

the same thing. The prefix *sub* ordinarily is accepted as meaning "less than," and *super*, as meaning "more than" (for example, *subhuman* and *superhuman*). Inasmuch as the word being modified by the prefix is *cooled* and not *temperature*, it appears that the word *supercooled* is preferable to *subcooled* for indicating excessive cooling.

In reaching this conclusion I examined two standard sources [*Webster's New Collegiate Dictionary* (Merriam-Webster, 1958) and the *U.S. Weather Bureau Weather Glossary* (1945)]. Both listed *supercooled* ("to cool below the freezing point without solidification"); neither listed *subcooled*.

In view of the above considerations and in view of the fact that so many scientific articles are now read by non-scientists and by foreign scientists, I would like to suggest that serious consideration be given to avoiding the ambiguity that might arise from use of the word *subcooled* (and, similarly, *undercooled*) in scientific writing.

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The practice, in meteorology, of using interchangeably the words *subcooled* and *supercooled* (and also *undercooled*) when referring to liquid water which has been cooled to temperatures colder than 0°C is unfortunate indeed. To this extent I agree heartily with Appleman.

However, I cannot agree that it would be preferable to restrict ourselves to the term *supercooled*. My reason for preferring *subcooled* and *undercooled* is etymological. The point of reference which is implied in the use of all such words (for example, *superheated*, *supersaturated*, *subsaturated*) is that of the equilibrium condition. In this context the prefix *sub* denotes *under*, *below*, *beneath*, whereas *super* denotes *over*, *above*; therefore it seems preferable to use the terms *subcooled* and *superheated* when referring to a phase which has been cooled below or heated above its equilibrium temperature. On etymological grounds the term *undercooled* is even more desirable than *subcooled* because it is usually regarded as undesirable to mix words of Latin-Greek and Anglo-Saxon roots.

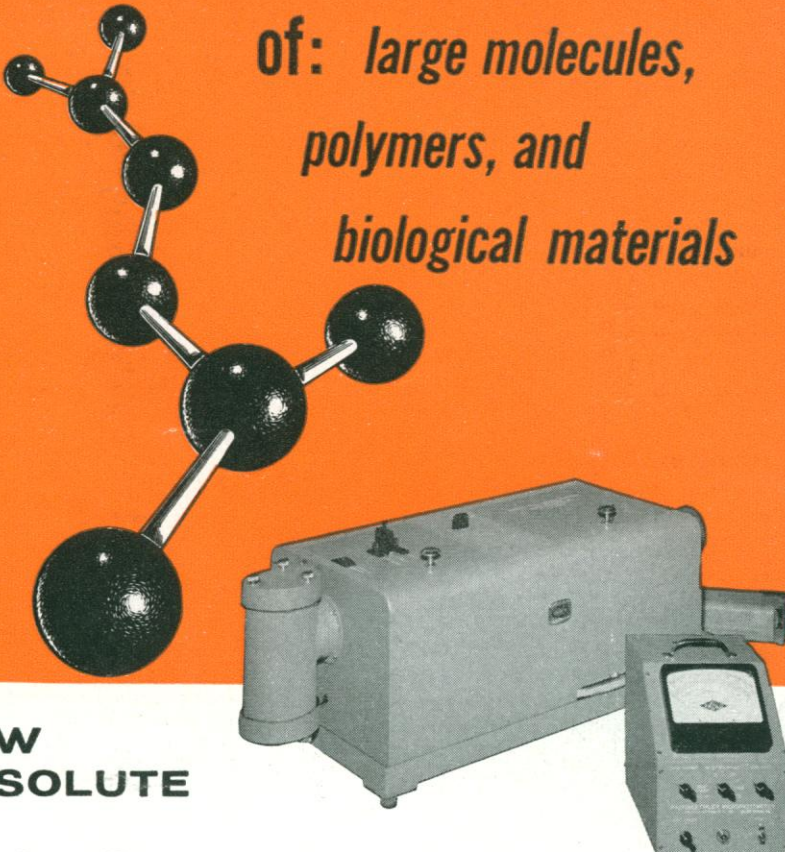
I consider it unfortunate that most desk-size dictionaries list *supercooled* but not *subcooled*. However, I have learned from one of the compilers that the 1959 edition of the *Weather Glossary* will cite *subcooled* as preferable to *supercooled*. I also find many other scientists who feel that it is desirable to make this change in nomenclature [for example, see Johnson, *Physical Meteorology*, p. 240; MacDonald, *Advances in Geophysics*, p. 245].

