hot dry summer, culminate in this fight the power of the Frost King. short but beautiful season. The smoky air consequent upon the contains a large amount of heat. burning of so many myriads of trees The unit of heat, as known to and such large quantities of under-science, is the quantity required to brush is thought to account for the raise one pound of pure water bluish haze noticed at this time. through one degree of temperature, The true haze of Indian summer is measured on the Fahrenheit thernot smoke at all, however mild and mometer. diffused it may appear to be. If called a British thermal unit. It is this theory of the production of not temperature at all, but a definite these warm days is correct, we quantity of heat. In order to clearly would expect them to have no connection with the first sharp frost of tained in water, it is only necessary the fall. any form, the smoky atmospheric simple experiment. At the border haze would not disappear with the temperature between melting and advent of the subsequent and more freezing, viz., 32° F., a block of ice severe frosts of the late fall. If due to forest fires, the smoky air would pound of water, at a temperature of last until the fires had been actually 176° F., to melt it. After the hot quenched by the winter snows. We water has been poured upon the ice would, upon this hypothesis, have there will be two pounds of water, Indian summer only in years prolific in forest fires, and we would also A thermometer dipped into the two have more pronouncedly warm days, pounds of water will show the same and more of them, too, in the temperature that the ice registered, autumn of those years in which the that is. 32° F. The heat contained fires had raged most fiercely. The in the hot water has disappeared fact, however, is that Indian sum mer often comes upon us in years Its energy has been employed in when there have been almost no forest fires. immediately preceded, and, indeed, the molecules of the ice apart, and produced, by the first frosts of fall. and are entirely destroyed by the liquid state. This heat of liquelacsubsequent sharp frosts. The forest tion, though stored up in the water, fire theory does not seem to satis is not sensible to the thermometer. factorily explain all the facts.

It has been argued by others that! the freezing of the great bodies of water in northern latitudes is a does it may be made to show its cause competent to produce what heat, but it can never part with this we call Indian summer. The freez ing of water certainly does liberate once becoming ice. When a pound heat in very great quantities. Par- of water freezes it gives up 144 Briadoxical as it may seem, the advent | tish thermal units. of cold weather does actually call forth, as it were, a protest from denly liberated from the millions of Nature in the shape of an immense | freezing pounds of water in our great

ally more numerous at the end of a volume of heat given out as if to

Water at ordinary temperatures This amount of heat is understand the quantity of heat con-If due to combustion in to consider for a moment a very weighing one pound will require one the whole mass standing at 32° F. it has become latent, as it is termed. breaking up the crystals of the ice. The phenomena are It has done internal work by forcing compelling them to assume the

Water will retain this quantity of heat so long as it remains water. It may become warmer, and when it stored up, or latent, heat without at

This heat of liquefaction, sud-