

escent or latent ; but, the force is neither lost nor consumed. The great superiority of electro-magnetism as a source of mechanical power consists in its affording the means of obtaining an unlimited number of repetitions of effect from any given quantity of active force. So far from electro-magnetism being unable as a source of motive power to compete with coal, it is quite evident that in such competition the caloric-force derived from coal must be very soon superseded by the much more advantageous and more readily available force of molecular electricity. Let us not forget, however, that the advantages we now enjoy have been gradually obtained by the persistent intellectual labour of our predecessors through many successive generations. It is quite apparent that if we have now arrived at a time when electric force can be, without much difficulty, made directly available for the purposes of civilized life, it is because a certain degree of progress in civilization and in the acquisition of knowledge has been achieved ; ..because the human race, albeit waywardly, with many intervals of perverse distrust and ingratitude, have on the whole recognized the leadership of Science, and, from a condition of intellectual darkness, have at length almost emerged into the light of day ; .. because we have now learnt to understand and realize that the spiritual and intellectual faculties are superior to the merely animal and material, and that the forces belonging to matter have been made subject to man as a spiritual being. For the earlier stages of human civilization, such as our predecessors have passed through, the enormous benefit of an abundant coal supply could be scarcely over-estimated ; it seems, indeed, difficult, on looking back, to imagine such progress to