

THE CENTENARY OF HUXLEY

D. FRASER HARRIS

WHEN LOUIS XIV was asked what the State was, he replied "I am the State." Of Huxley we might say that he was the science of the nineteenth century. In the popular mind he was the type and representative of the science of the Victorian era, and the popular mind was quite right. In the opinion of many religious and "Christian" people he was regarded as not far removed from Anti-Christ. With the name of Huxley will ever be associated the names of Darwin and Tyndall in a kind of unholy alliance. Multitudes of people, who have only the vaguest idea of the facts which these men studied for a lifetime, will continue to regard the three great Victorians only as critics of Biblical tradition, and as the protagonists of some modern horror called "Agnosticism."

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The nineteenth century was but twenty-five years old when Thomas Henry Huxley was born in the quiet country village of Ealing,—the son of a schoolmaster, George Huxley, of whose seven children Thomas was the youngest surviving. Two sisters having married practitioners of medicine, he devoted his mind to that profession, so that in 1841 he became apprenticed to his brother-in-law, Dr. Chandler, at Rotherhithe in the East of London. Here amongst the population of the docks he saw such scenes of squalor, drunkenness and vice as haunted him all his life, and made him determined to do something beyond what is called "philanthropic" for the working men of England. In later life, his lectures to working men became famous all over the world.

Changing his abode to the house of another brother-in-law, Dr. Scott, in North London, Huxley began to read for the matriculation examination of London University. On October 1st, 1842, he entered upon his course of medical study at Charing Cross Hospital. Here he came under the influence of Dr. Wharton Jones, the lecturer on physiology, of whom he afterwards wrote: "I do not know that I have ever felt so much respect for anybody as a teacher, before or since." Even at this early date Huxley was a constant worker with the microscope, and to such purpose that Wharton Jones advised him to publish a paper describing

the existence of a layer of cells in the human brain-sheath which had not previously been recognized. Jones himself revised the paper, so that his promising pupil might appear with credit in the *Medical Gazette* for 1845. The pupil showed his practical gratitude long afterwards by helping to obtain a pension for his old teacher.

Huxley graduated M. B. (London) in 1845, winning the gold medal for anatomy and physiology, but soon found—as so many have found before and since—that a degree by itself is no provider of bread and butter. A friend advised him to apply for an assistant-surgeonship in the Royal Navy, which he obtained with very little trouble. In October, 1846, he was gazetted to H. M. S. *Rattlesnake*, 26 guns, Commander, Captain Owen Stanley. This old frigate was commissioned for a voyage of scientific exploration in the waters between the coast and the great barrier-reef of Australia. Here and in other tropical seas she spent four years. Huxley was to be the naturalist to this expedition; soundings were to be taken and dredgings carried out. While waiting to sail, he attended his first meeting of the British Association (1846)—an assembly over which he was one day to preside, for at Southampton he read his first paper on “The Blood of *Amphioxus*.”

Although he was given a place for his microscope in the well-lighted chart room of the *Rattlesnake*, he was not provided with any modern books of reference, nor does it appear that the scientific aspect of the cruise was unduly emphasized. When the materials were brought up in the dredge, it was found that there was no sieve wherewith to separate and wash the various “finds,” so that the cook had to lend the scientists a meat-cover. From Madeira to Rio there was never less than one inch of water in Huxley’s cabin; the men’s quarters had no ventilation; cockroaches swarmed in their thousands; and as the best food was cocoa and “weevilly” biscuits, it is not surprising that they had two cases of scurvy on board. The officers, with the exception of the captain, regarded the young naturalist with amusement and well-bred contempt, while every now and again the half-finished dissection of some soft-tissued marine creature would be flung overboard as a “mess.” “The Service” is nothing if not tidy.

