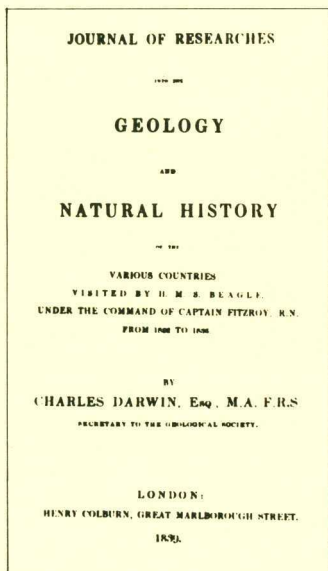


An Exhibition  
of  
First Editions of Works by  
Charles Robert Darwin  
1809-1882



The History of Science Collections  
University of Oklahoma Libraries  
Norman, Oklahoma  
1980

The History of Science Collections is a major teaching and research facility. Located in the main building of the University of Oklahoma Libraries, it both complements and is supported by the general book collections. From its inception thirty years ago the growth of this facility has been made possible largely through gifts of books and of funds for the purchase of books by friends of the University.

The Collections presently contain 48,000 printed volumes, the first 40,000 of which are described bibliographically in *The Catalogue of The History of Science Collections of the University of Oklahoma Libraries*, published by Mansell in 1976.

This exhibition of first editions of works by Darwin is drawn from the 380 volumes of Darwin's works in the Collections. We have chosen to number the items exhibited precisely in the order of their publication.

The "Freeman" numbers given for each item refer to the (I) first and (II) second editions of Richard B. Freeman's *The Works of Charles Darwin: An Annotated Bibliographical Handlist*, London: Dawsons, 1965; Second Edition, [1977].

Duane H. D. Roller  
Curator

The considerable interest focused upon Charles Robert Darwin (1809-1882) and the publication of his ideas, especially those expressed in his *On the Origin of Species* and *The Descent of Man*, reflect both a recognition within historical literature of the immense impact of Darwinian ideas upon the development of science and the impact of these ideas upon the wider cultural sphere. Darwin was not the first to initiate evolutionary-biological notions, but he was the first to construct an argument phrased in a readable style and with a systematic form, claiming that indeed there does occur evolution of species from primitive forms via a natural selection process. The legitimizing aura which Darwin's scientific argument lent to evolutionary thinking spilled over to other fields — economic, social, political, psychological — where such thinking had already penetrated. The way was thus paved for a famous and continuing debate, called to mind by the term "social darwinism." A review of Darwin's works in the order in which they originally appeared will afford some insight into the thinking that went into the production and establishment of ideas which have been so important historically.

José A. Bach  
Liba Taub

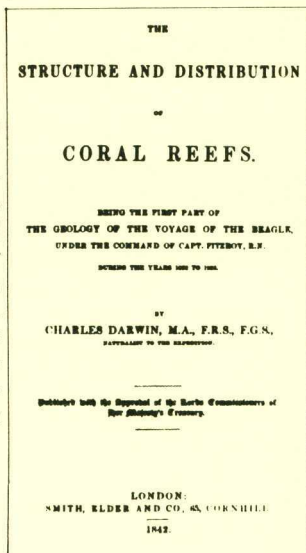
**The Geology of  
The Voyage of H. M. S. Beagle  
Items 1-5**

1. *Journal of Researches into the Geology and Natural History of the Various Countries Visited by H.M.S. Beagle, under the Command of Captain Fitzroy, R.N., from 1832 to 1836.* London: Henry Colburn, 1839. Freeman: I, 5; II, 11.