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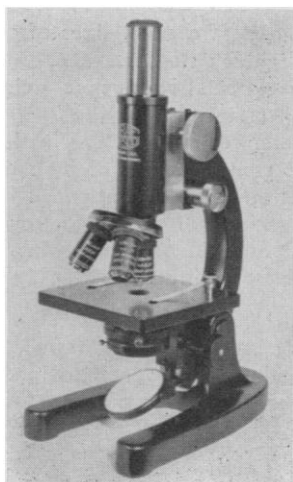
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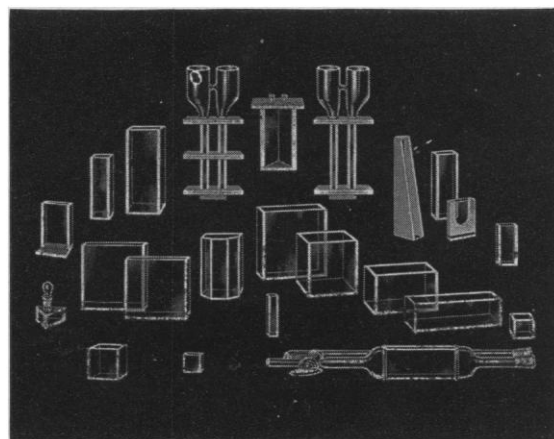


