vantage having been taken of the mistaken natural instinct of another bird than by their own mother's care, encumbered as she can hardly fail to be by having eggs and young of different ages at the same time, then the old birds or the fostered young would gain an advantage. And analogy would lead me to believe that the young thus reared would be apt to follow by inheritance the occasional and itinerant habit of their mother, and in their turn would be apt to lay their eggs in other birds' nests, and thus be successful in rearing their young. By a continual process of this nature, I believe that the strange instinct of our cuckoo could be, and has been, generated."—p. 218.

Perhaps this sample of Dr Darwin's belief in the force of natural selection will prevent some from following him in his investigations into the generation of the slave-making instinct and the cell-building instinct of the hive bee. But we can promise them that, however they may shrink from the theory, they will read his experiments with interest and delight.

Nov. 1880.
Glasgow Herald

LITERATURE.

(1) *Mr Darwin's New Book.*

Most of our readers will no doubt be surprised to learn that plants have any power of movement at all. We have always been taught that one great distinction between plants and animals is, that the latter have the power of movement, while the former have not. But there are *movements* and *movements*; and the kind of movement in which plants are deficient as contrasted with animals is that of locomotion. So far as observation has hitherto gone, plants have no power of changing their place by their own impulse. But with this exception the readers of this the latest work from the fertile brain of our greatest biologist will learn that every part and every organ of a growing plant is in a state of ceaseless motion. All Mr Darwin's works have a family likeness. Starting with some suggestive fact or idea, he records a long series of experiments conducted with the greatest precaution and delicacy, and from these he deduces with the greatest caution and reserve the most obvious conclusions to which they point. Such also is the method of the work before us. One or two German botanists have noticed that certain parts of plants are constantly moving in a special kind of orbit, to which they have given the name of circular nutation. The point of a leaf of a growing plant, for example, describes during the twenty-four hours a small orbit more or less elliptical, and in the case of climbing plants creeping round their supports this course is approximately circular. Mr Darwin and his son Francis, who has himself already done some remarkable work in botanical research, have for some time been conducting a long series of experiments to discover what is the real nature of this curious elliptical motion, to which they give the name of circumnutation, and to what extent it prevails among the various classes of plants, and the various organs by which plants carry on their functions. The conclusions which they have been able to reach are very remarkable. The motion of the root downwards in the ground, the motion of the stem upwards to and in the air, the motions of the leaves from day to day, the peculiar nightly set of leaves known as sleep, the tendency of leaves to seek the light, the action of gravitation, and so on, are all modifications of this one movement of circumnutation, adaptations of what seems a primitive inmate motion to suit a great variety of circumstance. The tiny rootlet or radicle emerging from the seed gyrates as far as it can in its earthy home, ever tending downwards, but seeking out invariably the path of least resistance, and the soil from which it can extract the greatest moisture and nourishment. The embryo leaf-bearing stem in the same way oscillates upwards to the light; and when it spreads out its two first leaflets, these also begin their career of oscillation in the open air. And so with every leaf, and petiole, and other part as it comes forth, until every detail of the growing plant is in a state of constant elliptical motion. Here is Mr Darwin's graphic account of the phenomenon:—

"Our seedling now throws up a stem bearing leaves and often branches, all of which, when young, are constantly circumnutating. If we look, for instance, at a great needs tree, we may feel assured that every one of the innumerable growing shoots is constantly describing small ellipses, as is each petiole, sub-petiole, and leaflet. The latter, as well as ordinary leaves, generally move up and down in nearly the same vertical plane, so that they describe very narrow ellipses. The flower-peduncles are likewise continually circumnutating. If we could look beneath the ground, and our eyes had the power of a microscope, we should see the tip of each rootlet endeavouring to sweep small ellipses or circles, as far as the pressure of the surrounding earth permitted. All this astonishing amount of movement has been going on year after year since the time when, as a seedling, the tree first emerged from the ground."

