

Whitehurst, in his inquiry into the original formation of the Earth (1778,) insists on the regular succession of the strata, and confirms this doctrine by a full and exact account of the geological structure of Derbyshire, which he illustrates by several good sections. He has left little for succeeding enquirers to glean concerning the general history of the carboniferous limestone and coal-formations of that district; but, as has been well observed, a great part of his work is infected with that taste for cosmogony which had misled so many of his predecessors: his friend Mr. Kier shortly afterwards imitated successfully the descriptive and valuable part of his writings, in an able memoir on the district of limestone, coal, and basalt, in the south of Staffordshire, published in Shaw's history of that county.

In the year 1788 Hutton published his *Theory of the Earth*, a work which has exercised a lasting influence over the writings of a large class of English geologists. It is unnecessary here to recapitulate the heads of a system so generally known through the elegant "Illustrations" of its ablest advocate. Hutton had the merit of first directing the attention of geologists to the important phænomena of the veins issuing from granitic rocks, and traversing the incumbent strata, and of bringing forward in a striking point of view the circumstances which seem to corroborate the igneous origin of trap rocks: the wildness of many of his theoretical views, however, went far to counterbalance the utility of the additional facts which he collected from observation. He who could perceive in the phænomena of geology nothing but the *ordinary* operation of actual causes, carried on in the same manner through infinite ages, without the trace of a beginning or the prospect of an end, must have surveyed them through the medium of a preconceived hypothesis alone.

We have now arrived at the period at which Werner first published his researches: his 'Kurze Klassifikation' appeared in 1787, but his system seems to have received various accessions between that time and 1796. It is difficult to estimate his real and independent merits, since he himself published but little, and we are acquainted with his system only by later publications of his pupils, which are at the same time compilations from other sources: those merits appear to have consisted chiefly in a superior acquaintance with the mineralogical characters of rocks, in having traced with more minuteness the succession of primitive and transition rocks, together with the few flætz rocks which he had opportunities of studying in that part of Germany with which he was alone acquainted, and which he fondly imagined to form the type of the whole globe; and (which was of more importance) in having reduced the hitherto irregular elements of geological science into a stricter