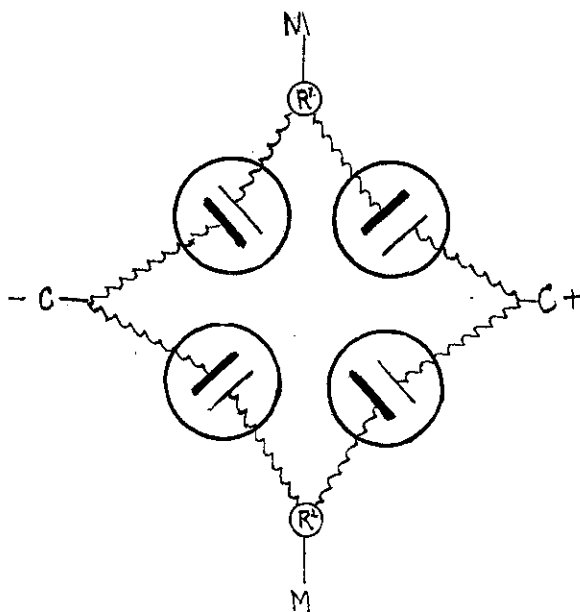


THE NODON VALVE; OR AN EFFICIENT RECTIFIER FOR A DOLLAR.

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In the October, 1905, number of "School Science and Mathematics" there appeared a most interesting article by Prof. De-Forrest Ross on the making of a simple piece of apparatus for use in any school laboratory equipped with the alternating current, and what follows is also written for those who have this current at their disposal, but are without the direct, or rather are dependent on primary batteries with all the inconvenience, annoyance and expense for light work requiring a continuous current.



At the expense of a dollar or so, a Nodon Valve may be constructed which connects through any lamp socket with the alternating system, and the rectifier I have constructed in giving me sufficient current to perform experiments in electrolysis, work a couple of small motors, run a Ruhmkorff's Coil for wireless demonstration work and charge a storage battery, and not only doing this, but ready to do a great deal more, as occasion requires.

All that is required is four heavy battery jars, some heavy sheet lead, some sheet aluminum, eight binding posts, a few lamps of different candle powers of the voltage of the alternating system and a saturated solution of ammonium phosphate in distilled water.

Cut out four sheets each of lead and aluminum of a size to fit comfortably in your battery jars, fasten a binding post to each sheet, and place in the battery jars already filled with the saturated solution of phosphate of ammonia, and connect up as in the following diagram:

Heavy lines represent lead plates, light lines aluminum plates. Alternating current mains are connected at M, lamp resistance is placed at either R^1 or R^2 , and rectified current is taken off at C— and C+.

If you can control your alternating current by means of a good lamp board, you will be delighted with the flexibility of the rectified current, but such a board is by no means a necessity, as for most light work a lamp of a hundred candle power, a fifty, a thirty-two, and a sixteen will be all that are required. My coil for wireless work is operated with a so-called one hundred candle power stereopticon lamp and an ordinary thirty-two candle power lamp in multiple, and runs with such freedom from trouble that the mere thought of a return to primary batteries is decidedly distasteful.

The following precautions are necessary to insure success:

1. Use distilled water if possible. If not, use very carefully collected rain water. Tap water will not do at all.
2. Add distilled water when necessary to take place of that evaporated.
3. Give both lead and aluminum plates a good scraping once in a while, and be sure and have them quite clean before starting up the first time.
4. Have everything set up over night, as rectification seems to start up more easily after plates have been in the ammonium phosphate solution some hours.
5. If too much foaming takes place with the particular load you are carrying, use larger jars and larger plates.