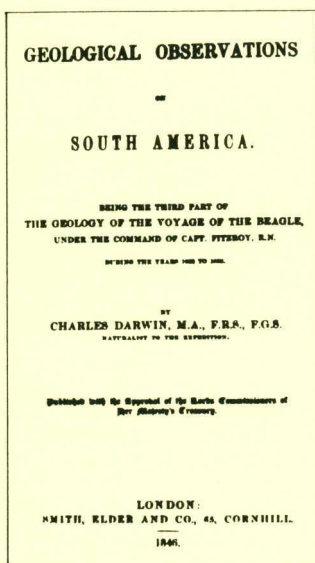
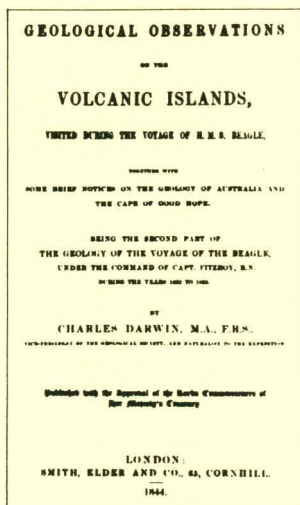
Darwin's reputation was first established by the publication of his work in geology. This work, like so much of Darwin's research, was related to ideas that appeared later in the *Origin of Species*. The *Journal of Researches* (1839), *Volcanic Islands* (1844, Item 3), and *Geological Observations on South America* (1846, Item 4) contain the results of his scientific explorations during the voyage of H.M.S. Beagle. Within these works can be found many of the seeds of later arguments advanced in support of his theory of evolution: evidence of past geomorphic and climatic changes; the elevation and subsidence of land; the conditions necessary for the formation of fossils; the gaps in the geological record; the extinction and geographical isolation of species.

2. *The Structure and Distribution of Coral Reefs. Being the First Part of the Geology of the Voyage of the Beagle, under the Command of Capt. Fitzroy, R.N., during the Years 1832 to 1836.* London: Smith, Elder and Co., 1842. Freeman: I, 83; II, 271.

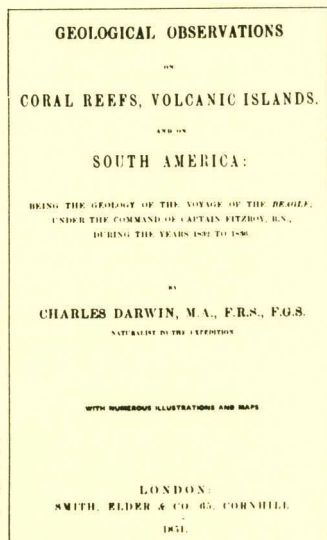
In an additional geological work, *Coral Reefs* (1842), Darwin described coral formations and offered a new explanation of the occurrence of lagoon islands, or atolls. His explanation is based on a theory that couples subsidence of the foundation of the island with the upward growth of coral. Prior to Darwin's work, the accepted explanation for coral lagoons had been based on the suggestion of Sir Charles Lyell (1797-1875) that the atolls were lakes which had been formed in the craters of volcanoes. But after reading Darwin's explanation Lyell became convinced that his own "theory is knocked on the head & the annular shape & central lagoon have nothing to do with volcanoes nor even with a crateriform bottom."



3. *Geological Observations on the Volcanic Islands, visited during the Voyage of H.M.S. Beagle, Together with Some Brief Notices on the Geology of Australia and the Cape of Good Hope. Being the Second Part of the Geology of the Voyage of the Beagle, under the Command of Capt. Fitzroy, R.N., during the Years 1832 to 1836.* London: Smith, Elder and Co., 1844. Freeman: I, 84; II, 272.



4. *Geological Observations on South America. Being the Third Part of the Geology of the Voyage of the Beagle, under the Command of Capt. Fitzroy, R.N., during the Years 1832 to 1836.* London: Smith, Elder and Co., 1846. Freeman: I, 85; II, 273.



5. *Geological Observations on Coral Reefs, Volcanic Islands, and on South America: Being the Geology of the Voyage of the Beagle, under the Command of Captain Fitzroy, R.N., during the Years 1832 to 1836.* London: Smith, Elder and Co., 1851. Freeman: I, 86; II, 274.

