

CHARLES DARWIN
AND NATURE WEEK

BY
NORA BARLOW

AN EXHIBITION OF DARWINIANA
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Charles Darwin and Nature Week

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CHARLES DARWIN is often thought of as the remote philosophic scientist, yet through his deep and intimate understanding of all living things he is an admirable advocate for Nature Week. The object of this small exhibit is to show how he cared for the component, integrated parts of our English countryside with wide yet individual insight, the soil and the earthworm, the insect and the hedgerow; indeed the interdependence of all living forms came within his scope. He was an ecologist and an ethologist before these terms were in common use. For Ecology is the study of the inter-relationship of biological species, both plant and animal, with a strong emphasis on their interdependence. There may be a life or death culmination in some of these relationships, as in specialised feeding needs where one of the partnership suddenly declines, or the sudden disappearance of a specialised plant-fertilizing insect. These chain sequences in the balance of nature when disturbed, may lead to unforeseen and fatal consequences.

Ethology, or the study of behaviour, was also a way of looking at animals and their reactions peculiarly Darwin's own, many years before modern psychology brought new insights into the behaviour of both man and animals. In his diagnosis of species, Darwin always noted behaviour—he made Ethology a diagnostic principle.

Each one of Darwin's books exhibited here is open at some passage to illustrate how much he was already aware of ecological relationships and behaviour. As a youth he had valued the rarity of a specimen above all else; but maturity and a wider experience drew him towards a deeper interest in the bearing of each individual in relation to the general pattern. The whole pattern he saw as a vast changing network. In the early months after his return from the *Beagle* Voyage, he wrote in a note-book:— "If we choose to let conjecture run wild, the animals—our fellow brethren in pain, disease, death, suffering and famine, our slaves in the most laborious works, our companions in our amusements,—they may partake from our origin in one common ancestor, we may be all netted together."

This aspect of Darwin's work is worth emphasising for several reasons; firstly, with our growing knowledge of means of destruction, we may over-reach our main purpose and destroy our friends with our foes—the torn network may bring disaster and be difficult to mend. Upsetting a balanced state may lead to unforeseen dangers.

The immediate need to secure food for increasing populations can be short-sighted and disastrous, leading to such situations as the much talked of over-fishing; or to the depletion of Africa's teeming herds. Immediate financial interests and the future safe-guarding of resources are often antagonistic.

There is another reason today for revaluing Darwin's appreciation one hundred years ago of the often unsuspected cause and effect operating everywhere in the outdoor world. For today it seems to me that our increasing urbanisation and mechanisation may lead to the increase of the laboratory scientist at the expense of the field scientist. Both are necessary, but I have noted a tendency in the young and mechanically minded to equate science with physics, chemistry, electricity, and all that man has built up round these basic studies, with their paraphernalia of apparatus. The living subject is of secondary importance to them. This I say not forgetting the enormous recent advances in bio-chemistry, but to emphasise the obvious fact that the field worker will always be required even in a strictly utilitarian sense, especially today when poisonous spraying can be abused, and so much more research on vital problems is necessary on the widespread use of poisons.

During the Darwin Centenary a few years ago, I was asked several times if I could enlighten my young enquirers as to the apparatus Darwin used for his experiments, and whether any could be shown as exhibits. I had to answer that his apparatus was almost non-existent. It is true that he took a simple microscope with him on the Voyage of the Beagle; his chemical balance dated from his boyhood when he made chemical experiments with his brother Erasmus in his father's garden shed in his home at Shrewsbury. After Charles Darwin's death, his biographer, Francis Darwin, wrote: "If anyone had looked at his tools, etc., lying on the table, he would have been struck by an air of simpleness, make-shift and oddness." But he was scrupulous in the essentials, such as labelling and dating his specimens for future reference, recording his unsuccessful experiments, and treasuring his exceptions. With the means at his disposal, he was immensely careful and accurate. Pins, gum and cardboard were often all his simple needs. He continued his experimenting to the end of his life, and Emma his wife wrote to her son George in 1881:— "F's (father's) experiments go on badly and the utmost he hopes for is the certainty of proving himself wrong." He was then working at his earth-worms for his last book.

With the simple microscope he had with him on board H.M.S. Beagle, he examined the smaller marine animals caught by means of a trawling net hung over the stern, the details of which he himself devised. He must have learnt his habits of methodical tidyness from

dire necessity on the voyage, where space was so limited that at night he had to remove the top drawer used for storing his clothes in his cabin before he could sling his hammock to the full length.

