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Title - Masthead

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HEAT

General Science

The subject of heat as discussed in most texts in general science involves only the most elementary concepts as regards its theory. As a rule the following topics are the leading ones:—sources of heat, thermometry, methods of heat transmission, effect of heat, and a number of the common everyday practical applications of heat.

Some of these topics might be developed more completely by the instructor than is usually done in the ordinary text in general science. The sources of heat, for instance, are both natural and artificial. The natural sources are the sun, to a small extent the stars which are mostly bodies like our sun, and lastly the interior of the earth.

The artificial sources utilized by man may be classified as mechanical, chemical, and electrical. The mechanical source of heat is the one used first by primitive man when he rubbed two pieces of wood together or when he struck two pieces of flint together to produce sparks of fire. We still, in this advanced highly civilized age, use this method when we strike a match to light a fire.

The chemical source is a process of oxidation in which oxygen unites freely with the elements of carbon and hydrogen of fuels at a given ignition temperature peculiar to each kind of fuel. It is the chemical source that furnishes most of the heat for our homes and public buildings besides furnishing the power developed by our steam engines and the many internal combustion engines used in our automobiles and aeroplanes.

The electrical source of producing heat is now quite common. We have many electrical devices for the home producing heat in this manner. The heat of an electric iron or an electric range varies directly as the resistance to the current of electricity passing through specially placed conductors in these devices. The magnitude of the current, however, is a more dominant factor in the production of heat by the electric current. To be precise, the quantity of heat generated varies directly as the square of the current flowing through the conductors.

In the subject of thermometry, it would be well to discuss briefly some of the special forms of thermometers besides the two common types known as centigrade and Fahrenheit. The thermometer commonly known as the maximum and minimum thermometer used by the weatherman should be explained. The discussion of this kind of a thermometer will be found in some texts but not in others. The maximum thermometer is a mercurial thermometer possessing a narrow constriction in the bore of the tube just above the mercury bulb. When the mercury column expands in such an instrument it remains at its maximum height for the day. To set it for each successive reading the mercury column must be shaken down. The minimum thermometer uses colored alcohol in place of mercury as alcohol only freezes at a very low temperature below zero. A small black float is placed in the alcohol column in contact with its surface film. When the alcohol column contracts, the float is forced down to some point marking the minimum temperature of the day where it remains. A maximum and minimum thermome-