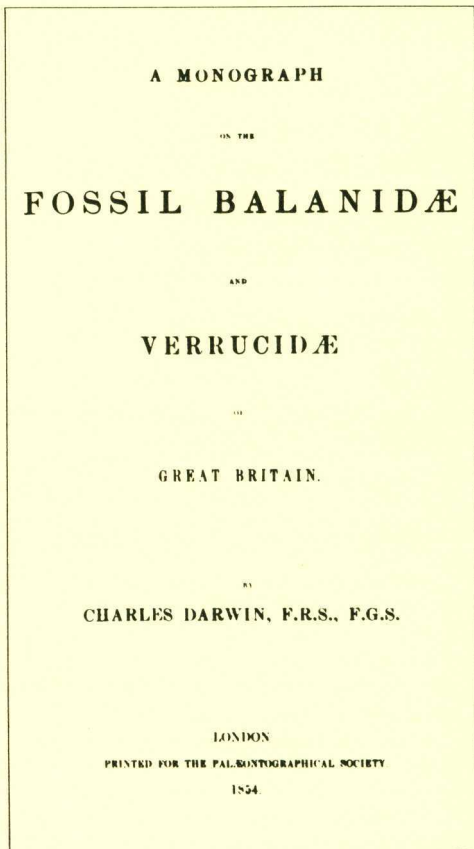
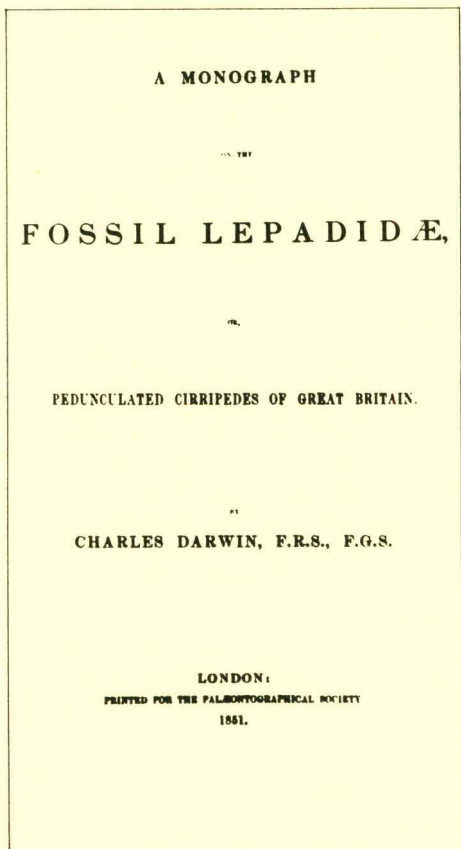
This publication combines Items 2, 3, and 4. Darwin's publications were issued in a small number of copies, which permitted changes to be made in successive printings, an opportunity Darwin regularly exploited.



## Fossil Barnacles

### Item 6

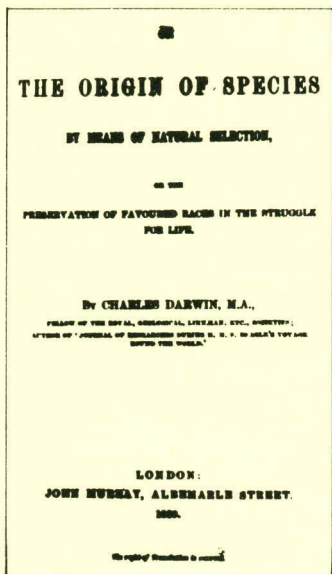
6. [Volume I] *A Monograph on the Fossil Lepadidae, or Pedunculated Cirripedes of Great Britain*. London: The Palaeontographical Society, 1851.  
[Volume II] *A Monograph on the Fossil Balanidae and Verrucidae of Great Britain*. London: The Palaeontographical Society, 1854. Freeman: I, 105; II, 342.



During the years in which Darwin wrote and saw published his geographical researches, he turned increasingly to biological work. He apparently began his more speculative work on the evolution of species in 1837 when he started a "Notebook on Transmutation." Several years later in 1846 Darwin began his study of barnacles (cirripedes), which he worked on until 1854. "The Cirripedes," Darwin wrote in his *Autobiography*, "form a highly varying and difficult group of species to class; and my work was of considerable use to me, when I had to discuss in the *Origin of Species* the principles of a natural classification." According to Darwin's son, Francis (1848-1925), the work on barnacles contributed to the finishing of his father's education as a naturalist.