Later in life, when he was working mainly on plants, some problem that fitted into a wider evolutionary picture might have to be examined more closely, and he would then experiment or test by exact measurement or weighing. In his volume on "Insectivorous Plants," Darwin had to weigh quantities of phosphate of ammonia to thousandths of grammes, and to establish the fact that the fly-catching powers of the tentacles of *Drosera* or Sundew were the means of adding nitrogenous food to its diet.

The problems which Nature Week is emphasising this month were unknown in the mid-nineteenth century in England, when Darwin was able to ride over the open low hills round Cambridge before the Enclosure Acts of 1760 and 1844 had enclosed millions of acres of Common Field or waste land, thus increasing the necessary supplies of corn, though creating a new series of hardships for the previous peasant owners. Now we are witnessing a fresh spoliation of downland turf, fully justified by the farmers' discovery of the productivity of such areas, but saddening to those who valued the original native downlands. Darwin did not live to see the population explosion of the last decades, with the corresponding explosion of the speculative builders' unco-ordinated broods of cheap dwellings. More adequate planning is urgently needed to safeguard typical wild areas of our countryside for all alike, while providing for the necessary housing needs.

Darwin would have supported with sympathy the efforts of our many societies now actively working to preserve wherever possible what remains to us of our rich flora and fauna, together with the natural amenities of our varied countryside. The Council for Nature has promoted Nature Week and is supporting the efforts made throughout the country to bring home the need for our exertions to save our country from irreparable damage.

The Naturalists' Trusts, which increase in numbers yearly, are helping to teach residents and visitors to care for the precious natural possessions in each county. Literature about our own Three Counties Trust of Berkshire, Buckinghamshire and Oxfordshire will be found on the adjoining table. On the table you will also find last year's Report of the Kent Naturalists' Trust, with a list of the orchids still found on Darwin's Bank near his Kentish home.

For Darwin's love of the country led him to leave London in 1840, and he chose Down House in Kent, within sixteen miles of St. Pauls, in a rural position on the nearest chalk hills to London,

where in the green belt, you can still feel rather precariously safe from the invading building invasion, one hundred and twenty years after Darwin first knew it. I am told that the inevitable golf-links still afford one of the best refuges for the Bee Orchid, when they can escape the mowing machine and scythe. Darwin cared for the natural surroundings of his country home, enjoying the quiet rural setting and the low chalk hills in the same way that we do now, knowing nothing of the future fight for their preservation. In the quiet of Down, with increasing bad health, Darwin lived and worked for the last forty years of his life.

In this exhibit some of his works are open at passages in which he shows his sense of kinship and wonder at the immediate subject under consideration, and indeed some participation in their activities. Darwin's theories on his observations of living plants and animals could not have had their far-reaching importance had he not united within his vast purview this sense of affection and reverence for his material. When he was working at his earth-worms, he wrote that he wanted to feel what it was like to be an earth-worm, not through any sense of abasement as has been suggested, but that he might increase his understanding by becoming one of them.

To encourage this sense of kinship might well be one of the objectives of our Nature Societies. Some of the dangers we must fight are urgent and obvious, such as the damage to bees and bird life by indiscriminate spraying. We now begin to know more of the chain of disaster that may follow the primary distribution of a poison through a succession of forms of life. But our Nature Societies are not primarily concerned with economic problems, though these will intrude; we are dealing rather with recreative, intangible values rendered more essential than ever with growing urbanisation. Some of the difficulties we are up against are purely ecological, and possibly are not yet fully understood; for instance, the succession of coarse herbage, scrub, and ultimately of trees on our now rabbit-free downlands, forms a problem hard to cope with, for the coarser growth reduces and in the end kills the open downland flora, including the orchids on Darwin's Bank, now protected by the Kent Naturalists' Trust.

Darwin's genius lay in seeing the detail as part of a vast succession; each minute structure of plant or animal fitted into the great procession of life-forms. His youthful pride in the rarity of his beetle specimens became dignified in maturity by the search for an underlying meaning of the outward form, of the colours, shapes, adaptations and devices by means of which animals and plants endure in time and space, and in which succession Man himself has his place.

Only Man can now save the life of our countryside for Man's enjoyment from his own destructive greed.