

NOTES FOR TEACHERS.

THE American Meteorological Journal Co. offer valuable prizes for the best discussions of tornadoes.

"WHY is the ice formed on sea-water fresh?" The molecules of water are strongly attracted to each other, but are kept apart within certain limits by the heat vibrations of the molecules. When these vibrations are lowered to what we call the freezing temperature the molecular attractive force prevails, drawing the water molecules into a more fixed and rigid connection with each other and pressing out into the liquid water the less strongly attracted molecules of the sodium chloride. The water molecules in freezing are strongly drawn in to the ice-forming surface, while the salt molecules, not being strongly attracted by this surface, are crowded back into the liquid water."—*Ed. Rev. view, N.B.*

SLATE PENCILS.—In the north-western part of the town of Castleton, Rutland Co., Vt., is the only manufactory in the United States of slate pencils. The stone, as it comes from the quarry, is first sawed into blocks from four to seven inches wide, according to the length desired for the pencils. These are split quite easily with a chisel into slabs a little thicker than the finished pencils, say five-sixteenths of an inch. These are passed through a planing machine and over an emery belt to make them flat, smooth, and of a uniform thickness of about three-sixteenths of an inch. Next day they are pushed into the jaws of a "crocodile," which consists of a pair of steel plates, in the under one of which are six rows of curved knives, each set so as to cut a little deeper than the one that went before it. These plough out parallel grooves

half way through the slab, which a man then turns and lays on a steel plate, having ridges which just fit these grooves. This slides back under the six rows of teeth of a second "crocodile" lying in wait alongside, which cuts the grooves on the other side, and leaves the pencils side by side. Lastly, they are broken and rolled off for an instant to point them upon an emery belt. A man can give this last touch to about 8,000 in a day. The old plan was to saw out square pencils from the slab one by one. These were boxed and distributed among poor families, who whittled them round by hand at from a quarter to half a dollar per thousand.—*Exchange.*

SNOW CLOTHING.—Seventy to eighty degrees below zero, *i.e.*, thirty to forty degrees below the freezing point of mercury, is a temperature we can scarcely contemplate without a shudder, yet such was endured in Siberia by Captain Wiggins and his crew last October. It is in such a climate as this that the beneficence of snow is fully manifested. The snow falls heavily at the beginning of winter, while the surface of the ground has not yet fallen below thirty-two degrees, the snow itself being at about that temperature, or say thirty degrees. The feathery crystals and the air they entangle are nearly absolute non-conductors of heat, and constitute the most effective of all possible clothing. Thus the soil in such countries never falls to so low a minimum temperature as it occasionally reaches in England when we have a temperature of fifteen to twenty degrees over naked ground. Hence the paradox of Siberian vegetation, which is so luxuriant in the summer, when the heat of the long days is very intense.—*Science Gossip.*