**On the Preservation of Favored Races  
in the Struggle for Life  
Items 7, 9-11**

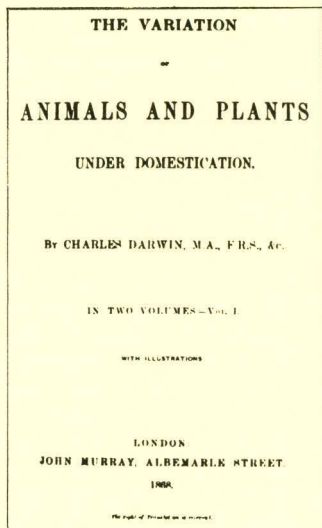
7. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. London: John Murray, 1859. Freeman: I, 112; II, 373. (Three copies are exhibited)



By the time Darwin published the *Origin of Species* in 1859, he was an established member of the British scientific community. However, Darwin's ideas, especially natural selection, did not gain immediate or unqualified acceptance by that community. One conspicuous example of hostility is provided by the review of the *Origin of Species*, published in 1860, by the distinguished anatomist and paleontologist Richard Owen (1804-1892). Owen asserted that the evidence presented by Darwin was unconvincing and unoriginal and he was disturbed that younger naturalists were being seduced by the theory. Darwin, thinking perhaps of those younger naturalists, continued to elaborate the explanatory power of the theory in his later books.

9. *The Variation of Animals and Plants under Domestication*. London: John Murray, 1868. Freeman: I, 232; II, 877.

*The Variation of Plants and Animals under Domestication* continued the theme of the first chapter of the *Origin of Species*. It is also in this work that Darwin proposed a "provisional hypothesis" of "pangenesis" to buttress a very important postulate in his theory, namely, the "strong principle of inheritance." One reviewer explained that pangenesis assumes "the development of 'cell-gemmules' thrown off from every cell of every organ of the body, circulating through every part, constituting a portion of every organ, and consequently transmitted by the parents to their offspring . . ."

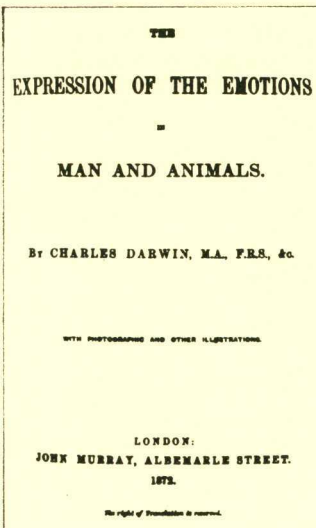
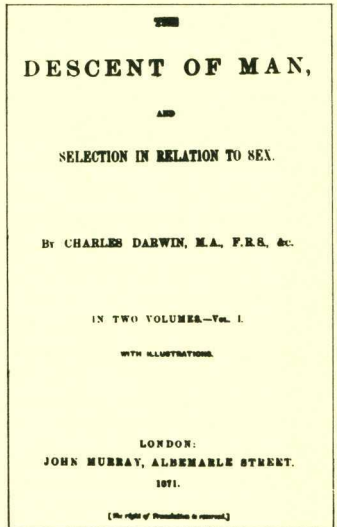


10. *The Descent of Man, and Selection in Relation to Sex*. London: John Murray, 1871. Freeman: I, 245; II, 937.

In his *Autobiography*, Darwin explained: "Although in the *Origin of Species*, the derivation of any particular species is never discussed, yet I thought it best, in order that no honourable man should accuse me of concealing my views, to add that by the work in question 'light would be thrown on the origin of man and his history.'" The work referred to is the *Descent of Man*, which may be seen as a particular extension of the theory of evolution applied to man. Darwin summarized the objectives of his two volume work as "to consider, firstly, whether man, like every other species, is descended from some pre-existing form; secondly, the manner of his development; and thirdly, the value of the differences between the so-called races of man."

In the *Origin of Species*, Darwin had emphasized natural selection; in the *Descent of Man* the role of sexual selection is more closely examined. Sexual selection, according to Darwin, "depends on the advantage which certain individuals have over other individuals of the same sex and species, in exclusive relation to reproduction." Darwin emphasized that it is "certain that with almost all animals there is a struggle between the males for the possession of the female."

11. *The Expression of the Emotions in Man and Animals*, London: John Murray, 1872. Freeman: I, 281; II, 1142.



