

**New Electro-Magnet.**—Chambrier increases the power of electro-magnets by augmenting the extent of active surface at the extremity of the core and of the oscillating armature. He indicates various ways of doing this, which are all nearly equivalent in effect; he hollows the core and gives to the armature a projection fitting into the cavity, or he attaches the projection to the core, making it fit a cavity of the armature. A battery of eight or ten elements is as efficient, with his arrangement, as fifteen elements with an ordinary electro-magnet. The residuary magnetism is not increased; it appears rather to be weakened.—*Comptes Rendus*. C.

**Torrential Deltas.**—Desor gives his assent to the general conclusion of the geologists who have examined the recent terraces of the Cornici, and who regard them as ancient deltas. Instead of being horizontal, they are inclined under an angle of 12 to 20°, like the abundant collections of conglomerates which are found at the mouth of the principal rivers of ancient Liguria. He considers all deltas of this kind as due to the action of mountain torrents, and recommends a careful distinction in future geological study between the torrential deltas and the deltas of large rivers. He believes this distinction is as important in all cases as that which has been established between marine and lacustrine deltas.—*Comptes Rendus*. C.

**Experiments upon Rails.**—Tresca has published the results of experiments on the flexion of iron and steel rails, between the limits of elasticity and rupture. They show that for these two metals, in their ordinary industrial condition, the coefficient of elasticity is nearly the same and may be designated by the equation  $E. = 21 \times 10^9$ , thus confirming his special experiments in 1857 and 1859 upon Swedish irons and the cementation steels which are made from those irons. He finds that the limit of elasticity, for a given bar, may be extended in proportion to the energetic actions to which it has been previously submitted, and that the elastic limit may be pushed almost to the point of rupture without the coefficient of elasticity having varied in any perceptible degree. The metal, when it comes from the workshops, is in a manifest state of instability, which disappears only by use; it becomes, by means of the actions to which it is successively submitted in its employment, more homogeneous and more elastic, but at the same time a little more flexible.—*Soc. des Ingen. Civ.* C.