tagged branches revealed that only 1.5 percent of the fruit had dropped from the sprayed portions of the trees. When the fruit was harvested on July 3, a total of only 3 percent of that which was sprayed had dropped from the trees. When compared with fruit from a neighboring orchard that had been heated during the frost, the fruit from the sprayed trees was of normal size and flavor but somewhat misshapen. The skin was rough and scabby; suberization of the blistered areas had taken place. Not a single fruit was found to contain a normal embryo. In fact, in addition to the killing of the ovules at the time of frost, the endocarp tissue in most of the fruits was injured. When the fruits were examined internally at maturity, hypertrophy of large areas of the endocarp was found to have occurred.

Maturity of the sprayed fruit, both at Winters and at Davis, occurred from 7 to 10 days earlier than maturity of fruit that was not sprayed. The effects of 2,4,5-T application on maturity of apricots has been discussed in detail elsewhere (*1, 2*). Other than a temporary flagging of the foliage and an inhibition of shoot growth following spray application, no deleterious effects on the trees were noted. This also has been discussed elsewhere (*1, 2*).

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Communications

Air-Borne *Histoplasma capsulatum* Spores

In a study by Grayston and Furcolow (*1*) the epidemiologic features of 13 epidemics of histoplasmosis were presented and the conclusion was drawn that "the clinical features of the illnesses lead to the conclusion that infection occurred through the inhalation of air-borne organisms." Ibach, Larsh, and Furcolow (*2*) reported the isolation of *Histoplasma capsulatum* spores from the air in chicken houses located on farms where known cases of histoplasmosis had occurred. However, no one up to the present time appears to have reported the incidence of air-borne *Histoplasma capsulatum* spores in the open air.

During the pollen and spore season of 1952, a "continuous recording particle" sampler, described by Stenburg and Hall (*3*), was kept in continuous operation from early spring until late fall. With this volumetric sampler, air-borne particles are impinged upon a moving strip of adhesive tape. Upon re-examination of this permanent seasonal record for air-borne fungus spores, *Histoplasma capsulatum* spores were encountered (Fig. 1). Although we have just started this second study and have only scanned our records for Aug. 26–31, nineteen such spores have been identified. The maximum rate of spore deposition thus far was 6/hr. As each hour's reading represents approximately 1 cu yd of sampled air this would mean, if this dosage was maintained over a 24-hr period, an inhalation rate of *Histoplasma capsulatum* spores for the adult at rest, or approximately 100 during normal activity.

Although six *Histoplasma capsulatum* spores is the maximum number found for any one hour of sampling up to the present time, this dosage actually represents the minimum exposure of individuals living in this area, in that our sampler was placed on the topmost ledge (75 ft above the ground) of a tower on the Medical Laboratory Building in Iowa City.

All typical tuberculate chlamydospores were submitted for further examination to those engaged in research on histoplasmosis.[1] Although their study is being conducted on the same floor of the building where our records have been stored. contamination of

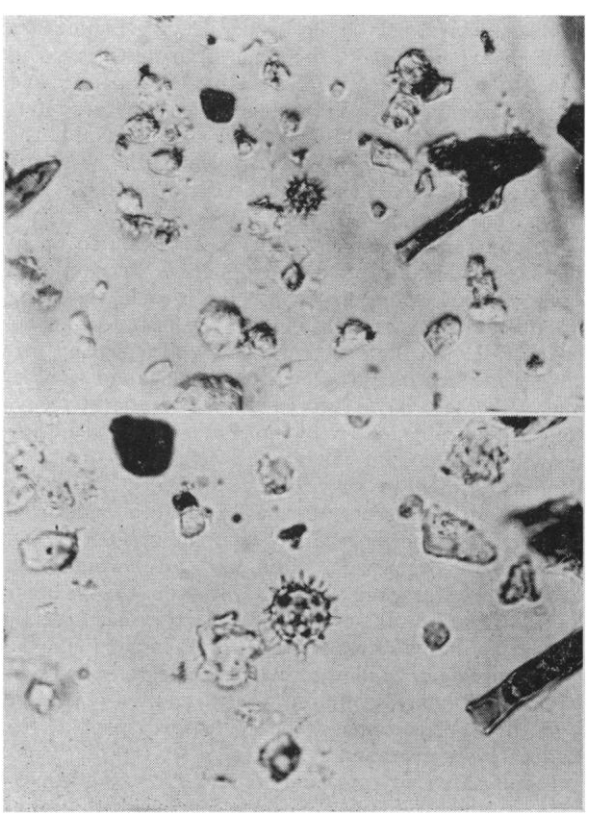

Fig. 1. *Histoplasma capsulatum*, typical air-borne tuberculate chlamydospores. Above, X = 450; below, X = 810. [Original magnifications, 750 and 1350.]

