

EVOLUTION OF THE MORAL INSTINCT.

The Origin and Growth of the Moral Instinct. By Alexander Sutherland, M.A. Two vols. Pp. xiii + 461, and, vi + 336. (London: Longmans, Green, and Co., 1898.)

MR. SUTHERLAND'S work is thoroughly Darwinian, being based on a huge mass of observations which he has selected without apparent bias, marshalled well, and handled judiciously. Few books written since Darwin's time on the evolution of the human mind, are so thorough and comprehensive and well deserving of study. Its chief merit lies in the solid treatment by which the writer confirms and extends the masterly sketch drawn by Darwin in the fourth and fifth chapters of his "Descent of Man," but it is also extremely original in many particulars; and though somewhat diffuse here and there, is interesting throughout. Mr. Sutherland resides in Australia, where it must have been more difficult to obtain that ready access to books and authorities which European students enjoy, and to obtain skilled help in his experiments; he is therefore entitled to a proportionate increase of praise and to much excuse where he is open to criticism.

The main argument and the general results of his inquiry may be stated in a few words, but the fulness of their significance will be imperfectly realised without carefully reading the whole of his book. They are, that a progression in complexity of organisation and faculty is closely associated with the duration of growth, including both the embryonic stage and that of immaturity. Next, that the duration of growth is closely correlated with parental care. It is shown that in the earlier stages of evolution of a species, the parental care is small, but as higher stages of evolution are reached, the amount of parental care successively increases until it grows into parental sympathy, and he argues that it is directly or indirectly from parental sympathy that all morality proceeds. The first of these three steps might rank as a corollary to Von Baer's law, namely that the successive stages in the history of each race are hurried through during the embryonic life of each individual in it. Consequently as the number of stages increases, the length of time required for individual development tends to increase also, though not in the same proportion because the rate of passing through them may and does to some extent become more rapid. The author shows by a large array of evidence that the above presumption is true, and that this essential basis of his further argument may be accepted without hesitation.

Leaving insects aside as creatures of an entirely different mental constitution to our own, and as evolved along different lines from vertebrates, he begins by tracing in detail the first appearances of the parental instinct in various species of fish. He finds—

"Of species that exhibit no sort of parental care, the average of forty-nine gives 1,040,000 eggs to a female each year; while among those which make nests or any apology for nests the number is only about 10,000. Among those which have any protective tricks, such as

carrying the eggs in pouches, or attached to the body, or in the mouth, the average number is under 1000; while among those whose care takes the form of a uterine or quasi-uterine gestation which brings the young into the world alive, an average of fifty-six eggs is quite sufficient.

"It must hence be very evident how much better are a few that are tended than a great crowd left without care. And the first link in the chain of reasoning of this book is that in the struggle for existence an immense premium is placed upon parental care, and that not until this has been developed can the higher nervous types become possible."

There is another well-known way, as he points out, by which the life of the young is rendered more secure, namely by assuming mimetic characters and thereby escaping the observation of enemies. But successful mimicry leads to nothing further, and therefore does not enter into the plan of the present work.

He next examines into the case of amphibians and concludes that—

"Among all the non-parental species for which I have obtained information the number exceeds 800 eggs, yet the average of nine species that show parental care is only twenty-seven. Among the viviparous species the number of offspring declines to ten or less in the year."

Up to this point he considers that the story of evolution contains no indication whatever of the existence of real affection, but the true parental sympathy, which is destined to play a most important part in the survival of the nobler species, arises during the next stage.

Birds and mammals are understood to be developed from different points in the scale of reptile life, and the character of the protection they respectively give to their young differs accordingly. Some reptiles incubate their eggs, and birds carry on this process of incubation; other reptiles bring forth their young alive, and mammals follow that method. As their respective types advance in the scale of intelligence and affection, he shows that both birds and mammals present a lengthening period of parental protection, but the mammalian method reaches far ahead of that of the birds. It leads to the monkey, to the savage and to civilised man; the other seems to reach its acme in the bower bird.

In discussing birds, he divides them into three classes of progressive intelligence. The lowest contains the ostrich, emu, &c., which annually lay on the average twelve or thirteen eggs; the medium class includes partridges, petrels, coots, plovers and pigeons, these lay, on the general average, seven or eight eggs; the highest class includes birds of prey, parrots, woodpeckers, sparrows and finches, these lay, on a general average, four or five eggs a year. All birds of the higher grade

"hatch out young ones of abject helplessness, and the continuance of each species is absolutely dependent upon that parental love which is poured out in floods of unmeasured self-sacrifice. Among these birds the gracious charm of family life is first made fully known, and it is no mere chance that, concomitant therewith, comes that delight in throbbing melody which proclaims the fullest tide of joyous life. In all these genera, with their multitudinous species, male and female unite in their care for the tender brood, and show, as a rule, a steady attachment each for the other. Sometimes the male and

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female brood on the eggs alternately; while one is sitting the other is not far off; but this occurs only in twenty-eight per cent. of the genera, and these are on the whole of somewhat inferior type. In sixty-five per cent. the female alone undertakes the brooding, but the male is, throughout, her faithful attendant, feeding her assiduously, driving away intruders, and cheering her with the joy of his tumultuous song. In accordance with the teachings of economics, we must regard this division of employment as a sign of progress."

