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A Science Service Feature

? WHY THE WEATHER ?

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of Clark University

WHY EVERGREENS DON'T FREEZE

Do you know that evergreen trees produce an effective anti-freeze mixture which prevents their leaves from freezing and dropping off in winter? Dr. Floyd W. Gail, of the University of Idaho, has made a special study of the leaves of pine trees and broad-leaved evergreen shrubs. Once a month for three years he obtained sap from crushed evergreen leaves and determined its freezing point. He found that evergreen sap is quite thin in summer and might then be easily frozen. But as cold weather approaches, "the starch in the leaves is converted into sugars and oil, changing the sap from a thin watery fluid into a sort of sirupy emulsion, very difficult to freeze." The sap is most dense in late January and February, when the coldest weather usually occurs.

Dr. Gail found, moreover, that the sap of deciduous trees also thickens somewhat in autumn before the leaves drop. Apparently, however, the extra sugars in the sap are soon returned to the tree; as the sap of fallen leaves is quite thin and easily frozen.

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