

Electrolytic Theory of the Corrosion of Iron. B. LAMBERT. (*Faraday Socy.*, April 4, 1913.)—Having already shown that water and oxygen are the only essentials to effect the rusting of iron, the author supports the electrolytic theory of corrosion and attributes the formation of rust to combination of the ferrous ions with the hydroxyl ions.

Radioactive Disintegration Products. A. FLECK. (*Chem. Soc. Trans.*, ciii, 381.)—Fleck finds that uranium-X and radio-actinium are chemically similar to, and non-separable from, thorium; mesothorium-2, non-separable from actinium; thorium-B is non-separable from lead; radium-B and actinium-B are very similar to lead, and probably non-separable from it; thorium-C, radium-C, and actinium-C are very closely allied to bismuth, and probably non-separable from it; radium-E is chemically identical with bismuth. Direct measurement of the development of radium-F from radium-E has confirmed the view that there is only one product (radium-E) between radio-lead and polonium.

Solar Energy and its Utilization. ANON. (*Amer. Mach.*, xxxviii, 20, 824.)—James O. Handy gave the following statement before the Engineers' Society of Western Pennsylvania: In the tropics, assuming the solar constant at 1800 calories per hour per square metre, it is easily seen that the heat per square kilometre will be equal to that produced by the combustion of 1000 tons of coal. A surface of only 10,000 square kilometres receives in a year, calculating a day of only 6 hours, a quantity of heat corresponding to that produced by burning 3,500,000,000 tons of coal, or more than three times the annual production of coal. The Desert of Sahara, with its area of 6,000,000 square kilometres, receives daily solar energy equivalent to 6,000,000,000 tons of coal. It is estimated that as a result of the sun's rays and the presence of moisture and carbon dioxide, etc., in the earth's crust and in the air the earth produces yearly 32,000,000,000 tons of vegetable matter, which, when burned, would correspond to 18,000,000 tons of coal. Thus the exhaustion of coal can be prepared for by studying which types of vegetation produce woody fibre most rapidly, and we can use intensive and extensive methods of cultivating them for fuel, and afterward convert this fuel into energy in the most economic way. There is reason for hope, however, that we may be able to do more than to improve agricultural methods of producing fuel, if we take advantage of the fact that many chemical changes are produced by the action of the sun's rays, and that some of these now known, or which may be discovered, may be the basis of a method of converting the sun's energy in dry, tropical countries quite directly into a form which may be transmitted to habitable countries where it may be used.