



## ENGINEERING

## Manufacture of Cold Now One of Major Industries

REMEMBER the ice man? In the pre-war variety he is nearly extinct, but refrigeration is a booming industry these days because of the expanding use of cold-making in food and beverage preservation, air conditioning, and industry. Refrigeration has become one of our complex mechanical industries.

A refrigerating engineer may be called upon to provide anything from ice cubes for a cocktail party to a snowstorm for a movie production. While the electrical or gas household refrigerator, making in your own home its own low temperature, has largely outmoded the ice box, the major task of refrigerating experts may include not ice and low temperature production, but anything that helps preserve foodstuffs or manufacture weather.

At the recent meeting of the American Society of Refrigerating Engineers in New York, American pear growers were advised to adopt British method of adjusting the atmosphere in cold storage warehouses that allows Bartlett pears to be kept some 6 months instead of a few weeks. Confirming research at Cornell University shows that the trick is to adjust the carbon dioxide given off by the fruit itself to just the right amount.

Ultraviolet lights are finding their way into cold storage plants and packing houses to kill molds and bacteria that

otherwise, even with refrigeration, might spoil the food being stored.

Mass attacks upon bacteria must be used to be effective because it requires 1,250,000,000 average size bacteria to cover an area of one square inch.

One of the most modern methods of food preservation is quick freezing. Extreme chill catches the food before it has a chance to know what has happened to it and keeps it fresh for months.

In the research laboratory low temperatures are useful in testing the way automobiles, materials, oils, engines and other useful things will react under strenuous frigid conditions.

The cold industry has come a long way since the days when our grandfathers cut pond ice in winter and stored it in sawdust against the summer's heat.

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## PSYCHOLOGY

### Colored Hearing Is Rare But Music Suggests Color

COLOR as a background of music will increase in public favor in the future, is the prediction of Dr. Carl E. Seashore of the University of Iowa.

For many persons a close association exists between color and music, but this is not necessarily because they actually

have what psychologists know as "colored hearing."

Some few persons invariably do see a color when they hear a particular tone. But Dr. Seashore estimates that not one per cent of the population have this true colored hearing. It is usually associated, he says, with high-strung temperament and sometimes with hysteria.

"Try this experiment," Dr. Seashore writes in the *Music Educators Journal*. "Close your eyes, cover them with your hands, and then observe what a gorgeous display of color in action you see. This is the stuff that dreams are made of because these colors are most prominent in the dark. . . . The phenomenon is present every moment in our life and it modifies the actual colors of objects that we see."

If you are able to see these colors freely and you happen to be listening to music, you might erroneously credit the colors to the sound. This is not true colored hearing but entoptic phenomena.

Some music immediately suggests to the listener a scene and this scene is likely to appear in full color. If a musical phrase suggests moonlight, for example, the listener will "see" the moonlight. This is visual imagery.

Still another way in which music makes us see colors is through association by analogy. Music displaying excitement may make you think of murder or battle and hence red. A pastoral type of music might make you think of green fields.

"There is no foundation for the often claimed theory that there is a physical relationship in vibration frequency for sound and for color which can be utilized," Dr. Seashore says. "Nor is there any constant tendency wherein two individuals associate the same color with a given tone or phrase for any considerable time."

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