Mr Darwin's experiments were made on plants belonging to the most diversified classes, so that he is justified in concluding that the varied movements he noticed in these are common to nearly all plants. Among the special kinds of movements investigated by him are those to which plants are subject under the influence of light, and these which are peculiar to the leaves of certain plants on the withdrawal of light and the approach of night. The tendency of plants to seek the strongest light is well known, and Mr Darwin made many experiments in reference to this characteristic. Even the very smallest amount of light has an influence on most plants, though in many experiments it was found that after bending towards a strong light a feebler light failed to unbend them in an opposite direction. In the case of seedling plant—such as the bean say—Mr Darwin found that the sensitiveness to light dwells in the tip of the stem, and that if that were cut off from the source of light the lower part of the stem refused to expand to its influence. In the root, also, it is the tips of the radicle and the subsidiary roots that are the sensitive feelers, so to speak; and if these tips are cut off the remaining parts are practically motionless. Indeed, so important is the function of the tip of the radicle, and so sensitive is it to the slightest touch or pressure, and so marked is the influence it transmits to the rest of the radicle, that Mr Darwin likens it to the brain of the lower forms of animal life. With regard to the sleep of plants, Mr Darwin records a long series of observations in the volume before us. The conclusion he comes to is, that it is not the mere absence of light that leads to these leaves assuming a vertical position at night, either by rising up or drooping down. "The presence of light or its absence cannot be supposed to be the direct cause of the movements, for these are wonderfully diversified even with the leaflets of the same leaf, although all have, of course, been similarly exposed. The movements depend on innate causes, and are of an adaptive nature. The alternatives of light and darkness are merely give notice to the leaves that the period has arrived for them to move in a certain manner. We may infer from the fact of several plants not sleeping unless they have been well illuminated during the day that it is not the actual decrease of light in the evening, but the contrast between the amount at this hour and during the early part of the day, which excites the leaves to modify their ordinary mode of circumnutation." The object gained by all the varied positions assumed by leaves at night is, Mr Darwin tells us, the protection of the upper surfaces of the leaves from radiation, often combined with the mutual protection of the several parts by their close approximation. The so-called diurnal sleep of some plants, he finds, is merely a twisting of the leaves to avoid receiving the glare and heat of the sun on the upper surfaces, to which it would be injurious.

But whatever may be the object or the special nature of the various motions to which the different parts of plants are subject, Mr Darwin comes to the conclusion, from his long and varied series of experiments, that they are all adaptations to suit special circumstances of the one primitive motion which he has called circumnutation; one more proof of the great law of natural selection, and the tendency of all living things to adapt themselves to their surroundings. It would take much more space than we can spare to give anything like an adequate idea of the varied subjects treated of under the apparently simple title of this work. Mr Darwin shows here no falling off in that marvellous power of observation and induction which has marked all his previous works; and we hope he will still be long spared to exercise a power which has led to a revolution in the methods of science, and changed the whole aspect of modern thought and research.

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LITERATURE.

(1) Mr Darwin's New Book.