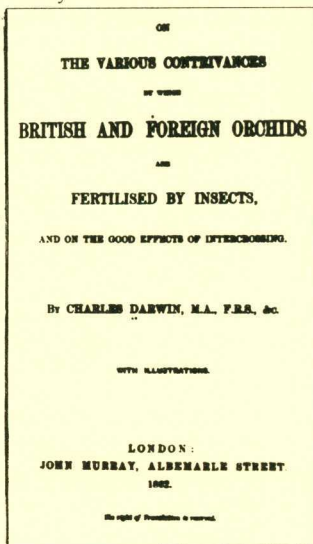
"Mr. Darwin has added another volume of amusing stories and grotesque illustrations to the remarkable series of works already devoted to the exposition and defense of the evolutionary hypothesis." So begins a review of *The Expression of the Emotions in Man and Animals*, a work in which Darwin wished to show how emotions and expressions of animals and man are rooted in the history of species, and are explicable by natural selection. The reviewer was impressed neither by the facts Darwin adduced, nor by an *a priori* application of theory. Instead, the review attacked Darwin and his followers as virtual cultists — not unlike the alchemists. Thus Darwin's newest book quickened the continuing controversy over his theory of transmutation of species. It may have been in anticipation of such reviews that Darwin wrote: "as long as man and all other animals are viewed as independent creations, an effectual stop is put to our natural desire to investigate as far as possible the causes of Expression. By this doctrine [of independent creations], anything and everything can be equally well explained; and it has proved as pernicious with respect to Expression as to every other branch of natural history."



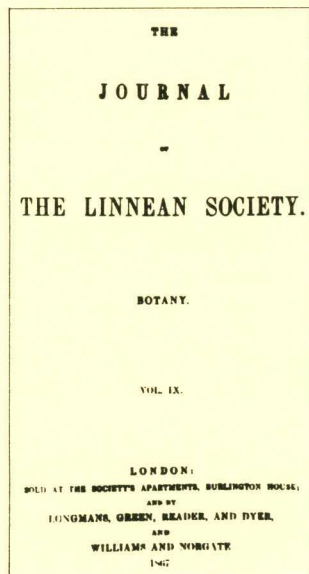
**Botanical Works**  
**Items 8, 12-16**

8. *On the Various Contrivances by Which British and Foreign Orchids Are Fertilised by Insects, and on the Good Effects of Intercrossing.* London: John Murray, 1862. Freeman: I, 208; II, 800.

Darwin always denied that he was a botanist, and this denial seems valid in that his approach to botanical problems clearly reflected his focal interest on evolution and natural selection. This work was written to offer support for his theory that adaptations originate in natural selection of slight variations. Darwin wrote that in the *Origin of Species* he had presented only general reasons for claiming that "it is apparently a universal law of nature that organic beings require an occasional cross with another individual; or, which is almost the same thing, that no hermaphrodite fertilises itself for a perpetuity of generations." In *The Fertilisation of Orchids* he supported this universal law by presenting a detailed picture of the mechanisms of fertilization. The example he used here is the natural history of orchids — "universally acknowledged to rank amongst the most singular and most modified forms in the vegetable kingdom . . ."



- 12a. "On the Movements and Habits of Climbing Plants," in *The Journal of The Linnean Society. Botany*. Volume 9 (1867), pp. 1-118. [Paper read before the Society on 2 February 1865.] Freeman I, 219; II, 833.





In a long paper to the Linnean Society in 1865 on the *Movements and Habits of Climbing Plants*, Darwin investigated the twining motions of young plants. He identified this motion as an adaptation that allows the growing plant to obtain more sunlight and air, without the need to expend energy and time in the synthesis of supportive tissue. The paper was both published in the 1867 volume of the Society's *Journal* and distributed in 1865 as a separate reprint. The first publication in book form, in 1875, thus was a "second edition."

12b. *The Movements and Habits of Climbing Plants*. Second Edition, revised. London: John Murray, 1875. Freeman: I, 220; II, 836.

**THE JOURNAL**  
OF  
**THE LINNEAN SOCIETY.**

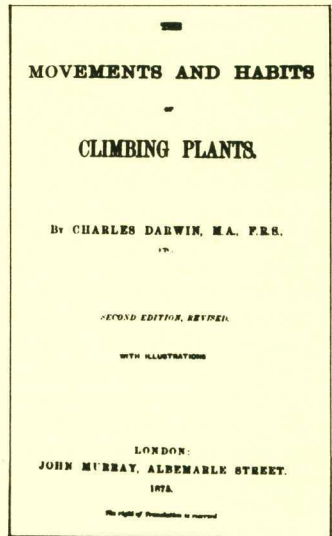
On the Movements and Habits of Climbing Plants. By CHARLES DARWIN, Esq., F.R.S., F.L.S. &c.  
(Read February 3, 1865.)

