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"Knowledge is unattainable, in Man's State, We at best may only see some little part; After short purblind visions of Man's thought, Wisdom; our heritage, lies within our might, Time past, our fathers' was; this day that is, Is ours; the Future, we ourselves beget."

THESE lines are taken from a book with the secondary title of "The Riddle of the Universe," by Charles Doughty, an English poet of to-day, and as Haeckel's book with the same title is his most popular work, and has been translated into half a dozen languages and had an enormous sale, I thought the poetry might well introduce what I have to say about the thinker. For, strange to say, Haeckel thought he had solved the riddle, and his reputation as a prickly and aggressive disputant was due in great part to his profound belief in his own insight.

The publication of Darwin's "Origin of Species" in 1859 changed the whole course of Haeckel's activities. He went to Sicily a German naturalist, and came back from Palermo a scientific observer and student with a mass of data; Darwin's work made him a thinker; showed him how to use the vast stock of scientific knowledge he had been accumulating. In his "Last Words of Evolution" he tells with simple directness the revolution which Darwin's work caused in him:

"Darwin's work appeared in 1859, and fell like a flash of lightning on the dark world of official biology. I had been engaged in a scientific expedition to Sicily and given myself to a thorough study of the graceful radiolarians, those wonderful microscopic marine animals that surpass all other organisms in the beauty and variety of their forms. The special study of this remarkable class of animals, of which I afterwards described more than 4000 species, after more than ten years of research, provided me with one of the solid foundation-stones of my Darwinian ideas. When I returned to Berlin in the spring of 1860, I knew nothing of Darwin's achievement. I merely heard from my friends that a remarkable work by a crazy Englishman had attracted great attention, and that it turned upside down all previous ideas as to the origin of species.

"I was deeply moved by the first reading of Darwin's book, and soon completely converted to his views. In Darwin's great and harmonious conception of Nature, and his convincing establishment of evolution, I had an answer to all the doubts that had beset me since the beginning of my biological studies."

Haeckel set to work at once in the light of the new knowledge, and five years later published his "Morphologie"; that formed the complement and chiefest corroboration of the Darwinian theory. It was all very well for Darwin to fix upon the simplest form of life and then construct an ascending ladder, each rung of which was more complex than the preceding one, and to tell us that this was how mankind came to the birth by gradual development from the tadpole to reason, and from undefined feelings and instinctive reactions to thoughts that wander through eternity. But Haeckel showed in the

and was always too combative to be a disinterested lover of science.

When I was a student in Munich about '79 or '80, I took up the "Morphologie" by chance, and simply devoured the biogenetic theory, while leaving untouched all the scientific paraphernalia.

Without help, I had already come to the conclusion that the individual man had stored up in himself all the chief stages of feeling and thought which the race had passed through in countless generations. Time and again, when reading this or that philosopher, I had closed the book, saying to myself, "You had these very thoughts as a cowboy on the Trail." And, more than once, I was able to guess what speculation would come next in the history of metaphysics. From this fact, I had drawn conclusions that outran Haeckel's theory.

The complete agnosticism of my youth had begun to change into a sort of Pantheism. As force and matter are indestructible, I saw that spirit was everlasting, and the spirit of man one and universal.

A new vision and a new reward came to me from this understanding. In measure as you grow, I said to myself, so your ideas and feelings will become a forecast

"Morphologie" that the individual embryo is like a tadpole and the foetus in the womb passes through the chief metamorphoses already predicted of the race by Darwin. Never was there corroboration of a theory at once so unexpected and so complete. And in many other ways Haeckel showed himself to be rather the collaborator than the disciple of Darwin. Haeckel published his "History of Creation" before Darwin published "The Descent of Man," and Darwin, with the rare generosity which distinguished him, declared that he would never have written his "Descent" if he had known that Haeckel was at work on the same subject. The truth was though Darwin had elaborated his theory quite fifteen years before he published his "Origin of Species," yet he shrank for some time from applying his theory to man, fearing the hatred and malice of English puritanism. But, explain the matter how you will, the fact remains that Haeckel was the first boldly to apply the theory of evolution by natural selection to mankind.

