

THURSDAY, JULY 20, 1881

HEREDITANCE

THE tendency in any new character or modification to appear 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 habits 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 "inheritance at corresponding ages." No doubt the list of instances being sometimes inherited at an earlier age than that at which they first appeared—a form of inheritance which has been called by some authorities "accelerated inheritance"—is almost equally important, as it was shown in the first edition of the "Origin of Species," all the leading facts of ontogeny may be explained by these two forms of inheritance, combined with the fact of many variations arising at a certain 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 Ferry, Wyoming, N.Y., United States.—The hair of a gentleman of American birth (before whom I suppose) 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 turn 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 is quite entitled to the change of colour of his own hair as "a hereditary 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 his thumbs badly cracked from exposure to cold, combined with some skin disease. His thumbs swelled, 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 hair like her mother and nails like her father's; the third child, the a daughter, had one thumb decidedly deformed. The two other children, a boy and girl, were normal. The daughter Sarah, had three children, of whom the eldest and the third, both daughters, had their two thumbs deformed like the other two children, a boy and girl, were normal. The great-grandchildren of this gentleman were normal. Mr. Bishop believes that the old gentleman was never suffering the state of his thumbs to exist until it did so, 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, none 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 amid within a recent period every one naturally felt more than doubtful whether the effects of a constitution or injury were ever really inherited, an accidental coincidence would almost certainly occasionally occur. The subject, however, now wears a totally different aspect, since Dr. Brown-Séquard's famous experiments proving that poison-pigs of the next generation were affected by operations on certain nerves. Mr. Eugène Dupuy of San Francisco, California, has recently found, as he informs me, that with these animals "lesions of nerves in the parents 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 spinal nerves." 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 12

CHARLES DARWIN

PSYCHOLOGICAL

Philosophy: what they are, and what they teach. By John W. Fiddell, F.R.S., Professor of Geology in the Royal School of Mines. (London: C. Knapp Paul and Co., 1881.)

ONE of the fathers of psychology in this country was the late Mr. Francis Spence, by whose well-known treatise on Psychology, the subject of this course and effect was for the first time discussed from a thoroughly philosophical standpoint. A great traveller and investigator himself, he strove to induce 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. Fiddell was one of these, and upon him has recently 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 volcanologist. 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 inevitably 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 opposition to the generalization 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 the