

THURSDAY, JULY 21, 1881

INHERITANCE

THE tendency in any new character or modification to reappear in the offspring at the same age at which it first appeared in the parents or in one of the parents, is of so much importance in reference to the diversified characters proper to the larvæ of many animals at successive ages, that almost any fresh instance is worth putting on record. I have given many such instances under the term of "inheritance at corresponding ages." No doubt the fact of variations being sometimes inherited at an earlier age than that at which they first appeared—a form of inheritance which has been called by some naturalists "accelerated inheritance"—is almost equally important, for, as was shown in the first edition of the "Origin of Species," all the leading facts of embryology can be explained by these two forms of inheritance, combined with the fact of many variations arising at a somewhat late stage of life. A good instance of inheritance at a corresponding age has lately been communicated to me by Mr. J. P. Bishop of Perry, Wyoming, N.Y., United States:—The hair of a gentleman of American birth (whose name I suppress) began to turn grey when he was twenty years old, and in the course of four or five years became perfectly white. He is now seventy-five years old, and retains plenty of hair on his head. His wife had dark hair, which, at the age of seventy, was only sprinkled with grey. They had four children, all daughters, now grown to womanhood. The eldest daughter began to turn grey at about twenty, and her hair at thirty was perfectly white. A second daughter began to be grey at the same age, and her hair is now almost white. The two remaining daughters have not inherited the peculiarity. Two of the maternal aunts of the father of these children "began to turn grey at an early age, so that by middle life their hair was white." Hence the gentleman in question spoke of the change of colour of his own hair as "a family peculiarity."

Mr. Bishop has also given me a case of inheritance of another kind, namely, of a peculiarity which arose, as it appears, from an injury, accompanied by a diseased state of the part. This latter fact seems to be an important element in all such cases, as I have elsewhere endeavoured to show. A gentleman, when a boy, had the skin of both thumbs badly cracked from exposure to cold, combined with some skin disease. His thumbs swelled greatly, and remained in this state for a long time. When they healed they were misshapen, and the nails ever afterwards were singularly narrow, short, and thick. This gentleman had four children, of whom the eldest, Sarah, had both her thumbs and nails like her father's; the third child, also a daughter, had one thumb similarly deformed. The two other children, a boy and girl, were normal. The daughter, Sarah, had four children, of whom the eldest and the third, both daughters, had their two thumbs deformed; the other two children, a boy and girl, were normal. The great-grandchildren of this gentleman were all normal. Mr. Bishop believes that the old gentleman was correct in attributing the state of his thumbs to cold aided by skin disease, as he positively asserted that his

thumbs were not originally misshapen, and there was no record of any previous inherited tendency of the kind in his family. He had six brothers and sisters, who lived to have families, some of them very large families, and in none was there any trace of deformity in their thumbs.

Several more or less closely analogous cases have been recorded; but until within a recent period every one naturally felt much doubt whether the effects of a mutilation or injury were ever really inherited, as accidental coincidences would almost certainly occasionally occur. The subject, however, now wears a totally different aspect, since Dr. Brown-Séquard's famous experiments proving that guinea-pigs of the next generation were affected by operations on certain nerves. Mr. Eugène Dupuy of San Francisco, California, has likewise found, as he informs me, that with these animals "lesions of nerve-trunks are almost invariably transmitted." For instance, "the effects of sections of the cervical sympathetic on the eyes are reproduced in the young, also epilepsy (as described by my eminent friend and master, Dr. Brown-Séquard) when induced by lesions of the sciatic nerve." Mr. Dupuy has communicated to me a still more remarkable case of the transmitted effects on the brain from an injury to a nerve; but I do not feel at liberty to give this case, as Mr. Dupuy intends to pursue his researches, and will, as I hope, publish the results.

July 13

CHARLES DARWIN

VOLCANOES

Volcanoes: what they are, and what they Teach. By John W. Judd, F.R.S., Professor of Geology in the Royal School of Mines. (London: C. Kegan Paul and Co., 1881.)

ONE of the fathers of vulcanology in this country was the late Mr. Poulett Scrope, in whose well-known treatise on Volcanoes, the subject of their cause and effect was for the first time discussed from a thoroughly philosophical standpoint. A great traveller and investigator himself, he strove to imbue younger geologists with his spirit, and when he became too-old and infirm to undertake travel and research in distant countries, he directed some chosen disciples to prosecute his favourite lines of thought. Prof. Judd was one of these, and upon him has assuredly fallen the mantle, and a portion of the spirit of his master. His able papers on the study of volcanoes, contributed to the *Geological Magazine*, are well known to every vulcanologist. He has travelled much; he makes good use of both pen and pencil, and he is an accurate observer. We are glad that he has condensed his reading and research into a work, which becomes so widely distributed, both at home and abroad, as the volumes of the International Scientific Series invariably do.

Before entering more minutely into a discussion of the work, we would venture to say that among its few defects, that which strikes us most prominently is an insufficiency of logical sequence and method. The facts are multitudinous; carefully selected, but not carefully arranged. They require to be grouped; to be classified, and each set of facts to be set in apposition to the generalisation which they tend to prove. It is indeed a useful mental discipline for the reader to do this for himself, but unless he starts with some knowledge of the subject, and as the