TABLE OF CONTENTS.

PAGE	PAGE
Introduction . . . . .	1
Part I.—SPIRALLY TWINING PLANTS.	5
Vital twining . . . . .	5
Nature of the revolving movement . . . . .	7
Purpose of the revolving movement, and nature of the spiral . . . . .	9
Table of the rates of revolution . . . . .	11
Anomalous revolvers . . . . .	21
Variations in the power of twining . . . . .	21
Part II.—LEAF-Climbers.	30
Clematis . . . . .	30
Tropaeolum . . . . .	31
Antirrhinum . . . . .	33
Solanum . . . . .	41
Passiflora . . . . .	42
Cucurbit . . . . .	45
Gleichenia . . . . .	45
Fragaria . . . . .	46
Asparagus . . . . .	46
Summary on Leaf-climbers . . . . .	47
Part III.—TENDRIL-BEARERS.	49
Siganon . . . . .	49
Limonium . . . . .	51
Leguminosae . . . . .	55
Cuscuta . . . . .	57
Mimulus . . . . .	58
Passiflora . . . . .	70
Cucurbitaceae . . . . .	72
Vitaceae . . . . .	79
Ruprechtia . . . . .	87
Passifloraceae . . . . .	89
Special contractions of tendrils . . . . .	92
Secretary of the nature and action of tendrils . . . . .	96
Part IV.—HOOK AND ROOT-CLIMBERS, CONCLUDING REMARKS.	103
Hook-climbers . . . . .	103
Root-climbers . . . . .	105
Concluding remarks on Climbing-plants . . . . .	107

I worked to this subject by an interesting, but too short, paper by Professor Aschmann on the movements of the tendrils of some Cucurbitaceous plants\*. My observations were more than half completed before I became aware that the surprising phenomenon of the spontaneous revolutions of the stems and tendrils of climbing plants had been long ago observed by Palm and by Hugo von Mohl, and had subsequently been the subject of two

\* Proc. Amer. Acad. of Arts and Sciences, vol. IV, Aug. 13, 1866, p. 98.  
\* Ludwig H. Palm, Ueber die Winden der Pflanzen; Hugo von Mohl, Ueber die Hasel und die Winden der Ranken und Schlingpflanzen, 1827. Palm's LIEB. FROM BOTANY, VOL. IX.



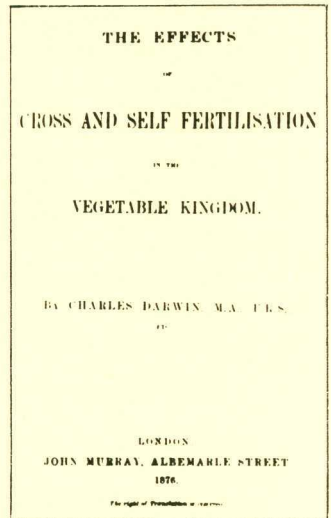
13. *Insectivorous Plants*. Second Thousand. London: John Murray, 1875. Freeman: I, 291; II, 1218.



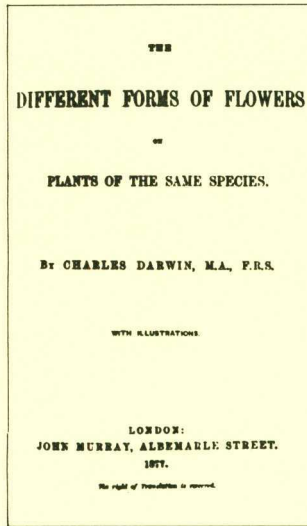
In his *Insectivorous Plants* Darwin discussed such topics as the various methods by which plants are nourished and the nature of plant movement. Darwin's interest in insect-eating plants had begun sixteen years prior to the publication of this book. He wrote in his *Autobiography*: "The fact that a plant should secrete, when properly excited, a fluid containing an acid and ferment, closely analogous to the digestive fluid of an animal, was certainly a remarkable discovery."

14. *The Effects of Cross and Self Fertilisation in the Vegetable Kingdom*. London: John Murray, 1876. Freeman: I, 297; II, 1249.