Two papers sent home to Professor Edward Forbes, the naturalist, were read before the Linnaean Society in 1849, and published in the name of “William” Huxley. As Forbes had failed to acknowledge the receipt of these papers or tell of their fate, Huxley was rather worried at having no news of them. He was to experience worries greater than these. By 1848 he sent home a paper “On the Anatomy and Affinities of the Family of

the Medusae," ready for presentation to the Royal Society. Of this also he heard nothing until his return in 1850.

Here and there he and his brother officers had stirring experiences, as when on one coast they landed to find that a party of white men had all been murdered except the one who told the tale. At some other benighted spot the chief hailed Huxley in an ecstasy of delight as the reincarnated spirit of his dead brother, not even the scientist's temporary red beard being sufficient to prove an alibi. Having an island in the Louisiade archipelago named after him was scarcely a compensation for the continued absence of news about his precious papers.

On November 9th, 1850, the *Rattlesnake* was paid off at Chatham, where ended a voyage which did for Huxley what that of the *Erebus and Terror* did for Hooker and that of the *Beagle* did for Darwin—gave him the chance of interrogating Nature directly. Arrived in London, he soon found out that the Admiralty had no intention of keeping its promise to publish his memoirs, with all their twenty-five carefully drawn plates. The Royal Society, which had previously published his paper on the "Medusae" in the *Transactions*, and which could vote money for research but not for the publication of it, sent him to the Prime Minister, who sent him to the Treasury. The Treasury sent him back to the Prime Minister, on what he felt was a fruitless errand. These inter-departmental delays fretted his eager spirit, until in November, 1851, he found himself at the age of twenty-six elected into the Royal Society. In the following year he was awarded the "Royal" medal, so that he discovered there was some balm in the scientific Gilead for the physician there. In 1853 both he and Tyndall were rejected candidates for chairs at Toronto University, where the chair of zoology after two years delay was filled by the election to it of the relative of an influential Canadian politician! Huxley was learning that if the path to the stars is strewn with roses, there are a good many thorns mixed with those fragrant flowers.

While he was still in a state of justifiable irritation at the pusillanimous postponements of the Treasury and the breach of promise by the Admiralty, he received an order to join his ship at Portsmouth under pain of being struck off the Navy list. Regarding this as adding insult to injury, he resigned his commission in March, 1854. But now that he had left the premier service, the Royal Society felt free to vote towards the publication of his memoirs the sum of £300. The collective title was *Oceanic Hydrozoa*. Huxley, who was acting up to the family motto *tenax propositi*, had a moral victory, but his worldly prospects were even worse

than before. He was an unsuccessful candidate for chairs at the University of Aberdeen, Queen's College, Cork, and King's College, London.

Under these circumstances, he could think of nothing more feasible than to go out to Sydney and start medical practice in the city where was the girl he had left behind him. This lady was his fiancée, Miss Henrietta Heathorn, in whose father's house he had been the recipient of much hospitality when cruising with the *Rattlesnake*. While meditating this hegira to the Antipodes, he heard that he had been elected to a seat on the Council of the Royal Society, so that his scientific reputation was rising in inverse ratio to his income. Distinctions continued to be conferred upon him, for just at this time he was appointed to lecture before the Royal Institution,—a very great honour for so young a man. Writing to his sister about it, he said: "It was the first lecture I had ever given in my life, and to what is considered the best audience in London." He was certainly beginning at the top. "After the Royal Institution," he told his sister, "there is no audience I shall ever fear." Nor did he. When we consider how successful he was as a writer and a speaker, it is certainly interesting to hear from himself that neither writing nor speaking came easily to him.

His time of waiting came to an end in July, 1854, when he obtained the post of Lecturer on Natural History at the Government School of Mines, Jermyn Street, with a salary of £200 a year—about one-fifth of what an hotel pays its chef. So little did the so-called "man in the street" realize the minuteness of the endowments for the teaching of science that, when some years later one of the rich managers of the Royal Institution was asked to support Huxley's candidature for the Fullerian Professorship of Physiology, he said: "But what is the use of £100 to him? I give that to my butler."

