existence of magnetic highs (attributed to the presence of meteoritic bodies) near the southeastern ends of certain bays. These and other aspects of the problem will be fully discussed in the forthcoming account of the bays; and further evidence will be presented which seems to support the hypothesis that the bays are essentially the product, direct or indirect, of solution; and the encircling rims accumulations of wind-drifted sand.

DOUGLAS JOHNSON
COLUMBIA UNIVERSITY

ALKALI DEFICIENCY AND FISH MORTALITY

IN the January 24 issue of SCIENCE, Dr. P. B. Sears suggests that the mortality of fish at Wallingford, Conn., reported by Mr. Tomlinson (SCIENCE, November 1, 1935), was primarily due to reduction in the quantity of "soluble alkaline minerals by the time the unsettled weather conditions . . . made their appearance." This interesting suggestion is unfortunately not confirmed by the chemical data obtained at the time of the mortality. When the reservoir was visited on August 2, 1935, the day following the mortality, the alkalinity of both surface and bottom water was found to be 57.9 p.p.m. as HCO_3. This value is comparable to that obtaining in a strongly eutrophic lake near North Branford, Conn., now under intensive investigation, and considerably higher than the alkalinity of other moderately eutrophic lakes in Connecticut. Moreover, the Wallingford locality had completely recovered its oxygen on September 28, 1935, when Mr. G. A. Riley and I revisited it, without any appreciable change in alkalinity (57.3 p.p.m.). It is therefore clear that a reduction in the alkali reserve played no part in producing the mortality.

A more extended discussion of the phenomenon will appear elsewhere.

G. EVELYN HUTCHINSON
OSBORN ZOOLOGICAL LABORATORY
YALE UNIVERSITY

BACTERIOSIS OF PUMPKIN FRUITS IN CALIFORNIA

IN September, 1935, an outbreak of a soft rot of young pumpkin fruits (*Cucurbita pepo,* L. var. *condensa,* Bailey) was observed near San Pablo, Calif. The disease affected immature fruits of the varieties Early White Bush Scallop, Yellow (or Golden) Summer crookneck, Zucchine and Danish, being especially destructive on all but the latter variety. Counts showed a loss of from 60 to 75 per cent. of fruits in one field, with comparable losses in other plantings. Warm moist weather appears to favor this disease, which spreads rapidly through the agency of insects, particularly *Diabrotica sp.* Isolations made from infected fruits yielded a bacterium which upon repeated inoculations and reisolations has proved to be the causal agent. A similar organism was secured from two different localities in California and from pumpkin fruits grown at Corvallis, Oregon.

The disease affects only immature fruits. Infection of carrot roots and celery by the same organism also occurs under natural conditions.

The characteristic soft rot was produced in the following hosts: pumpkin fruits (22 horticultural varieties), carrot, celery, lettuce (leaves and stalk), cabbage (leaves and stalk), cucumber, turnip, onion, melon (four varieties), tomato fruits (green and ripe), cauliflower (leaves and stalk), stock, Opuntia (five species). The pathogen was identified as belonging to the genus Erwinia, since it possesses peritrichiate flagella. Though related in several ways it is not typical of *Erwinia carotovora* (L. R. Jones) Holland, from which it differs by having a different host range and distinct morphological and physiological characters.

Morphologically, the organism is a short rod measuring $1\,\mu - 1.2\,\mu \times 0.6\,\mu - 0.8\,\mu$. It is Gram negative and produces acid and gas in sucrose, but only acid in dextrose, glycerine, mannose, lactose, arabinose, invert sugar, salicin and amygdalin. The most striking difference from *E. carotovora* was observed on the eosin-methylene blue agar slants. On this medium *E. carotovora* produces a beautiful metallic luster comparable to that of *Escherichia coli* (Escherich) Castellani and Chalmers, while the pumpkin organism developed a light pink color in the growth without discoloring the medium. The pathogen could not be agglutinated in 2 per cent. NaCl solution at 96° C, while *E. carotovora* was agglutinated in 50 minutes. The optimum for growth is from 25° C to 31° C, while the upper thermal death point is 48.5° C.

A detailed study of the taxonomic position of the pathogen and of the susceptibility and resistance of pumpkin varieties is in progress.

P. A. ARK
C. M. TOMPKINS
UNIVERSITY OF CALIFORNIA, BERKELEY

A NEW ESTROGENIC SUBSTANCE FROM OVARIES

IN the course of a series of studies carried out on the nature of unsaponifiable substance of various tissues, we have been able to isolate from ovaries a crystalline substance possessing a melting point of 95.1° C. (uncorrected), molecular weight of 320 (Rast) and of the following composition: C, 73.47 per cent.; H, 12.32 per cent.; N, 4.43 per cent.; O (by difference), 9.78 per cent.; which indicates a probable empirical formula—$C_{20}H_{41}O_2N$.

Biological assay on spayed rats indicates that .00001 milligram of the substance injected in a single dose