pressure of water in the vacuole of a plant cell is increased by turgor pressure and decreased by the solute concentartion of the cell sap." But physical chemistry, the underlying discipline, teaches that pressure (including turgor pressure) *decreases* the osmotic pressure of solutions, while increased concentration *increases* it.

It is to be hoped that botanists generally will recognize the perfectly clear relations furnished by physical chemistry.

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EQUINOXES AND SOLSTICES

ACCORDING to SCIENCE of September 13, 1940, any implication that the equinoxes and the solstices mark the beginnings and the ends of the seasons riles Professor Sleator, of the University of Michigan, up one side and down the other. He reminds one of the Iowa farmer who "cussed" for a month on receiving by express from a Scotchman a yearling sheep when he had ordered a fine hog. Of course the ruckus between these two honest men was all because to the one "hog" meant a grown-up pig, and to the other a grown-up lamb. So it is with the term "summer." As commonly used it means, even to the astronomer, the warmest season of the year, without, though, a definite time for either beginning or ending as defined by statute or set by common agreement. If, however, we so divide the year into four approximately equal periods that one shall be as much as possible the warmest of all, and call it summer, then throughout most of the northern hemisphere summer would roughly coincide with the three months which together there generally are called summer, namely, June, July and August. The like months in the southern hemisphere, are, of course, December, January and February.

But all this, though sufficient for our everyday needs, is lacking in precision. It does not have that satisfying exactness that pertains to each of the four quarters of the year proposed by astronomers more than two thousand years ago, that is, the periods delimited by the equinoctial and solstitial instants—the two times when the center of the sun is in the plane of the earth's equator and the two times when it is farthest therefrom. One of these periods, the one that runs from about the 22nd of June to the 23rd of September, astronomers call the summer quarter, or summer, for short. Here, as in so many other cases, the scientist just took a loosely used everyday word and changed it into a technical term by giving to it a meaning that is exact, however much or little it may differ from that of the original.

To say that summer begins at the moment of summer solstice and ends at the moment of autumnal equinox is to talk in the same breath astronomical good sense and agricultural nonsense. What, then, shall we do about it? Nothing. So long as it sounds newsy to say that summer began at such or such a particular hour and minute of a certain night, for instance, the papers will just keep on saying it that way. It is up to the reader, as we say, to recognize the fact that the summer in question is not the vaguely determined period in which the local vegetation flourishes, and therefore different for different regions, but that exact period which the astronomer has arbitrarily called summer.

When buying a hog, sight unseen, be certain what sort it is, sheep or pig. Similarly, when we read of summer beginning at a certain minute on the 22nd of June, we have only to remember that this is summer in the technical sense, as the astronomer defines it, and not summer as we personally experience it. Perhaps, though, the annual repetition of this confusion by the papers is not a bad thing, after all, for it does afford occasions for spreading a bit of interesting astronomical information at times when it is likely to be welcome.

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