PALEONTOLOGY

Tertiary Age Sugars Prove Fresh Enough to Support Life

SUGAR that has been aged in amber for scores of thousands—possibly hundreds of thousands—of years, and is yet fresh enough to supply food to living plants, has been studied in Berlin by Prof. Johannes Gruss, well-known German researcher on the evolution of yeasts and fungi.

The microscopic traces of sugar were always found in connection with insects that had been trapped in the amber while it was still oozing from the pines on the ancient Baltic shores, as a soft, sticky resin. Buried in the silt, the resin slowly fossilized into amber, preserving insects, bits of flowers and chemical substances caught in its air-tight substance.

The insects responsible for the presence of sugar in the amber were always either bees or butterflies, which are honey-gatherers, or aphids, which suck sap out of green shoots and leaves and convert it in their bodies into a sweetish stuff called honey-dew, eagerly sought by ants. In their struggles as they sank into the tangle-foot resin in which they were trapped, these insects apparently exuded some of the sugary fluids, which after losing their water through evaporation remained as nearly pure sugar.

The amber specimens examined by Prof. Gruss were all of Tertiary geologic age, and he estimates them to be from 60,000 to 80,000 years old. This estimated age will be regarded as exceedingly conservative by many geologists, who are willing to accept a time period as great as a million years since the close of the Tertiary. Whatever may be their age in years, Prof. Gruss' sugar samples are probably the oldest sugars yet discovered.

However, old as they are, these sugars have shown themselves to be quite serviceable as food. Many of the amber sections which Prof. Gruss was examining at the Berlin Museum of Natural Science became mouldy with two species of fungi feeding on the contained sugar. One of the species was new to science, and has been named *Cladosporium circinalis*. This mould grew only on the sugars left in the amber by perishing aphids.

Prof. Gruss, who attracted considerable attention some time ago by studies of yeast cells in 4,000-year-old Egyptian beer jugs, was hunting for yeasts still older when he began his researches on amber. He found them in great abundance. Most of them were flower-yeasts, found then as today mainly in the nectars of flowers, and carried from one flower to another on the mouthparts or heads of visiting insects.

These ancient flowers yeasts were very similar to their modern descendants, tending, however, to be smaller in size and simpler in organization. As adaptations to insect travel, they formed their chains of cells into crosses, anchors and other figures that would catch and cling to the insects hairs. Besides the true flower yeasts, Prof. Gruss found a number of other yeast species and several moulds.

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PSYCHOLOGY

Triangles Best Recognized From "Tail of the Eye"

WHEN road signs are placed along a highway so that motorists may glimpse them from the "tail of the eye" while their attention and vision are fixed on the road and its traffic, does it make any difference what the shape of the signs may be?

It would seem that it does from the results of an experiment conducted in the psychological laboratory of Northwestern University by R. M. Collier under the direction of Dr. Franklin Fearing. The shape of a sign is often used as a symbol to convey some information to the motorist, such as a curve ahead. But all forms are not equally well identified without turning the head or eyes to look directly at them.

Mr. Collier found that the triangle was recognized from the tail of the eye more often than any other of the shapes experimented with, and the square came next. On the other hand, the triangle was recognized only when it was comparatively near the point on which the vision was fixed. The other shapes were identified throughout a wider field of vision, and the octagon and hexagon led in this respect.

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