"That family life, which T. H. Green, in his 'Prolegomena to Ethics,' so justly regards as the ultimate basis of moral ideals (p. 257) . . . is faintly seen in a few fish; it is not wholly absent among reptiles, but it is for the first time distinctly observable among the lower birds, increasing ever as the type advances, till we find the nest-life of one of these higher birds to be marked by many graces of an indubitably moral character. The conjugal tenderness of the mated pair, and their unwearied self-sacrifice in ministering to the wants of their offspring, are ethically beautiful. Where these appear in an equal degree in the human couple, we reckon them as a solid fundamental element of goodness. Much else is required of man and woman, but it is no slight praise to say 'he was a kind husband and a devoted father,' or that 'she was a tender wife and a mother of unwearied love and self-sacrifice.'

"The family life, which we see so beautifully developed in these birds, is like the seed, enclosing within itself the full potentiality of all the ethic good to be developed in yet later stages, wherein a growing intelligence makes the young always more and more dependent upon family and social union."

Similarly in mammalian species, the number of offspring decreases with each successive stage of increasing intelligence and parental sympathy. It not only does so in the four orders of monotremes, marsupials, deciduate and non-deciduate placentalia, taken as wholes, but also when they are severally analysed in much detail. It is impossible to go further into this subject within the space at our disposal.

The portion of the book thus far noticed, is but a small part in bulk of the whole, but it will be of superior interest to those who are disposed to argue in a lazy offhand way, that after parental instinct had attained the level reached in the lower savages, its further evolution would be merely a matter of time and of favourable conditions. This was, however, by no means the feeling of the author, for he has taken very great pains and given much anthropological research to trace its actual steps. It is only possible here to give extracts from his summary.

"The process of moral development, as I see it, has been a slow dawning of parental sympathy, whence arises a simple and natural morality which is strengthened by the growth of the sense of duty and other accessory developments of sympathy. Out of the morality thus engendered springs whatever is moral in law, though, fundamentally, law is not moral but retaliatory."

One of the most interesting parts in the later portion of the book relates to the evolution of the sense of chastity. In the course of that discussion he treats lucidly and with great fairness many vexed questions concerning marriage in early times. He is in full concurrence with and gives important contributions to the present reaction against the excessive but clever dogmatism of McLennan about the universality of marriage by capture, endogamy and exogamy, and the

rest. But it is impossible to cope in a short article with the wide range of careful inquiry contained in this really remarkable book. Yet extensive as it is, some additional chapters have been written and afterwards omitted, as the author informs us. Others, too, might have been inserted; for instance, it would be very interesting to trace and describe the origin and purport of superstitious fears in human nature and their bearing on moral instinct.

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THE ANIMALS OF ESSEX.

The Mammals, Reptiles, and Fishes of Essex. By H. Laver. Essex Field Club Special Memoirs, Vol. iii. Small 8vo. Pp. viii + 138, illustrated. (Chelmsford: Durrant, 1898.)

IN respect of physical conditions Essex is one of the most favourably situated of the eastern counties of England for the possession of a large local fauna, its inland districts presenting variety of station, while it has a large sea-board, forming an estuary into which discharge several more or less important rivers. Indeed, were it not for the pollution of the Thames, the fish-fauna of the county would be even larger than is at present the case, and would reckon among its constituents the lordly salmon itself. Among other special advantages from a naturalist's point of view the county includes Epping Forest, which under its present excellent administration forms a sanctuary for wild creatures of many kinds. And in addition to its natural advantages, Essex is fortunate in possessing a Field Club which includes on its working roll many naturalists of high capacity. It is to a member of this Club that we owe the present contribution to a knowledge of the fauna of the county.

So far as numerical completeness is concerned, the author seems to have done his work thoroughly; if he errs at all, it is in mentioning certain species which have admittedly been introduced into the county. The scientific importance of local faunistic works is not, however, to be reckoned by the number of kinds of stray cetaceans and other wanderers they record; but by pointing out the reason why particular species are restricted to particular districts, and in what respects the local representatives of each species recorded differ from their kindred in other districts. In both these respects the work before us fails to come up to modern requirements; since it completely ignores these portions of the subject, and merely gives general notes of little or no value on the animals mentioned. The work may be, and probably is, of considerable interest to the residents of Essex, but can lay no claim to a position of any scientific importance. It may, however, be useful as a foundation on which to build a more important superstructure, when the naturalist arises who will treat the Essex fauna from a broader standpoint.

It is somewhat unfortunate that the work appeared too soon after Mr. Thomas's revision list of the nomenclature of British mammals to admit of the author following the new light. In some cases, such as the retention of *Arvicola* for the voles, and of *Lepus timidus* for the common hare, the author is obviously behind the times. It may be uncongenial, but the sooner amateur