Most of our readers will no doubt be surprised to learn that plants have any power of movement at all. We have always been taught that one great distinction between plants and animals is that the latter have the power of movement, while the former have not. But there are movements and movements; and the kind of movement in which plants are deficient as contrasted with animals is that of locomotion. So far as observation has hitherto gone, plants have no power of changing their place by their own impulse. But with this exception the readers of this the latest work from the fertile brain of our greatest biologist will learn that every part and every organ of a growing plant is in a state of ceaseless motion. All Mr Darwin's works have a family likeness. Starting with some suggestive fact or idea, he records a long series of experiments conducted with the greatest precaution and delicacy, and from these he deduces with the greatest caution and reserve the most obvious conclusions to which they point. Such also is the method of the work before us. One or two German botanists have noticed that certain parts of plants are constantly moving in a special kind of orbit, to which they have given the name of circular nutation. The point of a leaf of a growing plant, for example, describes during the twenty-four hours a small orbit more or less elliptical, and in the case of climbing plants creeping round their supports this course is approximately circular. Mr Darwin and his son Francis, who has himself already done some remarkable work in botanical research, have for some time been conducting a long series of experiments to discover what is the real nature of this curious elliptical motion, to which they give the name of circumnutation, and to what extent it prevails among the various classes of plants, and the various organs by which plants carry on their functions. The conclusions which they have been able to reach are very remarkable. The motion of the root downwards in the ground, the motion of the stem upwards to and in the air, the motions of the leaves from day to day, the peculiar nightly set of leaves known as sleep, the tendency of leaves to seek the light, the action of gravitation, and so on, are all modifications of this one movement of circumnutation, adaptations of what seems a primitive innate motion to suit a great variety of circumstance. The tiny rootlet or radicle emerging from the seed gyrates as far as it can in its earthy home, ever tending downwards, but seeking out invariably the path of least resistance, and the soil from which it can extract the greatest moisture and nourishment. The embryo leaf-bearing stem in the same way oscillates upwards to the light; and when it spreads out its two first leaflets, these also begin their career of oscillation in the open air. And so with every leaf, and petiole, and other part as it comes forth, until every detail of the growing plant is in a state of constant elliptical motion. Here is Mr Darwin's graphic account of the phenomenon:—

"Our seedling now throws up a stem bearing leaves and often branches, all of which, when young, are constantly circumnutating. If we look, for instance, at a great acacia tree, we may feel assured that every one of the innumerable growing shoots is constantly describing small ellipses, as is each petiole, sub-petiole, and leaflet. The latter, as well as ordinary leaves, generally move up and down in nearly the same vertical plane, so that they describe very narrow ellipses. The flower-peduncles are likewise continually circumnutating. If we could look beneath the ground, and our eyes had the power of a microscope, we should see the tip of each rootlet endeavouring to sweep small ellipses or circles, as far as the pressure of the surrounding earth permitted. All this astonishing amount of movement has been going on year after year since the time when, as a seedling, the tree first emerged from the ground."

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(2) The Odyssey of Homer.

The number of translations of Homer into modern tongues is so great that the examination and criticism of them has become a literature in itself. Not only do translations into English, German, Dutch, and French abound, but several paraphrases have even been attempted in modern Greek. Of English versions the name is legion. It would be hard to say what classical scholar has not attempted at some time or other to give some rendering according to his own particular lights. If we begin with Chapman we find Hobbes, Pope, Macpherson, and Cowper followed in our own day by Tennyson, Gladstone, Lord Derby, Lord Ravensworth, Newman, Worseley, Merrivale, Blackie, Musgrave, and a host of others; and last, though certainly not least, Butcher and Lang. The favourite of translators in the past was almost invariably the Iliad, but of late years the Odyssey—that first and greatest of all novels, as it may fitly be called—has engaged much attention. Within the last two years certainly not fewer than six English versions of the Odyssey have been published, and among these that of Messrs Butcher and Lang in prose, which we had so much pleasure in noticing last year, stands incomparably first. Sir Charles Du Cane now arrives to swell the long list with a version which, if it cannot be ranked among the highest, is yet possessed of considerable merit. It is unfortunate for Sir Charles Du Cane that his work should have appeared so soon after that of Messrs Butcher and Lang, with which it will at once be instinctively compared. We say "unfortunate," because the comparison can only be unfavourable to the later publication. This can hardly fail to be the case when the one is the work of two ripe scholars and experienced writers, while the other is merely the diversion of an accomplished gentleman. And then, again, Sir Charles has, as we think, been unfortunate in the selection of his "instrument" of translation. The "absolutely fittest" is doubtless, as Matthew Arnold holds, that of English hexameters, when we can find anyone capable of managing thoroughly that exceedingly intractable metre. But there is nothing more tiresome to read than bad hexameters, which halt when they should roll, and which clash when they should be musical, which cannot even be dignified by the description of prose cut into lengths. Sir Charles Du Cane is very far from claiming to have acquired "the perfect English hexameter" so much desiderated. On the contrary, he expressly states that he has not ventured to set before himself the lofty standard which Mr Matthew presents to all translators. He has chosen the "ballad metre" into which Chapman rendered the Iliad, but once more the comparison is unfortunate. Chapman's verse was rugged, vigorous, and masculine; Du Cane's is smooth, often limp, and mostly effeminate. It is but right to add that Sir Charles admits at once all the objections which may be urged against the use of the ballad metre for Homeric translation, at the same time that he considers it encourages rapid movement without discouraging simplicity of style and language. This is perhaps true, but Sir Charles's performance does not by any means aid in convincing us that the ballad metre is adapted for prolonged narrative and sustained movement. We have the same feeling at the last line as we had at the first—that the metre is a mistake, that it gives no reproduction of the music of Homer's style, while it is inadequate to convey all its spirit. Indeed, the opening verses are almost enough to discourage one from going further:—