The £200, however, removed a load of anxiety, and made it possible to think of marriage. Into that state of blessedness Huxley entered in 1855, having waited eight years for his bride. The chair which he then filled had been rendered vacant by the call of Edward Forbes to the chair of Natural History in Edinburgh. Forbes, always in delicate health, died within two years of his migration to the northern metropolis, and Huxley was invited to be his successor. With characteristic decision, he declined this offer, preferring to be a door-keeper on small salary in the house of science rather than to abide in the tents of Scottish learning on a much larger one. Cultured and critical Edinburgh was to hear him all in good time.

He had not long to wait for another honour for which some men twice his age had to wait fifteen or twenty years. Proposed by the geologist, Sir Roderick Murchison, he was elected in 1858, *nemine contradicente*, into that Holy of Holies, the Athenaeum.

Between Christmas, 1857, and the New Year his first-born, a son, was christened Noel. Five years later, in the same study in which he had waited for the glad news of the birth, he beheld through a mist of tears the cold little body of the laughing golden-haired child who had been carried off within forty-eight hours by the microbic diabolism known on earth as scarlet fever. In that same room, four years before, he had recorded in his diary that his objects in life were these: "To smite all humbugs, however big; to give a nobler tone to science; to set an example of abstinence from petty personal controversies, and of toleration for everything but lying; to be indifferent as to whether the work is recognized as mine or not so long as it is done,"—these were aims of the man whom thousands of canting pietists as well as thoughtful "believers" regarded as a veritable Man of Sin.

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In 1859 Huxley attended the Aberdeen meeting of the British Association under the Presidency of Prince Albert, but 1859 is memorable for an event much greater than any meeting of the British Association for the Advancement of Science. On November 24th the firm of John Murray published a volume entitled *The Origin of Species by Means of Natural Selection*, a book destined to arouse more controversy and ill feeling than perhaps any other book, with the exception of the Bible.

The author, Charles Darwin, an English naturalist of private means who lived in all but complete seclusion at his country house of Drone in Kent, had made a study of the perplexing problem how the multitude of existing species of plants and animals had come into existence. It is not too much to say that the world of things of the mind has never been the same since November, 1859. Why a scientific attempt to explain the origin of species should have produced nothing less than an intellectual earthquake, is not, of course, self-evident. That a book written in a dry style, and so full of close reasoning upon a multitude of facts about plants and animals the very names of which the public had never heard, should have aroused such a storm of hostility, is however explicable enough. It developed a theory of becoming in regard to the human race which points unmistakably to the close kinship between human beings and the higher apes. This is but one of many conclusions

reached in that monumental work. But it was the one on which the non-scientific public naturally fixed its attention, and which—for a variety of reasons—it strongly objected to believe.

The word "species" nowhere occurs in the old Hebrew account of the creation of man and other living things. It is thus only by a gratuitous assumption of species in the modern sense as referred to in Genesis that one is able to compare the Mosaic cosmogony with the Darwinian hypothesis at all. Charles Darwin was, of course, not the first evolutionist. But for one person who had heard of Lamarck, a thousand were to hear of Darwin, through Huxley.

In the Biblical narrative we have a poetically worded declaration that certain "kinds" of animals were called into existence in a perfect or adult state out of water or earth, by divine power, at some remote but entirely unknown date. So it was concluded that they have never varied in their characters since that time. If anything is taught which can be expressed in modern language, it would be the fixity or immutability of species; but Darwin's whole treatise is designed to show that a species is not some fixed, immutable, unprogressive thing; on the contrary, that innumerable links may be found between any two extremes selected for study in the realm of living beings. On the face of it, the *ex cathedra* account in Genesis *explained* nothing; it gave a narrative of events that were said to have occurred once and for all in the history of the earth. The theory of organic evolution or becoming is at least an attempt to provide an intelligible explanation of *how* the myriad of living forms have come to present those characters which we now find them possessing. To comprehend Darwin's book, more than a superficial acquaintance with zoological, palaeontological and ethnological science is necessary,—a prerequisite which, it is perfectly certain, not one per cent of those who denounced him as an "atheist" possessed.

