vesting of fish difficult and among other problems results in food waste since trout are sight feeders. Weeds also retard the growth rate of trout by diverting metabolism from growth to locomotion. Algae may even taint the flavor of fish flesh, Vedder related.

Vedder said that from a 1½ to 1 pound conversion ratio, weeds can be a contributing factor to a 2 or 2½ to 1 pond food to flesh conversion ratio. This obviously would raise the cost per pond of marketable fish flesh. Vedder related that for the past 18 months, Marine Biochemists of Waukesha, Wis., has been assisting trout growers in that state with chemical control of both weds and algae. Marine is doing research involving toxicity and residual effects of various combinations of herbicides and their own product, Cutrine. Marine has also perfected a portable drip system for applying chemicals to flowing water. The US departments of agriculture and the interior have also done research in this area. Applied Biochemists of Milwaukee, Wis., has been working along like lines with trout and catfish growers throughout the country.

Harold R. Nickel, right, Greenleaf Nursery Co., Muskogee, Okla., assumes the presidency of the American Association of Nurserymen. He succeeds William Flemer, III, who was elected a director at large. L. J. Hilscher, Hilscher Nursery and Garden Center, Fort Worth, Tex., succeeds Nickel as director from Region V.

Nurserymen Hear Progress Of Government Research

Planet Earth is like a spacecraft tied to a dying supply ship. There is no source of fresh supplies, no untapped frontier, and we're taking poor care of our life support systems.

Keynoter Dr. Henry M. Cathey of USDA's Agricultural Research Service, conjured this cosmic view of our environment at the 95th convention of the American Association of Nurserymen recently in San Francisco.

We must get down to earth, however, to attack the multitude of problems, he said.

"We need to fragment the environment crisis into many small goals which are within the grasp of a part of society. We, the horticulturists, must apply our expertise in solving these problems through the use of living plants."

Plants have the life-giving function on Spaceship Earth, Cathey reminded, of recirculating carbon dioxide and oxygen. To maintain the present level of photosynthesis on earth, we must recycle all of the CO_2 every 250 years, he said.

Man-made pollution is steadily reducing the efficiency of plants to accomplish this task, he added.

Chemicals in the air, he illustrated, such as ozone, sulfur dioxide, carbon monoxide, ethylene, and so on, affect the life support systems of plants. We use an excess amount of water to grow things, and in the process leach materials that contaminate our fresh water supplies.

Man has brought almost "constant moonlight" to the plants that live where the Spaceship Earth crew lives—the urban environment. Urban lighting often has attracted insects that damage plants, and the types of lighting also have upset the onset of dormancy of some plants, resulting in damage.

While there may be too much of the wrong kind of light at night, Dr. Cathey reported that, as the result of air pollution, plants in our urban environment are receiving 16% less light than they did a generation ago.

The goal of nurserymen, he said, cannot be just to grow more plants at less cost, assuming that the needs for plants will increase and that man and his life styles will remain unchanged.

"Methods we will use to propagate, grow, and protect our plants must change to battle the constantly modifying closed system of our spacecraft," he said.

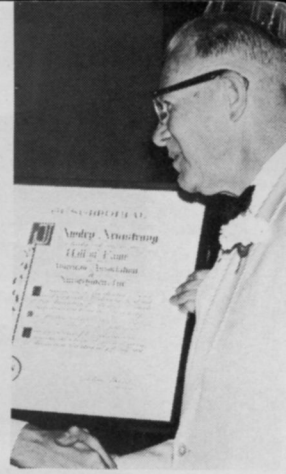
"We will be too impatient to wait years to determine if a seedling possesses desired color, form, resistance, sound baffling, fragrance, or tolerance of polluted air, soil and water. We will learn to relate the early stages of growth with the desired performance of mature plants. We will resort to encouraging plants to utilize their own innate characteristics to ward off pests and diseases."

R. D. Lane of the U.S. Forest Service, reported that federal research effort is now focused on insect control, management of forested municipal watersheds, and air pollution.

Two major projects at Lane's station in Upper Darby, Pa., concern the discovery and development of biological agents for insect control. Some have been found, Lane said, and that details are now being worked out on production and safety.

Research new this year, Lane continued, concerns a project with Health Education and Welfare with the objective of finding hardwood

Recipients of the 1970 AAN Retail Advertising Awards and Honorable Mentions are, from the left; Itsuo Uenaka, Cupertino Nursery & Florist, Cupertino, Calif.; Henry H. Chase, Sr., Chase Nursery Co., Chase Ala.; William Harlow, John Harlow's Nursery, Tucson, Ariz.; Angella Musso, Pine Knoll Nurseries, Suffern, N.Y.; Donald Kamban, Schoenbrunn Evergreen Gardens, New Philadelphia, Ohio. Recipients not able to attend are Klonsky Landscape Associates, Inc., Cedarhurst, N.Y.; Gibbs Home & Garden Center, Jamesburg, N.Y.; and Holsinger Nursery Co., Kansas City, Kan.



Other awards, from left—Garden Writer's Award, Charles H. Potter, Milwaukee, Ore.; Norman J. Colman Award, Dr. Hudson T. Hartmann, University of California; Hall of Fame, J. Awdry Armstrong, Armstrong Nurseries, Ontario, Calif.

trees that are resistant to air pollution and finding ways to using hardwood trees to reduce pollution.

Lane announced the initiating of a joint research program to solve the forestry problems in the great eastern seaboard megalopolis. Several universities are involved in the "Pinchot Institute of Environmental Forestry Research," as the program is called.

Initially, Lane said, the program will concentrate on these areas:

1. Improving the social well-being of urban people through recreation and esthetics in a forest environment.

2. Improving the amenities derived from trees and forested land in an urban environment. "Here, we are searching for better ways to use trees and forests for reducing air pollution, for improving temperature and humidity, for abating noise, and for controlling air movement," he said.

3. Improving municipal forest watersheds and their management for both water production and urban recreational uses.

4. Improving wildlife habitat in forested urban areas—with emphasis on non-game species and spectator enjoyment.

Additional research areas will be added later, Lane continued, to include: (1) tree culture and genetics; (2) protection from fire and other destructive agents; (3) use of forest vegetation to improve urban and interstate highways; and (4) the economic aspects of improving the urban environment with trees.