specific activities of the carbon in the starch and sugars are approximately equal to that of the carbon fed.

Figure 2 shows the radioautographs obtained from the ethanol extracts. The activity first appeared in sucrose and only later in fructose and glucose. This is in agreement with the results obtained by Calvin and Benson (*3*). The fructose and glucose are in approximately equal amounts and contain about the same total activity. Hydrolysis of sucrose revealed that the specific activity of the glucose and fructose moieties are about the same. This suggests that the free glucose and fructose are formed by sucrose hydrolysis. It is interesting to note that in every case the fructose was as abundant as the glucose.

From the results obtained, it is evident that in tobacco leaves during photosynthesis, carbon from CO_2 appears in the "starch" fraction before it does in sugars. This observation brings back to us an old idea of Sachs, that starch is the first visible product of photosynthesis.

References

1. P. V. Vittorio, G. Krotkov, and G. B. Reed, *Can. J. Botany* **32**, 369 (1954).
2. M. Gibbs, *Plant Physiol.* **26**, 549 (1951).
3. A. A. Benson and M. Calvin, *Ann. Rev. Plant Physiol.* **1**, 25 (1950).

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Communications

A Radiocarbon Date of Peat from James Bay in Quebec

The authors have made extensive studies of bog and lake sediments in the Mont Tremblant region of Quebec (*1*). Previous pollen studies were carried out by the senior author in southern Quebec (*2*), the Great Lakes area (*3–5*), the eastern coastal regions of New Jersey (*6, 7*), and Maine (*8*).

The study to which the radiocarbon-dating contributed was made during the summer of 1953 when the authors, with the aid of airplane service, extended their investigations northward into the wilderness regions near James Bay. They sampled 19 bogs forming a line transect from the St. Lawrence valley to the north branch of Jack River (52°N). Analysis of these samples indicates that forests migrated northward during the warm-dry (xerothermic) period of postglacial times. White pine in particular, but also some southern broadleaved genera, had extended their range to James Bay, but have since been depressed southward about 350 mi.

The peat material submitted for radiocarbon dating was collected by the authors with a Hiller-type borer from the bottom level of a bog near Rupert River, Smoky Hills Rapids Bog, 18 mi east of Rupert House (51°28′N; 78°45′W). Repeated sampling within a radius of about 4 ft was necessary to obtain sufficient material for the carbon-14 analysis, but the sharp contrast between the earliest organic deposits and the rock flour bottom sediments facilitated the securing of these multiple samples at a uniform level.

The samples thus obtained were submitted to the Lamont Geological Observatory for carbon-14 determination. Dr. J. Laurence Kulp reported an age determination of 2350 (±200) yr as marking the beginning of deposition of organic matter and doubtless of upland occupation by forests (*9*). During this 2350-yr period the shallow lake (10 ft) has filled in completely. Also, during this period the climate has cooled and become more humid. The change in climate very likely contributed to the establishment of the muskeg condition which favors a forest composed chiefly of black spruce (*Picea mariana*). At the present time the forest distribution is black spruce on muskegs and Jack pine in dry-rocky habitats. Observations from the plane show that much of that vast wilderness region is still in the formative period of forest development, with black spruce barely invading the muskegs.

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References and Notes

1. J. E. Potzger and A. Courtemanche, *Can. J. Botany*, in press.
2. ———, *Can. J. Botany* **31**, 383 (1953).
3. ———, *Butler Univ. Botan. Studies* **8**, 161 (1948).
4. ———, *J. Forestry* **51**, 560 (1953).
5. I. T. Wilson and J. E. Potzger, *Ecology*, **24**, 382 (1943).
6. J. E. Potzger and J. H. Otto, *Am. J. Botany* **30**, 83 (1943).
7. J. E. Potzger, *Bartonia* **26**, 20 (1952).
8. ——— and R. C. Friesner, *Butler Univ. Botan. Studies* **8**, 178 (1948).
9. Recording number of the dating of the peat sample is Lamont No. 219.

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An Ethical Problem for Scientists in a Divided World

It is a sad fact that quacks and impostors arise from time to time to prey upon science. Sometimes they are merely a nuisance, but occasionally they become dangerous. The Lysenko scandal in the U.S.S.R. is the most shocking recent instance which has secured international notoriety. It belongs to the dangerous variety, and it would seem that exposing its true nature is a manifest responsibility of scientists competent to do so.

Responsibilities and ethics have, however, become blurred in our divided world. Several colleagues, both biologists and nonbiologists, have argued, in conversations, that nothing should be done that might weaken the domination of the biological sciences in the U.S.S.R. by Lysenko and his followers. Some have