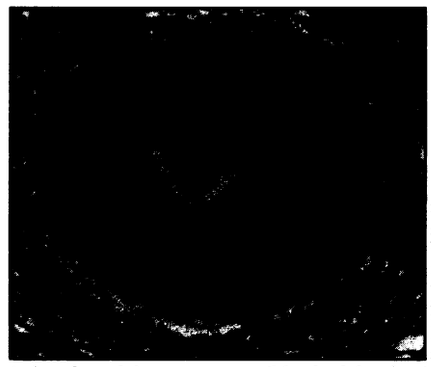


A healthy heart artery (no fatty deposits).



A hardened heart artery (blocked by fats).

National Institutes of Health

arteries.

Wissler and his team fed 25 monkeys radioactively labeled, high-cholesterol diets for a year. Five of the monkeys were then autopsied to establish that the diet had truly triggered atherosclerosis and to establish the extent and location of atherosclerotic plaques in coronary arteries. The remaining monkeys were divided into four groups. One group continued for another year on the high-fat, high-cholesterol diet; one was treated with a low-fat, cholesterol-free diet; one with the low-fat, low-cholesterol diet plus cholestyramine, and one with the high-fat, high-cholesterol diet plus cholestyramine. All of these animals were then autopsied.

The results indicated that the drug could reduce cholesterol in the blood by 20 to 25 percent, more than drugs already on the market can achieve (5 to 15 percent). More crucial, the results showed that the drug could actually reverse atherosclerosis—evidence that has been weak for other cholesterol-lowering drugs on the market, at least in primates. Specifically, there was a five-sixth reduction in plaques in animals fed the low-cholesterol diet and the drug, substantial, but lesser, reduction in those monkeys given the low-cholesterol diet but no drug, and even some reduction in the plaques of animals given the drug with the disease-producing diet.

"I think cholestyramine is the most effective drug now available [for] lowering serum cholesterol," Wissler concludes. "It's logical that it would be safer because it isn't absorbed by the body."

Basil M. Rifkind of the National Heart and Lung Institute is also enthusiastic about cholestyramine. Three years ago, Wissler and his co-workers used high-cholesterol diets to induce artherosclerosis in primates, then made the atherosclerosis regress by putting the animals back on a normal diet. "This was the first evidence from primates that we could reverse atherosclerosis," Rifkind told SCIENCE NEWS. "Now we are getting more evidence that we can do it not only with diet, but with a drug."

Rifkind is now setting up a study to see whether cholestyramine can reverse atherosclerosis in people. He is in the final stages of recruiting some 3,500 men, all of whom have a pattern of high cholesterol and other blood fats that put them in a high-risk category for heart attacks.

Still another important question is whether cholestyramine can reverse old, calcified arterial plaques as well as ones produced over a relatively short time by a severe diet. Wissler and his colleagues are now tackling this problem. □

Seedlings in search of the dark

Two biologists studying insects and banana trees in the Costa Rican jungle have discovered a phenomenon that some dirt farmers claim is common knowledge.

"Hell, my daddy has known that for years," one Florida farmer told biologist Donald R. Strong Jr. "We call it beans chasing poles." Strong calls it "skototropism," growth toward darkness. But regardless of who found it first, it is an important and previously undescribed adaptation that helps climbing vines find host trees.

Strong, an insect ecologist, and his student Thomas S. Ray Jr. from Florida State University in Tallahassee report skototropism in the Nov. 21 SCIENCE. They discovered it while walking through the tropical rain forest toward their banana patch to study insect infestations. For two days, Strong says, he walked by a *Carapa* tree and noticed a tangle of vine seedlings converging on the dark trunk from the surrounding leaf litter. For two nights, he thought about this siege-in-slow-motion, and finally, together, Strong and Ray came up with a theory: Rather than growing toward light, the climbing vine seedlings might actually be growing toward the darkness (the tree trunk). This adaptation, if true, would help young plants find a host on which to start their slow ascent toward the lighter forest canopy.

Strong and Ray conducted a number of experiments with *Monstera gigantea* seedlings to see whether the philodendron-like vines grow *toward* the dark or *away from* the light. They found that the seedlings will turn and grow toward a dark object, regardless of its relationship to the brightest sector of the horizon and that the object's silhouette must fill more than a few degrees of that horizon. The skoStrong says, "skototropism is not an odd curiosity. We don't appreciate it in the temperate regions, but vines are an extremely important life form, comprising a substantial portion of the biomass of the tropical forest. Skototropism is probably a fairly common phenomenon, he says, and any climbing vine would be a reasontotropic response ceases, they found, when a seedling finds the object, and it is replaced by positive phototropism, movement toward the light.

"Although it might seem like it," able test of the theory. What about pole beans, SCIENCE NEWS wondered? It seems as if they would exhibit skototropism, too, but this is unknown, Strong says. Ray, now an undergraduate, would like to find out and switch the answer from "common knowledge" to science during his graduate work. □

Ozone from orbit: A lowdown look

The latest device to probe the uncertain state of the atmosphere's ozone layer was launched Nov. 19 as part of the fifth Atmosphere Explorer satellite, AE-E. Called a backscatter ultraviolet spectrometer, it will make direct measurements of ozone concentrations, from an orbit that can be altered to bring it to within 130 kilometers of the earth.

The satellite follows only six weeks behind its predecessor, AE-D (SN: 10/18/75, p. 245), which carries a sensor to measure nitric oxide, believed to be a significant factor in atmospheric ozone balance. Although AE-D is in a polar orbit and AE-E is in a near-equatorial one (ranging from 20°N to 20°S), the places where the orbits cross will enable scientists to compare ozone and nitric-oxide measurements from the same regions.

This will not be the first time that ozone data have been gathered from orbit. The Nimbus 4 satellite has been doing just that (from much higher altitudes) with the same kind of sensor ever since it was launched in 1970. The AE-E probe's sensor, in fact, was originally a spare from the Nimbus program. Early this year, with Nimbus long in orbit, the sensor was being modified for use in balloon-borne measurements when researchers at the National Aeronautics and Space Administration's Goddard Space Flight Center suddenly decided that it could be better used in the low-orbit AE-E.

"In 1970," says Donald Heath of Goddard, the principal AE-E ozone investigator, "we knew ozone measurement was necessary, but until scientists began to become alarmed about the possible depletion of the ozone layer some 22 to 25 kilometers above us, we were not aware of the critical necessity to understand what is happening there." In what, by the murky calendars of high-technology man-