change in the functional organization of the hypothalamic neurons mediating eating or drinking. Rather, this finding is consistent with the theory that separate, fixed neural circuits, functionally isolated from each other by biochemical specificity (*4, 8*), mediate eating and drinking in this area of the brain. Whether the observed threshold changes result from an increase in the sensitivity of the drive systems, or from a decrease in the effects of factors such as fear or curiosity, which may be causing conflicting responses, remains to be investigated.

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References and Notes

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6. The stereotaxic coordinates and surgical procedure are the same as described in J. Mendelson, *J. Comp. Physiol. Psychol.* **62**, 341 (1966). The electrode target is just lateral to the descending column of the fornix in the anterior-posterior plane of the ventromedial nucleus. The subjects are being used in further experiments; histological information which is not essential for the present argument will be reported later.
7. Of 55 electrode placements, 45 elicited both eating and drinking, 7 elicited both eating and gnawing, 1 elicited both drinking and gnawing, 1 elicited only eating, and 1 elicited only drinking. Only those placements not eliciting both eating and drinking were tested for gnawing.
8. J. N. Coury, *Science* **156**, 1763 (1967).
9. Supported by PHS grant (MH-03238-07) and National Research Council of Canada grant (APB-74) to Dalbir Bindra. I thank Dr. Bindra for his help.

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Polymeric Bridging Fibrils?

Ries and Meyers (*1*) report that electron-microscope pictures of deposited sols, to which a polymeric cationic agent had been added before deposition, showed polymeric fibrils acting as "bridges" between the colloid particles. The colloids in question were placed on collodion-covered grids by "direct deposition." This, I assume, means that a droplet of sol was placed on the prepared electron microscope grid and then allowed to dry. Measurements of zeta potential in the dilute sol were then correlated with states of agglomeration shown in the electron microscope pictures. When the samples contained high concentrations of polymeric cationic agent, threadlike objects were seen to radiate out from colloid particles and were taken to represent bridging by polymeric fibrils.

I have experimented with similar colloidal systems using both Zeta Meter and electron-microscope techniques. Although similar degrees of flocculation were observed, no threadlike fibrils were found. Because agglomeration is strongly influenced by electrolyte concentration and by zeta potential, both of which would change during a drying of the sol, it was found necessary to literally freeze the dilute sol in its original state. Only in this way were the various effects of concentration during drying, and rafting due to the meniscus, eliminated. Thin films of dilute sol were rapidly frozen on Formvar films supported on glass slides. The ice was sublimed away, leaving the sol particles in their original state of agglomeration.

I suggest that the fibrils illustrated in the report by Ries and Meyers could conceivably be explained by the precipitation of the cationic polymer during drying, the colloid particles quite naturally providing nucleation points for the deposition. It is questionable from the evidence presented that polymeric "bridging" fibrils actually existed in the dilute sol after addition of cationic agent.

That there exists a straightforward correlation between the conditions in a dilute sol and the coagulation evidenced by the electron-microscope pictures of dried films is not clear.

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Reference

1. H. E. Ries, Jr., and B. L. Meyers, *Science* **160**, 1449 (1968).

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We do not claim that there is a "straightforward correlation" between conditions in a dilute sol and the structures observed in the electron microscope. However, our zeta-potential and electron-microscope studies on two model colloidal systems strongly suggest that "charge neutralization and bridging may function simultaneously."

As the Smith-Johannsen statement indicates, electron-microscope investigations of such systems are difficult at best. To observe the fiberlike structures formed by a polymeric flocculant, great care must be exercised, not only in sample preparation but also in shadow-casting and in the electron microscopy proper, particularly at the higher magnifications that reveal a fiber thickness approaching polymer dimensions. In spite of this attention to detail, fibers are not always detected. Freeze-drying has been used for sample preparation in some of our experiments and fiber structures quite similar to those found by other techniques have been observed.

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