That fact, and the biogenetic theory first discovered and demonstrated by Haeckel in the "Morphologie," makes him the peer of the great Englishman. Haeckel, too, was the first to popularise the theory by lecturing on the new biology. In bare justice, one must admit that he never feared to push his thought to the furthest.

He was a controversialist by nature, and waged unsparing, if only verbal, war on whosoever differed with him. He took Virchow to task for a careless phrase, and, indeed, at one time or other crossed swords with all the ablest thinkers of the time.

Here is a passage which reveals a great deal of the man:

"I do not belong," says Haeckel boldly, "to the

of the future of the race, and just as you embody in yourself to-day the chief experiences of the long-forgotten past, so you will be able from your own growth to divine what is to come thousands of years after your death.

This comparative immortality filled me with new hope and unexpected exultation. I felt that it lay with me and in my power to become a sort of beacon for generations of men yet to be born; if I chasten myself, if I live to the highest in me, if I seize every opportunity of extending my knowledge and thought, if I school myself to feel the joy and suffering of others as deeply as my own, I too may yet become one of the sacred guides and, in spite of all insufficiency, help to steer humanity across the unpath'd waters to the undreamed-of shores. Swinburne's great hymn to the Earth-mother took on a new significance to me:

"But what dost thou now
Looking Godward to cry
"I am I, Thou art Thou,
I am low, Thou art high."
I am Thou whom Thou seekest to find,
Find Thou but thyself, Thou art I.

"I the seed that is sown
And the plough-cloven clod
And the plough-share drawn thorough
The germ and the sod.
The seed and the sower, the deed and the doer,
The dust which is God."

No wonder I wanted to meet Haeckel, and in my first long vacation I made a pilgrimage to Jena.

I had written to Haeckel, telling him I was an Irish-American student who wished to see and thank him for his "epoch-making addition" to "Darwinismus." He replied, saying he would be glad to see me and to have a talk, and a talk we had that lasted ever so many hours. He was very affable, ingenuously eager to know what was thought of him in America; "did they regard him as a mere pupil of Darwin? or as a worker beside him in the same field?" I told him the truth, that his embryological knowledge and biogenetic discovery had given him, with Alfred Russel Wallace, rank as an independent thinker among the followers of Darwin.

Reassured in this respect, he let himself go, and gave me a sketch of his monistic philosophy, in which he appeared much more interested than in his scientific discoveries. In the course of this lecture, he spoke with passionate contempt of all who disagreed with, or even sought to modify, his materialistic view. Virchow even, who was a teacher of mine at Berlin, came under the whip for a mere phrase; but I must admit that, when I asked him about Virchow's cell-theory, he admitted his high worth as an independent observer and spoke of him as a fellow-student.

The man was eminently fair-minded, broad-minded even; but he was of his time and thought that the demolition of the superstitions and spiritual guesses of the past was much more important than it in reality was. Like Huxley, he was an iconoclast and expositor of the new biology, rather than an original thinker; and laid stress rather on the ancillary benefits of the new thought than on its hidden spirit content.

When I ventured to extend his creed and show the inferences to be drawn from it and its implications as

regards the future, and consequent influence on man's conduct and hope, he listened, it is true, but with courteous, patient inattention. Though in the prime of life, his blue eyes as bright at 45 or 46 as they had been twenty years earlier, his development seemed to be arrested. He talked of the great book he had in mind (which afterwards appeared as "The Riddle of the Universe "), and spoke as if he would solve all problems in it, satisfy all doubts, never dreaming that he had got on a side-track and was neglecting the inspiring vision to be drawn from his own discovery. He didn't seem to realise that the new knowledge brought new questionings of sense and outward things, and that the riddle of man's existence was never to be answered. An English poet of our time, whom I have quoted at the beginning of this article, knew better. He wrote:

"The sum of all is; there be many paths
Of human goodness, and the blameless life;
Wherein a man may walk towards the Gods,
Till some be found new aspect of Man's mind.
Until a candle light exceed the sun;
Can none read Riddle of the Universe,
It passeth Man's understanding; and shall pass."

