Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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Minerals sent for examination should be distinctly marked or labeled.

(8071) C. F. S. asks: In talking in a telephone, how does the sound get from one end of the line to the other? Does the sound travel or does it not? A. The sound is not carried on the wire from one telephone to the other. Sound waves strike the diaphragm of a transmitter, which vibrates under their impact. These vibrations cause an electric current to vary in strength. This current flows to the receiver and attracts its diaphragm with a force which varies just as the current varies. This causes the diaphragm of the receiver to vibrate just as the current fluctuates, that is, just as the diaphragm of the transmitter vibrates. The vibrations of the diaphragm of the receiver set the air into vibration. This strikes the ear, and is changed into sound by the brain.

(8072) J. McG. R. writes: A claims that a watch movement with ordinary steel balance, hairspring and fork, when inclosed in a steel case, either open face or hunting, can be held in the field of the most powerful dynamo or motor, without the movement becoming magnetized. If the above is a fact, will you kindly let me know why the steel case acts as a preventive? A. It would not be best to surround a watch movement with a steel case in this manner to protect the movement from external magnetism. The steel would become permanently magnetized in the field of the dynamo or motor, and would then affect the steel springs of the watch. The usual protection is afforded by an iron case. Iron is used because it cannot be permanently magnetized. Iron presents very little opposition to the passage of the magnetic flow through it; far less than air or any other substance presents. When the iron-cased watch is placed within a magnetic field, the lines of magnetic flux leave the air and take their way through the iron. They are held in the iron and do not enter the works of the watch inside its iron case, since they must traverse air in order to do so. The movement is thus screened from the magnetism of the dynamo. For complete protection the screening case of iron should be of greater thickness than these cases are usually made. Iron is the only substance known which can act as a magnetic screen.

(8073) D. B. T. asks: Does the latent heat of a solid vary with its temperature? A. No. The latent heat of a solid is the quantity of heat required to melt it. This is not given to the solid except at the temperature at which it melts. When a solid is heated to its melting point, its temperature stops rising, and all the heat which enters it, is spent in changing the condition of the solid to the liquid. A solid has no latent heat. It is liquefied by heat, and this heat becomes latent. The term latent is going out of use. It is no longer found in the best text-books. We simply say the "heat of liquefaction."

(8074) F. P. asks: 1. Would it be possible to run the electric motor in SUPPLEMENT No. 1195 for say 120 miles by putting in extra cells? A. We do not think it possible to run an electric vehicle under ordinary road conditions for 120 miles at a charge. 2. How long does it take to charge the cells in SUPPLEMENT No. 1195? A. Several hours, varying according to the rate of charging. 3. Would either of these motors be able to travel the roads just south of Lakes Erie and Ontario at all seasons of the year? A. An automobile would be at a disadvantage during the muddy season in the spring.

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