

Dr. Alan H. Barrett, physics professor at Massachusetts Institute of Technology, reports in the Aug. 25 *SCIENCE*.

Dr. Barrett speculates that the puzzling observations could be the result of attempts at interstellar communication by some advanced, far-distant civilization. He stresses that there is "no evidence that the OH radiation is really interstellar signaling," but notes that the radio frequencies of hydroxyl "might be prime candidates for interstellar communications when one considers the following questions:"

- If one civilization wanted to attract the attention of another, what better way would there be to attract attention than to violently upset the expected intensity ratios of the four OH lines? (All observations have shown the intensities to be way out of predicted balance.)

- If the hydroxyl ion in interstellar space acts as a maser (as has often been suggested), then these frequencies would be likely ones to be used for transmitting information over interstellar distances. A maser, acronym for microwave amplification by stimulated emission of radiation, depends on the emission of electromagnetic waves by an atom or a molecule when excited by some external energy source.

- If the signals detected in hydroxyl frequencies change within periods as short as days, would this not mean an attempt to convey information?

Dr. Barrett states that the OH emissions have many of the properties originally suggested for interstellar signals, and sought in the search for such signals in Project Ozma (SN: 4/30/60). These properties are strong intensity, narrow bandwidth, origin from regions of extremely small size, strong polarization and, perhaps, variation with time.

He notes that the possibility of an accidental discovery of interstellar communications, such as with the hydroxyl ion, is rarely considered. Dr. Barrett, therefore, makes a strong plea for an international agreement setting aside the radio frequencies of the OH radical, from 1612 to 1720 megacycles, exclusively for use by radio astronomers. The 1963 convention protecting the hydrogen line frequency of 1420 megacycles contains a footnote promising that further attention would be given to the allocation of frequencies in the 1600 megacycle range at the next international conference.

Dr. Barrett's speculation is believed to be the first mention of the possibility of interstellar communication using the hydroxyl ion in a scientific journal, although there have been many reports, most recently including two in *NATURE* for Aug. 26, on the temperatures, motions and size of OH sources. ♦

## ENTOMOLOGY

### Fruit Fly Furor

The administrators and the officials wrangled, but the bugs bred happily on.

"Make no mistake," a Florida peach grower said, "the situation is desperate. We cannot understand why so little concern has been shown by both state and Federal officials."

In the 1930s the pest had vanished without human action. "We hoped this time it would also go away," said a U.S. Department of Agriculture official. But it hasn't.

The villain is the Caribbean fruit fly, a scourge introduced into Florida, where its appetite for peaches and similar fruits appears to be broadening into a taste for the state's essential citrus crops.

**Appeals to state** and Federal authorities for emergency action have been answered with a mild attack against the flies which the embittered growers say is "like trying to fight a forest fire with a garden hose."

This invasion of the flies was first noticed about two years ago near Miami International Airport. Apparently they were brought in by planes from the West Indies. They've since spread into 25 counties causing fruit and vegetable destruction that some growers now estimate exceeds \$50 million. The bulk of this has been in private rather than commercial plantings.

A warning that the swiftly expanding Florida peach industry faces destruction unless emergency action is taken came from Tom Huston, president of Huston Research Corp., Miami, which owns 800 acres of peach groves.

"Florida's peach industry hangs in the balance," Huston said. "All peach and certainly other fruit growers, including those who raise citrus, are extremely alarmed. We cannot understand why such little concern has been shown over these highly destructive pests by both state and Federal officials."

"There's nothing to prevent this Caribbean fly from marching right on through the great peach belts in Georgia and the Carolinas. They could even spread into the fruit groves of the Gulf States and on into south Texas."

**Although USDA** men believed two years ago when the Caribbean fly was first noted that it could never stand even the mild winter of south Florida, it has been able to survive and even flourish with the thermometer occasionally dipping to the freezing level.

The fly was found in Florida in 1930, observes Donald Shepherd, acting director of the Plant Pest Control Division of the USDA's Agricultural Research Service. It went away by itself then, he notes.

In Puerto Rico, where it is a common pest, the Caribbean fruit fly does not attack citrus fruit, Shepherd explained. Thus, USDA officials hope it will also ignore Florida citrus. They are, however, aware of the growing danger to the peach crop.