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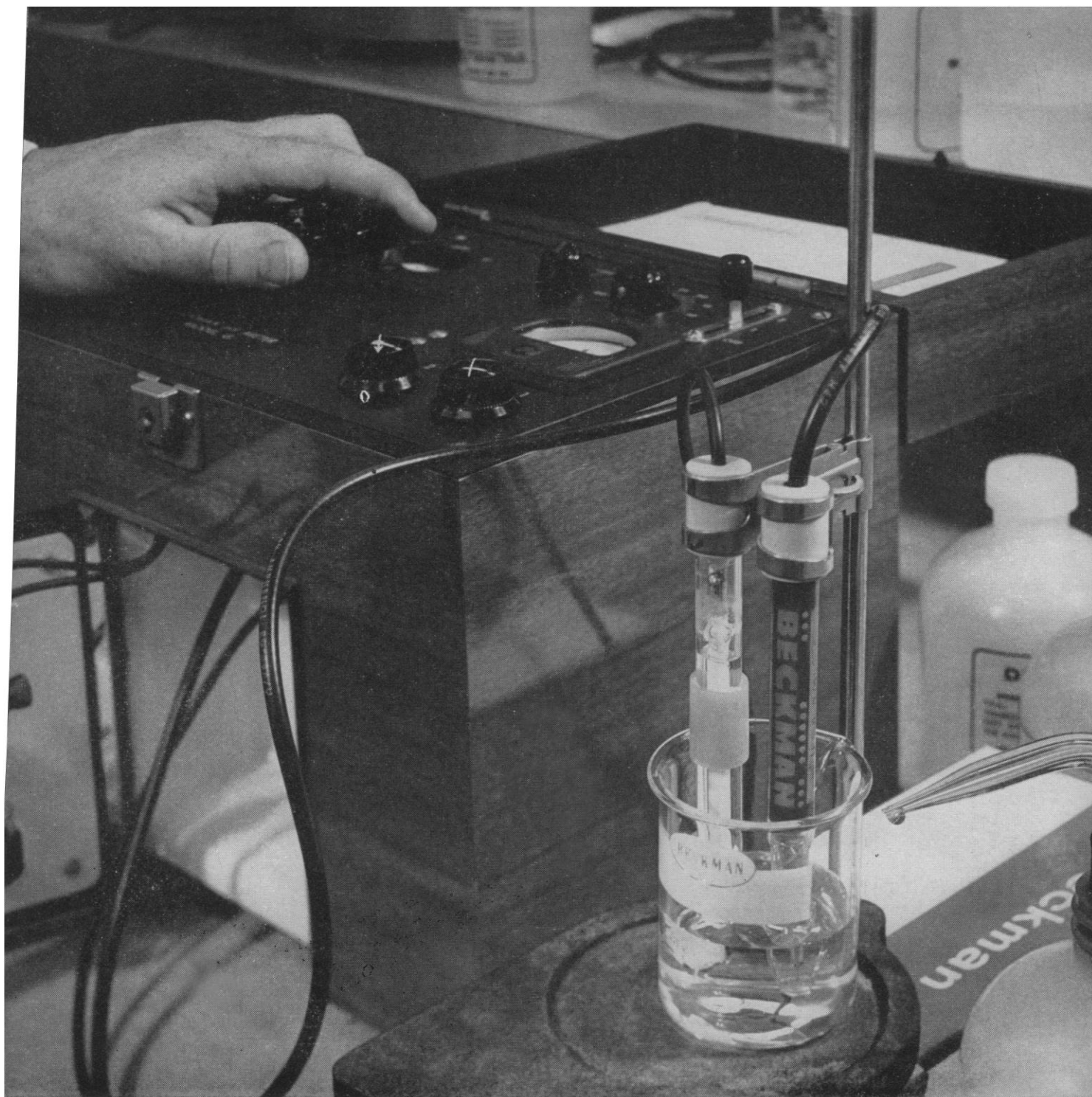
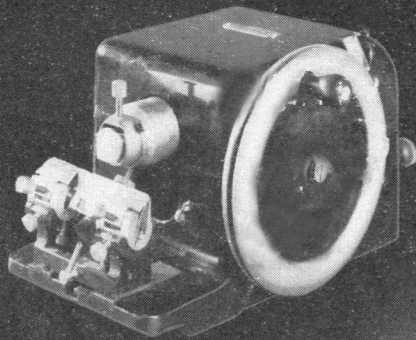


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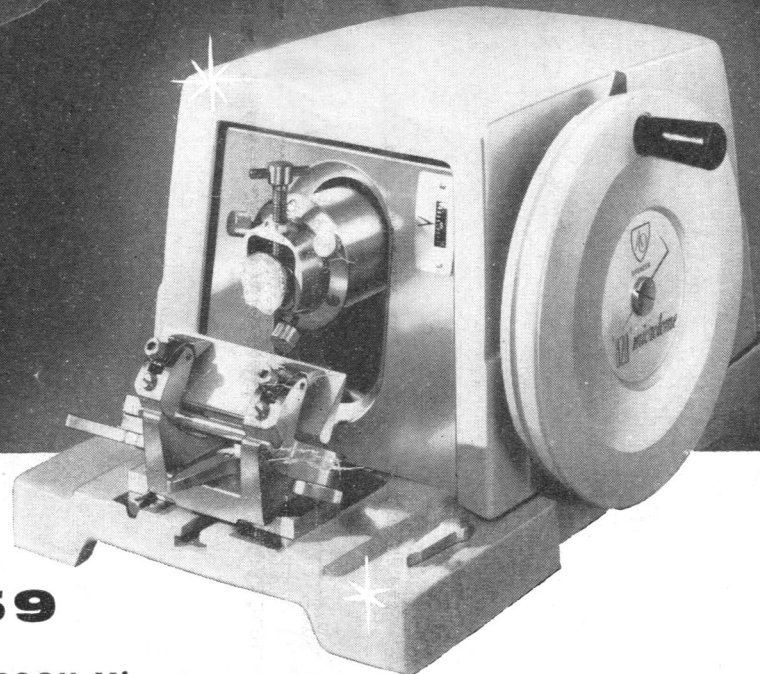
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