deficit" and "suction tension," and (3) because there is no need for the term "net osmotic pressure."

H. C. EYSTER
UNIVERSITY OF SOUTH DAKOTA

STRAIN SUSCEPTIBILITY TO THE EUROPEAN CORN-BORER AND THE CORN-LEAF APHID IN MAIZE

THE European corn-borer (*Pyrausta nubilalis* Hubn.), a chewing insect, and the corn-leaf aphid (*Aphis maidis* Fitch), a sucking insect, are both serious pests of *Zea mays* L. Differential susceptibility to the corn-borer among corn strains has been recognized for several years. The authors have recently found: (1) a differential susceptibility among corn strains to the aphid and (2) significant correlations in the degree of strain susceptibility to these two widely different pests.

Among corn hybrids grown in northwestern Ohio, significant correlation coefficients of 0.570 and 0.844 were found in different seasons between expected aphid infestation based on aphid susceptibility ratings of the parent inbred lines and estimates of actual corn-borer infestations. Estimates of aphid abundance were based on actual counts of infested plants. Estimates of corn-borer abundance were based both on counts of infested plants and on stalk breakage associated with corn-borer damage. These correlation values are as high as have usually been found between corn-borer infestation counts on the same corn strains in different seasons. Correlations between corn-borer and aphid infestations on the same plots may, however, be very low because of competition between the insect species.

The relation has one immediate practical application. For corn-growing areas where the corn-borer is a serious pest, the differential strain susceptibility to corn-borer infestation provides a basis of major importance in classifying breeding material. The chief difficulty in measuring strain susceptibily has been burdensome techniques. In general, the choice lay between (1) adequate sampling of stalks with either natural or manual infestation and (2) feeding etiolated leaves of different strains to young larvae in the laboratory. Manual infestation reduces the number of plants needed for dissection but adds the requirement of rearing moths and applying eggs; it adds also an uncertainty of simulating natural conditions. Further, stalk dissection readings are subject to a large error unless properly timed with reference to the usually different maturity of the strains under study. Laboratory feeding also requires the rearing of moths and handling of eggs and larvae in addition to providing a constantly fresh supply of food.

Counts of aphid colonies, on the other hand, can be made rapidly. The evidence indicates that the degree of aphid infestation may be used as an index to the degree of strain susceptibility to the corn-borer, at least for preliminary classifications of corn-breeding material.

L. L. HUBER
G. H. STRINGFIELD[1]
OHIO AGRICULTURAL EXPERIMENT STATION,
WOOSTER

AN EXPERIENCE OF GENERAL ANESTHESIA

HAVING been occupied for some time with a disquisition on "Biology and Substance" I have had an experience in the last two days that furnished me facts and reflections on the subject that interests me a good deal and it has occurred to me might be of some interest to other people.

The discovery had recently been made by myself and my dentist that I had two teeth that were worse than useless, with the consequent decision that they had better be extracted. Passing over details in preparation for this I merely mention that the decision was that there should be general instead of local anesthesia —heretofore never experienced by me. Early in the morning I found the anesthetist with some sort of a contrivance beside my head with the instruction that I breathe perfectly naturally. My only response so far as I remember was the foolish question as to whether this was "N O" or "N O 2," to which she replied "N O."

Although I was naturally not holding the stop watch, as near as I could judge it could not have been many minutes at most before I was completely gone so far as my consciousness was concerned. When I came to my senses forty-five minutes later, as I was told, I was aware of some soreness in my mouth and not much later I was wide awake and restored to my regular bed in the hospital. What particularly interests me is the problem of what, during the period of nonexistence so far as my consciousness was concerned, that substance, "N O," was doing to me.

I note, first of all perhaps, that from my little knowledge of chemistry and biochemistry I know that nitrogen and oxygen were playing important parts in my existence up to the time my existence disappeared. Their action on me must, however, have been very different when the two were combined to make "N O" than when either was thus uncombined. How is such a thing possible? How was it that the combination of those two chemical elements could produce such a striking effect as compared with what either of them could do alone or in other combinations; and the gist of my inquiry is as to the latent qualities or properties which each separate chemical substance

[1] The Departments of Entomology and Agronomy, Ohio Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, cooperating.