

this idea, the whole work of classification has since Darwin's time been taken up anew; and though it is probably premature to fix upon any elaborate scheme as likely to afford a correct view of the main lines of descent in the two great realms of animal and plant life, single pedigrees, such as those of the rhinoceros and the horse, have, with the assistance of the geological record, been successfully worked out, the missing links having unexpectedly turned up.¹

In addition to this great service of directing the glance of the naturalist outside, and of helping to overcome the bewildering effects which the aspect of nature must produce on every one who is not prepared for research by some definite aim and a distinct habit of reasoning, the Darwinian spirit has further proved its usefulness by the great increase of our knowledge of the things and phenomena of nature which has taken

¹ "It is certain that, before the theory of descent was accepted or even discussed, genealogical trees were used to represent possible relationships among human races, or possible affinities among animals. It was used as a 'graphic' way of expressing classification, and was true just in proportion as the classification was true. The naturalist traveller, Peter Pallas, was one of the first to use it to express affinities among animals, though it is possible he saw a deeper meaning in his symbol. But when the theory of descent took hold on men's minds, the genealogical tree became more than a graphic register of affinities,—it was used to express the supposed facts of descent. To Ernst Haeckel belongs the credit, or, as some critics would say, the responsibility, of

introducing the use of genealogical trees into zoology and botany. In his 'Generelle Morphologie' (1866) and in his 'Schöpfungsgeschichte' (1868, 9th ed. 1897), he displayed numerous genealogical trees designed to show the descent of various stocks and types of animals and plants. There can be no doubt that in so doing he focused the idea of descent into vividness, and, by the very definiteness of the notation, forced naturalists to a criticism of the reality of the supposed lines of descent. Prof. L. von Graff says of Haeckel's 'Stammbäume,' 'There is due to them the immortal credit of having given the first impetus to the grand revolution in the animal morphology of the last decades'" (J. A. Thomson, 'The Science of Life,' 1899, p. 15).