The *Origin* did not come to Huxley, as it did to many others, like a bolt from the scientific blue. Along with Lyell and Hooker, he had been in Darwin's confidence regarding its main thesis. Huxley reviewed it in *The Times* for December 26th, 1859. It is difficult for us to-day, when we find the idea of evolution applied everywhere, from religious systems to airplanes, to realize the intensity of the opposition aroused by the chief exponent of the Darwinian hypothesis. Both by clerics and by the laity, Huxley was denounced as a godless disturber of the theological peace.

Clerical opposition was brought to a vivid focus by Bishop Willberforce, at the meeting of the British Association in Oxford.

in 1860. The occasion was one of the most memorable in Huxley's long controversial career. On Saturday, June 30th, Dr. Draper of New York was to read a paper on "The Intellectual Development of Europe, considered with reference to the views of Mr. Darwin." Huxley had not intended to be present at the Biological Section that morning. Greatly in need of a rest, he had intended joining a country-house party, when quite accidentally he met old Robert Chambers, the anonymous author of *Vestiges of Creation*. On learning of Huxley's intention, Chambers begged him not to desert them, as it was rumoured that the clergy meant to turn out in force to support the bishop whose eloquence in debate was well-known.

One who was present has estimated that there were seven hundred persons in a room not designed to accommodate more than one-third of that number. A great many were ladies, ready with their handkerchiefs to acclaim the champion of the Church. In irreverent circles the bishop was known as "Soapy Sam," for Samuel was his Christian name. The chairman, Professor Henslow the botanist, had beside him on the platform (in addition to the bishop and Huxley) Sir Joseph Hooker, Sir John Lubbock, Professor Beale of King's College, London, and Sir Benjamin Brodie.

Dr. Draper droned on for about an hour. Several speakers had followed him, when it was with a sigh of relief and anticipation that the audience welcomed the suave and gifted ecclesiastic. Wilberforce's speech has been described by one who heard it as fluent, florid, unfair and jejune. After half-an-hour of this sort of rhetoric, his Lordship turned to Professor Huxley and sneeringly asked him whether it was through his grandfather or his grandmother that he was descended from a monkey.

Huxley, perceiving in an instant that by descent to personalities his antagonist had gone outside the bounds of gentlemanly behaviour, turned to Sir Benjamin Brodie and whispered "The Lord hath delivered him into my hands." Rising, pale and determined, he began in a quiet tone of voice to expound the subject from a scientific point of view. He declared that if there was any question of shame, he would not be so ashamed to have a monkey for an ancestor as to have been descended from a man who prostituted the gifts of culture and eloquence in the service of prejudice and falsehood. The effect was what journalists call "electrical." One lady fainted, and the writer whose account has here been followed jumped out of his chair. There is some doubt as to the actual words Huxley used, for the remainder of the sentence was drowned in the applause to which some of the clerics who had "come to curse" contributed.

When the commotion had subsided, Hooker continued the debate, and had no difficulty in showing that Wilberforce had neither the most elementary acquaintance with botany nor the least grasp of those principles expounded in the *Origin of Species*. From 1862 onwards, Huxley became a serious student of ethnology, and he was soon able to discover evidences of "Man's Place in Nature"—taking this phrase as title for one of his most successful books. Next comes on the scene Sir Richard Owen, a comparative anatomist of the school of Cuvier, who had never adopted the evolutionary hypothesis, and who in particular had committed himself to the anatomical inaccuracy that in the brain of man alone are to be found certain structures one of which is the "hippocampus minor." We have an echo of this controversy in *The Water Babies*. Although the competent anatomist Sir William Flower demonstrated to a gathering of experts at the College of Surgeons that the brain of the ape does possess a "hippocampus," Owen would never admit his mistake. Huxley showed in opposition to him that the structural differences between man and the higher apes are no greater than those between the higher and the lower apes themselves. In 1866 appeared one of his best known and most widely read books, *Lessons in Elementary Physiology*, from which so many of us got our first real physiological information. It has been republished 32 times, and is still read, having been brought up to date by Professor Barcroft of Cambridge.