Muse! of that hero versatile indite to me the song
Doomed, when he sacred Troy had sacked, to wander far and long;
Who saw the towns of many men, much knowledge did obtain
Anent their ways, and with much woe was heart-wrung on the main,
Seeking his own life to preserve, his friends' return to gain,
E'en so he rescued not his friends, though eagerly he strove
For them their own infatuate deeds to direful ending drove.
Fools, who the sun-god's sacred beeves dared madly to devour,
Doomed by his anger ne'er to see of glad return the hour.
Sing, goddess, child of mighty Jove, of these events I pray,
And from what starting-point thou wilt begin with me the lay.

This is weak, but the reader who stops here will miss much that is good and really enjoyable, and will not, besides, do justice to the translator, who, if his judgment may occasionally be called in question, is always conscientious. Here for instance is a passage which not unfairly represents the force and simplicity of the original:—

Beside the Cyclop's harbour stretched a little isle doth lie,
With forest crowned nor far away from off their coast, nor nigh,
The chamois in unnumbered flocks have made that isle their home,
For by the tread of man unscared at liberty they roam.
Nor thither comes the hunter train, who toil and hardship bear,
As o'er the crest of mountain top, or through the brake they fare;
Nor fold for sheep, nor plough is there, but age untilled, unsown
By human hand, the bleating goat hath held it for his own.
No ships with bright vermilion prows have they, nor shipwrights skilled
Are ever found on Cyclop's ground, decked barks for them to build
Which doing their alloted task, would to far cities go,
As men do often cross the seas, and visit to and fro.

But when the theme becomes heroic, or of intense dramatic action, Sir Charles Du Cane's version shows to poor advantage. Take, for instance, this description of Ulysses's shipwreck on the Phaeacian coast:—

Onward was he, whilst thus in doubt, unto the rough shore driven;
Broken would then his bones have been, his skin from off him riven,
Had Pallas not inspired the thought with both his hands to hold
The jutting rock, whilst o'er his head the mighty billows rolled,
There groaning deep, he, whilst the waves surged all around, held fast,
And of its onward tide escaped the fury as it passed.
But full on him its force was hurled as it recoiled again,
And from the rocks outflung him far into the roaring main.
As when a cuttle-fish is forced its hiding-place to leave,
We to its suckers may behold the pebbles thickly cleave—
So as the hero to the sea was backward driven forlorn,
Unto the rocks adhered the skin that from his hands was torn.
Then by the mighty billows 'whelmed, he sank beneath the sea,
And thus the luckless chief had died, in spite of fate's decree,
Had not Athene once again her timely counsel sent
As he uprose, whereon the rock the wave its fury spent,
Forward he swam, but on the shore kept ever watchful eye,
Trusting, perchance, some sheltered bay or gentle slope to spy;
Anon, a river flowing fresh and fair before him lay
With open mouth, where best it seemed his landing to essay.

