

Biological Theories of J. Henri Fabre

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Charles Darwin spoke of J. Henri Fabre as the inimitable observer. Indeed we may say that observation of insects and other small creatures was the accomplishment of his long and pains-taking life. After teaching in two French colleges and earning a doctor's degree, this insect's Homer, as he has been called, settled in a peasant's house and devoted forty-four years to research, fifteen of them in the twentieth century.

Maurice Maeterlinck, himself an authority on bees, writes thus of the need for this type of work: "Strange as the admission may seem at a time when we think that we know all that surrounds us, most of those insects minutely described in the vocabularies, learnedly classified, and barbarously christened had hardly ever been observed in real life or thoroughly investigated, in all the phases of their brief and evasive appearances." (2)

Fabre's observations are accepted and appreciated by entomologists and biologists in general, but his theories are passed by, and scientists follow those of his opponents. Indeed, his biographer, Le Gros, states that he refused to theorize. "Fabre will suppose nothing; he will only record the facts. Instead of wandering in the region of probabilities, he prefers to confine himself to the reality, and for the rest to reply simply that we do not know." (10) While it is true that Fabre would not be pushed into making theories where he had no facts on which to found them, we should miss much if we omitted the philosophies of this great man. Fabre insisted upon reliable foundations for belief and would not accept an idea simply because others accepted it, even if it was admitted by the vast majority. On the anniversary of the fall of the Bastille the people of the village were celebrating with a loud uproar, but he was sitting quietly at home, writing as follows: "Fashions change and bring us the unexpected. The time-serving rocket spreads its sheaf of sparks for the public enemy of yesterday, who has become the idol of today. Tomorrow it will go up for somebody else.

"In a century or two, will any one, outside the historians, give a thought to the taking of the Bastille? It is very doubtful. We shall have other joys and also other cares." (3)

Our friend was even more prophetic than he knew. France did not wait a century or two for other cares, but Fabre himself lived to see the outbreak of the First World War. After this holocaust, Armistice Day outshone Bastille Day for a few years, but even it has lost its luster since it failed to bring the perpetual peace which it promised.

If this great Frenchman were living today, perhaps he would not apologize for his coolness toward progress, which he said he would like to believe in, but could not. He would repeat with more boldness his prophecy that, "after making progress upon progress, man will succumb, destroyed by the excess of what he calls civilization." (3) Today Fabre

would not feel alone in making this prophecy, for he is not the only one who feels that civilization is not an unmixed blessing.

Now let us consider an interpretation of a phase of animal behavior, the reason for the song of animals. Fabre does not deny that it may be a mating call in some instances but claims that the main purpose is to express the joy of living. The white-faced grasshopper, *Decticus albifrons*, mates but once, when the male transfers a large spermatophore to the female. Having recovered from this ordeal and refreshed himself with food, he stridulates again and continues to do so during the few days in which he lives, while the female is laying eggs and paying no attention to him. Further mating is quite out of the question. The green grasshopper does the same. (3)

Another reason we doubt that songs are mating calls is that often the season is wrong. I recall a song sparrow near the Ohio River singing when the thermometer stood at 0° Fahrenheit. Birds do sing more in the spring, but it is because that season is more conducive to gladness.

A. A. Allen claims that a male bird sings on a high branch at nest building time in order to keep other birds from nesting in his territory; a kind of "no trespassing" sign. (1) No one denies that Allen knows how to find bird nests, but this interpretation is not established by bird behavior. It would lead to more fighting than music.

Fabre did not accept the theory that the present order of nature resulted from struggle and natural selection but asserted that it is a pre-established order. He appreciated his correspondence with Darwin, even studying English so that he could carry it on better, (5) but never agreed with the author of evolution on the main issue.

LeGros gives as a reason for the disagreement, "Darwin knew barely the tenth part of the colossal work of Fabre." (5) Furthermore it seems that Darwin knew nothing of Mendel, for Darwin's son searched through his writings, finding no mention of the great geneticist. We can only speculate how different the theory of descent might have been if Darwin had understood these two men.

Fabre implements his rejection of transmutation by natural selection by stating that the strong have perished while the weak carry on. He mentions a *Libellula* (dragonfly) of the Carboniferous Age, *Meganeura Monyi* Brong., measuring over two feet across the wings, also monstrous sauroid fishes, Ammonites of the diameter of a cart wheel, while present Cephalopods are no larger than a fireman's helmet; *Megalosaurus*, a saurian twenty-five yards long, the Mammoth, which was larger than modern elephants, and so on, a number of others. (3) Some one will object that size is not the only measure of fitness, but many extinct species were not lacking in armor, brain size, or even ornamentation.

Fabre claimed that if animals had developed from low to high forms there should be a gradient in songs. Such is not the case, however, for some insects are accomplished musicians, some mammals are dumb, or worse like the jackass, then suddenly appears the accomplished larynx of man. (3)

Instincts are not inherited habits for they function with precision and could not have been perfected by trial and error. Some insects kill their

prey by stinging in cervical ganglia, others paralyze them by stinging lower ganglia and storing them as food for their young. Both groups sting unerringly in the right spot; to miss the aim would invite retaliation and death. A creature in the process of building up such an instinct would not survive but would become extinct. (2)

The order of nature is maintained by the impossibility of crossing of distinct kinds. If pollen happens to fall upon the stigma of another species it does not fertilize the ovules. If the two species are very similar, a fruit may develop but the seeds are sterile. Only very similar strains will produce fertile offspring but they are not stable and tend to revert to the parent types. If these principles were not true the result would be that "finally, growing ever more mixed, more distorted, more fantastic, the vegetable world would lose the harmonious order that now rules over its distribution, and would die out in sterile chaos". (4)

What about the influence of such ideas, unpopular as they were in some groups? Although recognition came very late, it is asserted that at present, Frenchmen of all schools recognize Fabre as a great man. No doubt his influence contributed to the following paragraphs by Paul Lemoine in the French Encyclopedia.

"From the pen of authorized writers comes constantly this declaration: 'The paleontological data alone can convince us of the reality of evolution.' But the paleontological data, on the contrary, prove that there has been no evolution; at least in the larger groups. . . .

"From this 'expose' we conclude that the theory of evolution is impossible. At bottom, in spite of appearances, no one believes in it any more, and one says 'evolution' without thinking of its real meaning, and to signify sequence or more evolved or less evolved in the sense of more developed or less developed, because it is a conventional language, admitted and almost obligated in scientific circles. Evolution is a sort of dogma, in which the priests do not believe any more, but that they maintain for the people. This, we must have the courage to say, so that men of the next generation will make their research in another way." (6)

We scientists of America accept and prize the observations of Henri Fabre but are inclined to turn thumbs down when his theories are mentioned. This discrepancy should not continue.

Literature Cited

1. ALLEN, A. A. 1930. *Book of Bird Life*. Van Nostrand. p. 135.
2. FABRE, J. H. 1912. *Life of the Spider*, trans. by A. de Mattos. Dodd, Mead Company. pp. 30, 76f.
3. ————. 1917. *Life of the Grasshopper*, trans. by A. de Mattos. Dodd, Mead Company. pp. 257, 271, 273, 285.
4. ————. *Wonder Book of Plant Life*, trans. by B. Miall. Lippincott. p. 369f.
5. LEGROS, 1913. C. V. FABRE, *Poet of Science*, trans. by B. Miall. Century Company. p. 190, 202.
6. LEMOINE, PAUL. 1937. *Encyclopedia Francaise* 5:82f.