In January, 1869, Huxley performed what Murchison described as the boldest act of his career, for he delivered in Edinburgh on a Sunday evening his famous lecture "The Physical Basis of Life." Royal and (especially) saintly Edinburgh was thoroughly scandalized. But the phrase "the physical basis of life" became thenceforth the definition of protoplasm, and such it remains to the present day.

The year 1869 was notable in another respect, namely, for the invention of the word "Agnosticism," which many people think is far older than Huxley's time. In the Metaphysical Society founded by Knowles, late editor of *The Nineteenth Century*, Huxley and two or three others were unable to range themselves under any of the familiar sectarian titles, such as Unitarian, Positivist, etc. It was inconvenient to have no class name, so the word "Agnostic" was coined, to indicate merely a person who does not know for certain a vast number of things about which other people profess to know everything. How Huxley came to introduce the term had better be told in his own words:

When I reached intellectual maturity, and began to ask myself whether I was an atheist, a theist or a pantheist, a materialist or an idealist, a Christian or a freethinker. . . I came to the conclusion that I had neither art nor part with any of these denominations except the last...They were quite sure they had attained a certain *gnosis*, had more or less successfully solved the problems of existence, while I was quite sure I had not, and had a pretty strong conviction that the problem was insoluble. . . So I took thought, and invented what I conceived to be the appropriate title of "Agnostic."

The Agnostic position in philosophy is a sort of Scottish verdict of "Not proven."

In this year, as President of the British Association, Huxley gave the address on "Biogenesis and Abiogenesis," in which he discussed the agelong problem of the possible emergence of life from matter that was not living. The subject had really been closed in favour of Biogenesis by the experiments of Pasteur, but certain experiments by Professor Bastian of King's College seemed to raise fresh doubts. Huxley repeated Pasteur's work, and showed once more that the supposed appearance of life from the non-living was due to insufficient sterilization of the medium,—a pit-fall that had proved disastrous to many earlier investigators. In 1870 he allowed himself to be elected to the London School Board, where he was to fight long and valiantly for the claims of natural science in national education. It is significant that he was entirely in favour of retaining the use of the Bible in schools, as a means of introducing religious and ethical ideas in the education of the young. In 1871 he had a serious breakdown in health. A visit to Switzerland always did him good, but this year he went to St. Andrews, where he wrote—among other reviews—a notice of Darwin's *Descent of Man*, which had just been published. On seeing one of these, Hooker said: "When I read Huxley, I feel quite infantile in intellect."

It will easily be realized that a "pure scientist", with a family to support, could not cease work and depart for a long holiday on his own resources. So Huxley was overcome with gratitude when he received a letter from Darwin telling how a few friends had placed £2,100 to his credit in the bank. Darwin was showing practical sympathy with his "bull-dog." He sailed to the Mediterranean, where he enjoyed everything he saw,—Gibraltar, Italy, Egypt, and the tideless sea.

His famous *Course of Elementary Instruction in Practical Biology* was published in 1875, and revised thirteen times before 1888. When Darwin received his copy, he exclaimed "Lord!

How I wish I had gone through such a course." About this time Huxley made a memorable speech at Birmingham on the occasion of the unveiling of the fine statue of Priestley. In the life of Priestley he had a congenial theme, for here he saw a pioneer in science and in political reform, who had been persecuted and driven from England for opinions which later became the very commonplaces of orthodoxy.