[1] I. H. Borts, director, and Gordon E. Nielson, senior bacteriologist, State Hygienic Laboratory, Iowa City.

these records from within the building is impossible in that the pollen and spores collected are automatically sealed between two layers of tape at the time of sampling.

Intraperitoneal injections into mice of spores collected with another sampler during the season of 1953 are now under way, as well as a further examination of our 1952 seasonal record.

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Cancer Research at a Marine Laboratory

So that workers in the field of cancer biology may be encouraged specifically to explore the almost limitless possibilities of marine organisms as tools for experimental oncology, an arrangement has recently been completed with the American Cancer Society whereby qualified investigators with cancer-oriented problems may work at the Lerner Marine Laboratory with all expenses paid, including transportation, full board and room at the Laboratory's residence, and the purchase of special equipment. Investigators interested in such support of their work should write to the undersigned: Chairman, Department of Fishes and Aquatic Biology, American Museum of Natural History, New York 24.

Of the various cancer studies so far carried on at the Lerner Marine Laboratory, some have employed eggs of marine organisms for large scale screening of presumptive growth-inhibiting substances, some have dealt with the effects of toxic extracts from marine organisms on the growth of mammalian tumors, and yet others have focused on the comparative cytology and physiology of normal and hyperplastic growths. Studies on purine and pyrimidine metabolism as related to growth are projected. Materials available at the Lerner Marine Laboratory would well be suited to experimental work on embryogenesis and the role of organizers, vitamins, and hormones in growth, proliferation, and differentiation. On the other hand, work undertaken at the Laboratory has been by no means limited to aspects of growth biology and the cancer problem. Studies in marine ecology, animal behavior, taxonomy, evolution, oceanography, etc., have been and will continue to be an integral part of the Laboratory's program.

Funds from private sources and from the American Museum of Natural History, together with grants from the Damon Runyon Fund, the American Cancer Society, and the U. S. Public Health Service, have contributed to the work carried on at the young Lerner Marine Laboratory. Here, at the eastern edge of the Gulf Stream, the Lerner Marine Laboratory stands far from the bustle of campus or metropolis, and yet only thirty minutes by air from the facilities of Greater Miami, Florida. The isolation so often longed for by scientists trying to do serious work at a student-crowded summer station, is on the Island of Bimini a reality. A steady semitropical climate permits operation of the Laboratory throughout most of the year; projects of nearly any duration may be undertaken. A profusion of experimentally suitable marine fauna and flora is available for easy collecting within a literal stone's throw of the Laboratory door. The Laboratory maintains fully equipped research rooms for ten senior investigators and their assistants, along with rooms or setup space for special studies in physiology, histology, pathology, biochemistry, aquatic biology, etc. Adjoining the main laboratory building is a spacious and comfortable residence where living quarters and meals are provided. Bimini, as one of the Bahama Islands, is under British administration, but no visa or passport is required of visiting American scientists.

The Lerner Marine Laboratory is a field station of the American Museum of Natural History. Although originally restricted to members of the Museum's research staff, its facilities are now offered to qualified investigators from anywhere in the world.

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The Hayward Fault of California at Its Type Locality

MAJOR earthquakes in 1836 and 1868, and many minor quakes since, convincingly show an active fault zone near the front of the northwest-trending hills that rise abruptly on the east side of San Francisco Bay. A fault in this zone has been traced for more than 60 mi, between San Pablo Bay and San Jose, and it may be much longer. It has been named for the town of Hayward, which sits astride it, about 15 mi southeast of Oakland. Although long recognized and frequently mentioned in geologic literature, the Hayward fault has been little studied in the field. As part of a larger project, about 9 mi of the fault zone near Hayward has recently been mapped in detail.

Near Hayward, evidence of active faulting is confined to a narrow zone where the hill front meets the San Francisco Bay plain. For 4 mi northwest of Hayward the zone is bounded by two rather well-defined fault traces, 1000 to 2000 ft apart, that isolate a row of undissected bedrock ridges—apparently "shutter ridges." For 4 mi southeast of Hayward only one active fault line was traced. It does not follow the hill front, which here is somewhat irregular but forms an inconspicuous, slightly sinuous, topographic sag a few hundred feet to 2000 ft back of the hill front. Parts of this long swale are undrained. Another roughly parallel fault line probably exists on the Bay plain