"We're still hoping that the population will go down," he continued. "There is really no thought at this time of a program of eradication."

One hope for halting the fly's expansion came from the discovery, a few weeks ago, of several of them clearly killed by a fuzzy-looking fungus. Dr. Richard Baranowski, of the Subtropical Research Station, Homestead, Fla., identified it as *Entomophthora*, which literally means "insect eater." The fungus is a natural enemy of the Caribbean fly.

The dead specimens were flown to the USDA research laboratories at



Fungus-furred Caribbean fruit fly.

Beltsville, Md., where specialists confirmed the identification. Now they must determine whether the fungus kills the flies before they reach the adult stage and lay eggs that hatch into fruit-destroying larvae. If this does not occur, the fungus may be useless as a control measure.

Researchers in the USDA's fruit fly laboratory in Mexico City have been instructed to quickly try to synthesize the chemical used by female Caribbean flies as a sex lure.

**Research** involved could take a year or more. And with no sizeable state or Federal spraying appropriation yet in sight, any new program must be paid for at the local county level, and so will necessarily be limited.

A spraying experiment will be undertaken by a USDA plane. Six square-mile plots, each with a half-mile buffer zone between, have been laid out mainly in the city of Hialeah, adjoining Miami International Airport where the fly infestation is exceedingly heavy. The

spray used will be a combination of malathion and a hydrolized protein bait.

**Amidst the uproar** and the sudden, if mild, surge of action, the Florida Division of Plant Industries has charged University of Florida researchers with dragging their feet on recommendations for a Federal aid program.

"We can't get money from Washington without a program and we certainly haven't had one," said Halwin Jones, director of the Florida Division of Plant Industries. His department, he explained, had consistently tried to get the University researchers to expedite their efforts, "but they haven't followed through."

The Caribbean fruit fly is cousin to the Mediterranean fruit fly, heretofore rated far more dangerous. The latter was found in south Florida several years ago and wiped out by a crash eradication program. The Mediterranean species largely uses citrus as a host for laying its eggs.

The Carib fly prefers peaches, guavas, loquats, sapodillas and Sirinam cherries. But it will as readily attack mangos, avocados, kumquats, oranges, grapefruit and even tomatoes when the preferred hosts are out of season. ♦

#### RADIATION AND HEALTH

### Warning in Washington; Calm in Montreal

While the director of health physics at Oak Ridge National Laboratory was preparing his testimony damning X-rays as the cause of death of thousands of Americans, the International Conference on Radiological Health at Montreal's McGill University was calm. Most delegates appeared to feel that radiological hazards to health are reasonably under control.

**Oak Ridge's** Karl Z. Morgan told the Senate Commerce Committee that his guess, based on published scientific literature, was that as many as 29,000 persons in the United States may die each year from overexposure to X-rays.

He cited damage to genes, leukemia, thyroid tumors and bone tumors as radiation-linked killers. "Any radiation that is unnecessary is undesirable," he testified.

Morgan backed a bill that would authorize the Secretary of Health, Education and Welfare to step up research in the area and set limits for radiation standards.

In Montreal, the conferees admitted that not enough is known about the effects of radiation. There is, for instance, no method of counting chromosomes in living tissue to spot effects from radiation exposure. Nor is there enough data on radiation sources and

degrees of exposure and tolerance on which to base any complacency.

**This paradox** emerges from the three-day international conference staged by the University, the U.S. Public Health Service and Canada's National Health and Welfare Department.

Radiation at certain doses is known to damage chromosomes which carry genetic characteristics from parent to child. When damage occurs, the number of chromosomes present in a cell may change.

Scientists, says Dr. John D. Abbott of the Canadian Department, are trying to develop a system of chromosome counting in living human tissue instead of merely in test tubes and are "pretty certain to succeed."

Then, he says, researchers hope to apply the method of chromosome counting to whole populations, whether they're exposed to radiation or not, in an effort to find out what dose levels are responsible for abnormal counts. ♦

#### EDUCATION

### Largest Scholarship

As both the need for scientists and the cost of training them spiral upward, the pioneer program for identifying and aiding young talent increases its efforts.