Darwin regarded this work as the complement of his earlier work *On Orchids*. He suggested that plants capable of cross-fertilizing have the advantage of more possible variations than those which only self-fertilize. He added that cross-fertilization is most effective with respect to adaptation when the individuals crossed vary slightly from one another. This conclusion, according to Darwin, "throws light on the origin of the two sexes and on their separation or union in the same individual, and lastly on the whole subject of hybridism, which is one of the greatest obstacles to the general acceptance and progress of the great principle of evolution." The problem of hybridism was also discussed in *The Different Forms of Flowers on Plants of the Same Species* (1877, Item 15) in which Darwin investigated crosses within the same species and the occurrence of infertility within a single species.



15. *The Different Forms of Flowers on Plants of the Same Species*. London: John Murray, 1877. Freeman I, 303; II, 1277.

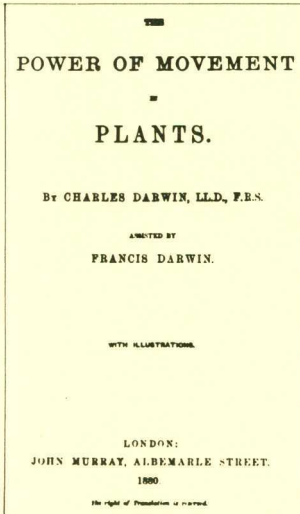


16. *The Power of Movement in Plants*. London: John Murray, 1880. Freeman: I, 311; II, 1325.

*The Power of Movement in Plants* grew out of Darwin's work on *The Movements and Habits of Climbing Plants*, for he realized the impos-

sibility of accounting for the diverse development of climbing plants according to the principles of evolution, unless all plants possess some common power of movement. He therefore sought to show that "apparently every growing part of every plant is continually circumnutating, though often on a small scale."

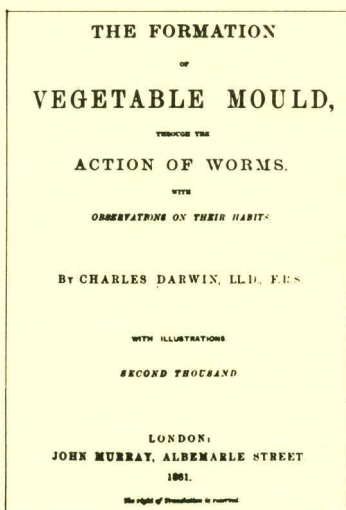
These botanical works of Darwin are in no sense a diversion from his lifelong concern with evolution. Whether he was investigating the fertilization of flowers, the twining of stems, the movements of leaves, or the natural history of insectivorous plants, Darwin was primarily interested in studying plant adaptations with the end of further elucidating his theory of natural selection.



## Return to Earth Item 17

17. *The Formation of Vegetable Mould, through the Action of Worms, with Observations on Their Habits*. London: John Murray, 1881. Freeman: I, 317; II, 1357.

In his last monograph, Darwin returned to a topic he had first broached in a paper read to the Geological Society of London more than forty years earlier (1837). The subject of one of Darwin's first scientific publications, the surprising productivity of earthworms in the formation and maintenance of vegetable mold (humus), was thus also the subject of his last. Although the topic had been a longstanding concern of his, Darwin was still somewhat apologetic concerning this publication, not knowing how much interest it would provoke. Darwin's bibliographer, R. B. Freeman, has nevertheless judged the work "remarkably successful," noting that "it sold far faster than *The origin of species* had."



The similarity of style and approach that can be seen between Darwin's evolutionary and more famous works and this last monograph, in which he returned to "old geological thoughts," is striking. This similarity may perhaps be gauged by Darwin's response to the skepticism of a certain Mr. Fish who "rejected my conclusions with respect to the part which worms have played in the formation of vegetable mould, merely on account of their assumed incapacity to do so much work." "Here we have," said Darwin, "an instance of that inability to sum up the effects of a continually recurrent cause, which has often retarded the progress of science, as formerly in the case of geology, and more recently in that of the principle of evolution." Indeed, when we recall some of the major themes of Darwin's works, we are struck by his assertion in the introduction of this last monograph on the *Formation of Vegetable Mould* that "the maxim 'de minimis lex non curat,' does not apply to science."

This publication, printed by Transcript Press of Norman, is issued by the University of Oklahoma Libraries and authorized by Sui H. Lee, Dean of University Libraries. 1,000 copies have been prepared and distributed at a cost of \$475.20 to the taxpayers of the State of Oklahoma, January, 1980.