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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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(8529) J. A. B. asks: 1. Could you tell me how to wire in a transmitter on an opera stage with two cells of gravity battery, to not affect a 'phone (series) on the same line? A. You can connect the transmitter in the same manner as an extension is connected to be thrown in by a switch when wanted. 2. Is there such a thing as winding a permanent magnet so that there will be a current produced without using batteries? A. The telephone receiver is a permanent magnet wound with a coil of wire. By vibrating a plate of iron in front of the pole of the magnet, a current of electricity is produced in the coil of wire. The magneto call of the telephone is another arrangement for producing a current of electricity without a battery.

(8530) H. R. writes: I read recently with much interest a note in the SCIENTIFIC AMERICAN regarding a new system of wireless telephony discovered by an Englishman. Is it too early to ask for details of the invention, whether it is simple enough for amateur's use, and if it could easily be installed in an uncivilized country like this up here? We live 15 miles from the little settlement, and much need telephonic communication. The country between is nearly all bush, and running a wire would be expensive. Your paper is a most welcome visitor in these wilds, coming once a month. A. In the article to which you refer you have all that has appeared regarding the matter. Such inventions are not yet beyond the experimental stage. The Marconi system is probably equal to your demands.

(8531) J. R. asks: Would the current of a half-inch coil be dangerous to encounter? Would it kill a person? A. The current from an ordinary induction coil giving a half-inch spark would not be dangerous to most persons. By this we mean a coil whose largest spark is a half-inch long, and which is actuated by one or two cells of battery. If a coil were wound so as to carry in its primary a heavy current, and the secondary were wound with a wire which could carry a correspondingly heavy current, the shock from such a coil might be fatal. There is voltage enough in forcing a spark through a half-inch of air to force current enough through a man's body to kill him. A voltage much less than this is used in killing criminals by electricity.

(8532) Subscriber asks for the component and proportionate parts of a good welding compound. A. There is nothing better than borax and good management for welding steel of low grades or for welding tool steel to iron. Mixtures of ten per cent sal-ammoniac pulverized with the borax, also mixtures of iron filings with the above, have been recommended, and special compounds advertised. For iron to iron alone there is nothing better than clean white sand, and with difficult pieces a mixture of sand and borax.

(8533) H. E. G. asks: 1. What actually occurs when an alternating current is run through an electrolytic solution, using lead plates for electrodes? Theoretically, I know that no electro-chemical action should take place, but by experiment I find that by using for the anode a plate of, say four times the area of the cathode, a sort of plating process seems to occur and a small amount of solution is decomposed. A. Houston and Kennelly state in their book on "Alternating Currents," price \$1 by mail: "Permanent electro-plating effects can be produced by alternating currents, when certain relations exist between the size of the article to be plated and the strength of the current." 2. How are the lamps connected in the large cars of the Metropolitan Street Railroad? I have noticed that a broken lamp does not affect the other lamps and that the dash and overhead sign lamps can be extinguished without affecting the remainder of the lamps, which would not be the case if they were in series. Have lamps with greater voltage than 220 ever been manufactured? A. The lamps in street cars, using 500 volts pressure, are arranged in multiple series, five in series of 100 volts each. If a series is not cut off by the breaking of any lamp in it, it may be that an automatic device is employed to cut in a resistance equal to lamp.



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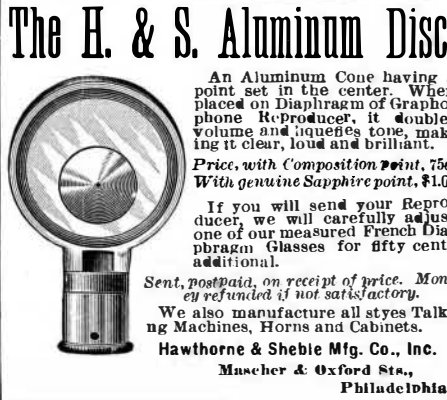
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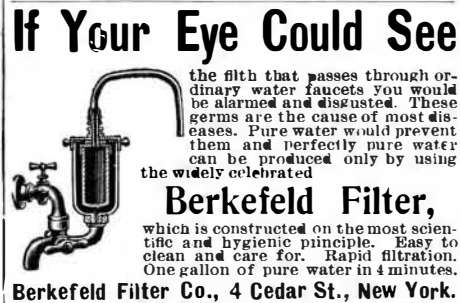
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