The largest science scholarship in the country—\$10,000—will be awarded for the first time next year as the culmination of the nationwide Science Talent Search.

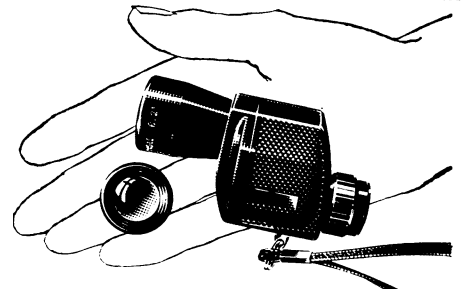
A grant from the Westinghouse Educational Foundation has enabled Science Service, which conducts the Search, not only to increase the top award by \$2,500 but to double the number of scholarships to 10.

There will also be two \$8,000 scholarships, three \$6,000 ones and four \$4,000 ones. The other 30 finalists attending the Science Talent Institute in Washington in late February will receive \$250 as before, since any sum larger than that makes them ineligible for certain other scholarships.

Announcement of the stepped-up program was made jointly by Howard S. Kaltenborn of the Westinghouse Educational Foundation and Dr. Glenn T. Seaborg, Chairman of the Atomic Energy Commission and president of the board of trustees of Science Service.

The nationwide quest for top teenage scientists, now in its 27th year, is conducted by Science Service through its Science Clubs of America. Announcement of the Search is made each year in September to high school principals and science teachers, who urge students to begin working on their individual projects. Usually more than 20,000 take up the challenge. ♦

Hold The World In Your Palm...with



### M. V. MINISCOPE SYSTEM \$16.95

So startlingly different are the design and performance of the M.V. MINISCOPE SYSTEM that you won't really believe it until you see it and use it yourself. ■ With its standard objective the M.V. is an 8x, wide-angle (8.2°), 24mm monocular telescope—more powerful than most field glasses and binoculars. For an even larger field, just quick-change objectives and you have a 6x, super-wide-angle (11°), 18mm telescope. ■ The prismatic, fully coated optics are of the same uncompromising quality that you expect from the finest Japanese cameras—crispness, brilliance and complete planarity. ■ As an added bonus, the objectives may be used as 3x and 5x wide-field magnifier/loupes, of unexcelled definition and clarity. ■ Weight 3¼ ozs., length only 3½". Comes with handstrap and soft, flat, zippered case that fits snugly in gentleman's pocket or lady's purse.

-----INSTANT ORDER BLANK-----  
 HAVERHILL'S, 526 Washington, San Francisco, 94111  
 Send the MIYAUCHI M.V. MINISCOPE SYSTEM w/case & exchange objectives. Satisfaction, or refund guaranteed. Check for \$16.95 plus \$1 for post. & ins. encl. (Calif. resid. add 5% tax.)  
 Bill Amer. Exp. Acct. # \_\_\_\_\_  
 Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Zip \_\_\_\_\_  
 SN-0909  
 Phone (415) 981-5688



### Share the Thrills of Exploring Outer Space!



All DYNASCOPES, including this superb RV-6, 6-inch available on easy terms!

\$194<sup>95</sup>

Now it's easy to join the thousands of serious amateurs who have discovered the excitement of exploring our mysterious universe. Your enjoyment begins right from the start, yet the challenges and rewards go on for years! And it's a hobby that can be shared at modest cost.

Choose from a Full Range Of DYNASCOPES® 4" Starting at \$49.95

Picking a telescope to fit your needs and your pocketbook is simple when you select a DYNASCOPE — the same instruments used by more than 150 schools, colleges and observatories. Prices begin as low as \$49.95, and your satisfaction is guaranteed by a full-refund warranty.

#### FASCINATING GUIDE YOURS FREE!

Read these valuable facts before buying any telescope. Mail coupon or postcard for your complimentary copy of this helpful guide.



Criterion Manufacturing Co.  
 331 Church St., Hartford, Conn. 06101  
 © TM Registered U.S. Pat. Office

CRITERION MANUFACTURING CO., Dept. NL-6  
 331 Church St., Hartford, Conn. 06101

Please send your free Telescope Guide.

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_