It is well for us, no doubt, that we cannot as yet, at any rate, grasp the whole and comprehend the ultimate purpose.

Some incidents of our talk stuck in my mind. Haeckel mentioned the English translator of his "Morphologie" with great respect, Mr. Ray Lankester. I knew nothing of him; but I could not help telling Haeckel that the

translation was disgracefully bad. "To judge by that," I said, "Ray Lankester knows little English and less German."

"You surprise me," Haeckel exclaimed, reprovingly.
"I've been assured by English friends that it was well done and Ray Lankester is a man of very considerable scientific attainments."

I could only stick to my guns and, at the same time, modify the disagreeable impression by expatiating on the incredible difficulties of translation and so forth. Some fifteen or twenty years later, I got to know Ray Lankester in London, and had from him the solution of that riddle, at least.

I told him of Haeckel's touching belief in the excellence of his translation, and asked him without more ado how he came to put his name to such 'prentice work. It was during a dinner at the Athenæum Club, I remember, and the big man (all the three or four Lankester brothers were big men) burst into a peal of laughter.

"I couldn't possibly afford the time," he said, "and so I wrote to Haeckel, telling him at the same time I'd supervise it if he wished. He wrote effusively, and I happened to know a girl at the time who wanted work and had some understanding of German, and so I passed it on to her. The price offered was not enough even for a beginner, and naturally I could give but little time to such ungrateful labour. I looked over a few pages, and thought it fairly done. Haeckel's German is anything but good; if I remember rightly, he coins neologisms by the score, but I thought one could understand the gist of it in its English dress. I'm sorry if it's rotten, but all translators are traitors—you know the Italian—tradutore-traditore."

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There is a good deal of truth in what Ray Lankester said; Haeckel's German is appalling to anyone with a sense of style, and it would have taken years for a master to turn it into acceptable English. Still—I was a little indignant with Lankester, not realising even then how badly most of the world's work is done.

I came away from my visit to Haeckel with high appreciation of the man's ingenuous honesty and kindliness; a real student and scholar, his unremitting industry as a youth had enabled him to complete Darwin's work and to bracket his name for ever with that of the great Englishman. As a populariser, too, of the new knowledge, he did most useful work, and as an iconoclast cleared the ground for the new Temple of Science. But, comparing him with Russel Wallace, or even with Thomas Huxley, he seemed to me of smaller stature, though his discovery placed him on a loftier pedestal. I never wrote to him after leaving, because he told me his correspondence had become enormous; he spoke of answering thousands of letters; and I could see no object in wasting his time or my own. In 1914 Haeckel celebrated his 80th birthday, and has since gone to his long home, unwitting of the misfortunes that have befallen his fatherland. In this, at least, he was fortunate.

The great discovery of Haeckel is an excellent example of what international competition and work may produce of benefit to humanity. Darwin's work fell on receptive ears, not in England, but in Germany; and Haeckel added as much to the Darwinian theory as he received from it. All the nations of Christendom are children of the household of God.

VII

GRANT ALLEN

One Sunday morning, a good many years ago now, I remember seeing a small party of enthusiasts marching into the northern corner of Hyde Park, where they intended to speechify at great length. They carried banners with the inscription "The peace-loving Atheists." The "peace-loving," I imagine, was deprecatory—an attempt to ward off or disarm any appeal to force on the part of the ribald Christian majority!

After knowing Grant Allen, I always thought of him as the typical peace-loving atheist. He could be described with more "ists" than anyone else I ever saw. He was an atheist and pacifist and socialist, a botanist and zoologist and optimist, a chemist and physicist, a scientist of scientists, a monist, meliorist and hedonist, and God knows what "ist" besides. There was no "ism" on earth which he wouldn't defend with clear-eyed impartial pertinacity save one; rationalism was his religion, but patriotism really annoyed him.

Our lives happened to be somewhat closely interwoven. He taught literature at Brighton College in the seventies, and I followed him a little later. Some of the older boys were enthusiastic about him, and so when I met him in 1887, in the South of France, I was prepared to like him, and we became friends almost at first sight.