The feebleness of this rendering cannot be better shown than by placing alongside it the parallel passage from Butcher and Lang:—

"Whilst yet he pondered these things in his heart and mind, a great wave bore him to the rugged shore. There would he have been stripped of his skin and all his bones been broken but that the goddess, grey-eyed Athene, put a thought into his heart. He rushed in and with both his hands clutched the rock, whereto he clung till the great wave went by. So he escaped that peril, but again with backward wash it leapt on him and smote him, and cast him forth into the deep. And as when the cuttlefish is dragged forth from his chamber, the many pebbles clinging to his suckers, even so was the skin stript from his strong hand against the rocks, and the great wave closed over him. There of a truth would luckless Odysseus have perished beyond that which was ordained had not grey-eyed Athene given him sure counsel. He rose from the line of the breakers that discharge upon the shore, ever looking landwards, to find, if he might, spits that take the waves aslant, and havens of the sea. But when he came in his swimming over against the mouth of a fair flowing river, whereby the place "seemed best in his eyes, smooth of rocks, and withal there was a covert from the wind, Odysseus felt the river running."

It is hardly fair, as we have said above, to draw invidious comparisons between the work of an amateur and the work of ripe experts. We give the above extracts merely to afford some idea of the relative value of Sir Charles Du Cane's literary workmanship. Although imperfect as the work of an inexperienced writer must necessarily be—the inexperience being often painfully apparent in the use of inversions, needless auxiliaries, and other contrivances to fill up the metre and complete the rhyme—yet it is a work of which Sir Charles Du Cane has no reason to be ashamed, and one, indeed, which would do credit to many with more leisure than he, who began his translation to beguile the monotony of a voyage from the Antipodes. We should add that this translation only extends to the end of the Twelfth Book of the Odyssey.

(3) The Trial and Death of Socrates.

It is perhaps unfortunate for Mr Church that his translation should have followed so closely the voluminous and splendid work of Mr Jowett, to which, however, we do not intend in the present notice to refer further than to say that it appeared while Mr Church was revising his own proof sheets, and that although Mr Jowett's method of translation is very different from his, there are many coincidences of expression which must be regarded as accidental. In a singularly well-written introduction Mr Church sketches the life and history of Socrates, and discusses generally the whole scheme of his philosophy as disclosed in the Dialogues, and especially in the four which he has selected for translation. In this he differs from other translators, who have preferred to introduce each Dialogue with an analysis and critique all to itself. Mr Church's intention is to treat of the trial and death of Socrates, and therefore he selects those of the Dialogues which give the clearest picture of the philosopher in his last days. The Euthyphron gives his views on piety at the very time when he was being charged with impiety. The Apology gives us his trial and defence. The Crito gives us his views on the duty of submission to civic laws as a public duty. And the Phædo gives us a graphic picture of his last hours. We get from them, perhaps more than from any of the others, a clearer idea of Socrates and his teachings. Perhaps, too, just as much as the average reader cares to have, for it must be honestly said that to read conscientiously through even one dialogue is a hard enough task. Even enthusiastic scholars are forced to admit that the endless repetitions and alternations of minute questions and mechanical answers are tiresome and often dull. The selec-

(1) The Power of Movement in Plants. By Charles Darwin, LL.D., F.R.S., assisted by Francis Darwin. With Illustrations. London: John Murray. 1880.

(2) The Odyssey of Homer. Books I.-XII. Translated into English Verse, with Notes and Parallel Passages. By Sir Charles du Cane, K.C.M.G. William Blackwood & Sons. 1880.

(3) The Trial and Death of Socrates: Being the Euthyphron, Apology, Crito, and Phædo of Plato. Translated into English by F. J. Church. London: Macmillan & Co. 1880.