The British Association meeting for 1874 at Belfast has become famous for the Presidential address delivered by Tyndall which for long was regarded as the exposition of materialism *in excelsis*. At this meeting Huxley delivered his memorable lecture on "Animals as Automata," in which he showed how capably he could handle the psychological and the historical aspects of a biological problem, his estimate of Descartes's contributions to physiology being particularly illuminating. In this discourse we find an interesting treatment of functional momentum, and the ever debatable relations of consciousness to the brain. It is in the same address that consciousness is regarded as an epiphenomenon. "The soul," said Huxley, "stands related to the body as the bell of a clock to the works, and consciousness answers to the sound which the bell gives out when it is struck." To us who believe in consciousness as a cause of neural activity, this view—which loses sight of the reality of psychogenesis—is only a partial one, yet it was one that needed to be emphasised at the time at which it was proclaimed.

The year 1876 saw Huxley in the thick of the controversy that raged round the subject of vivisection. Even at the present day there is not much common sense shown by the opponents of this much misunderstood practice. Huxley was asked to serve on this first Commission, and he did so, believing—with all sensible lovers of animals—that the needful experiments should be done decently and in order, which means under appropriate legal safeguards. One sentence he wrote on the subject has so true a prophetic ring that it must be quoted: "Unless the fanaticism of philozoic sentiment overpowers the voice of humanity, and the love of dogs and cats supersedes that of one's neighbour, the progress of experimental physiology and pathology will indubitably place medicine and hygiene on a rational basis." Huxley served on no fewer than nine other Commissions.

In the summer session of 1875 he took over the academic duties of Professor Wyville Thomson, who was still absent on the *Challenger* expedition. In eleven weeks he described the entire animal kingdom in fifty-four lectures. A member of his class has left a vivid impression of it. Without a knowledge of Greek, he

says, he had the greatest difficulty in following the lecturer, and he considered that the strain on his attention for the one hour was equal to that of a whole day's work. Writing from Edinburgh during the first week of this class, Huxley says that the numbers are over three hundred, and that for the first few days (as is permitted) a number of parsons mustered in strength. "I fear," he adds, "that they came to curse, and did not remain to pray." His joy on receiving a cheque for £1,000 at the end of the term was intensified by the reflection that a southerner had actually gone to Scotland and made some profit out of the natives. His sense of humour was indeed very highly developed. Only the lack of space prevents recital of some excellent stories told of him and by him. He was, for one thing, an apt phrase-maker, calling Sir John Richardson, the gruff but good-hearted Arctic explorer, "that fine old Polar Bear."

Writing to his daughter, Huxley confides to her that all women are mysteries. But, he adds, "they are mysteries of iniquity as well as mysteries of godliness." Describing one of his answers to the Bishop of Peterborough as "soft," he continues: "soft not with the softness of the answer which turneth away wrath, but with that of the pillow which smothered Desdemona." He tells Knowles with zest that whereas he had called the Gadarene swine "porters of the devils," the printer had made this read "porkers of the devils"—which seemed much more sensible. Still more annoying was it when Huxley's phrase "the current formula" (of the Lord's Prayer) appeared as the *canting* formula. His handwriting, as happens with many thinkers, was extremely illegible, Dean Stanley's alone being a little worse.

In the autumn of 1876, accompanied by his wife, he visited the United States of America, where he was promised a welcome warmer than that which had been given to the Prince of Wales. What he particularly wanted to see was the unique collection of fossils from the Tertiary strata of the far West, which had been brought together at Yale University by his friend, Professor Marsh. On meeting him at the station, Marsh suggested that he should see first the fine buildings of the university, but Huxley replied: "I can see bricks and mortar in my own country. Show me what you have got inside." The gem of the collection was a series illustrating the ancestry of the Norse. Huxley prophesied that there was a "missing link," a five-toed equine to be found somewhere, and within two months of this prediction Professor Marsh found the fossil in the lowest Eocene.

Not only was his sense of humour strongly developed, but

his sense of what was fitting was equally pronounced. He refused to join in a movement to put pressure on the Dean of Westminster that the body of George Eliot should be buried in the Abbey. Of all people in the world, it was Herbert Spencer who urged this amazing request, and to him Huxley wrote a most sensible letter, pointing out that the Abbey was a Christian church and not a Pantheon. He added: "Those who elect to be free in thought and deed must not hanker after the rewards. . . which the world offers to those who put up with its fetters."

About this time he refused a call to the chair of physiology at Oxford, preferring to remain in the intellectual maelstrom of the great city on the Thames rather than enter upon the academic isolation of the ancient city on the Isis. 1882 was a year full of incident for him. In that autumn he was elected President of the Royal Society, thus winning the bluest of blue ribbons in British science. Francis Balfour, the Cambridge embryologist, was killed in the Alps, and on April 19th Darwin died. As was appropriate, Huxley wrote the obituary notices, in *Nature* and in the *Proceedings of the Royal Society*. In 1885 the "whirligig of time brought its revenges," for in that year he was actually made a D. C. L. of Oxford, on a spot only a stone's throw from that other spot where, twenty-five years before, he had been within very little of being lynched. The home of lost causes had forgiven him.

In June of this year, on the occasion of the unveiling of a statue of Darwin at the head of the stairs in the Great Hall of the Museum at South Kensington, in presence of the Prince of Wales and a distinguished company, Huxley made one of his famous speeches, containing the pregnant sentence: "Science commits suicide when it adopts a creed." At the close of the year, being sixty years of age, he had to retire on a small pension. But it was impossible that he could be intellectually dead, whatever he might be officially, as he himself put it. So he entered upon a protracted discussion in *The Nineteenth Century* with Gladstone on the general subject of Genesis *versus* modern zoology. These articles, which were trenchant and very brightly written, were eagerly read by thoughtful persons. No sooner was the Gladstone controversy over than Huxley found himself attacked by the Rev. Dr. Wace, Principal of King's College, London, who declared that Agnosticism was a mere evasion, and that Agnostics should forthwith be called infidels. This was just what Huxley had been at such pains to declare ought not to be done. Once more he explained how Agnosticism "simply means that a man shall not say he knows or believes that which he has no scientific grounds for professing to know or believe." The

narrative of the bedevilled swine figured prominently in this spirited debate.

In 1889 he built a house at Eastbourne which he called "Hodslea"—the original of the name of his family. Thither he retired for the tonic of the fine air of Beechy Head, so that the distractions of London saw less and less of him. He went to the city from time to time to discharge such public duties as were still unavoidable. Lord Salisbury consulted him, on behalf of the Queen, with reference to the institution of an Order analogous to the Prussian for recognizing eminence in literature, art and science. Doubtless the Order of Merit founded by King Edward was the outcome of this conference. Huxley suggested that the Council of the Royal Society might submit names of persons worthy to be admitted to it.

His friends were dropping off. In 1893 Jowett and Sir Andrew Clark, his physician, died. In the same year died John Tyndall, and Huxley had the unique experience of hearing his own funeral sermon preached by a not too clear-headed divine. He would still have his joke. Apropos of his last Royal Academy banquet, he wrote that it was pleasant to revisit the world, and to have a glimpse at the flesh (on the walls of the Academy) and even of the devil (for several bishops were there).

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His last public appearance was on August 8th, 1894, at the Oxford meeting of the British Association, where he seconded the vote of thanks moved to the President—Lord Salisbury—for his address. The scene was one not easily forgotten. It was the evening of a perfect English summer day, and the tiered seats of the venerable Sheldonian Theatre were filled by one of the most distinguished companies that had ever been gathered there. A former Prime Minister of England had been thanked for his discourse by the greatest mathematical physicist since Newton—Lord Kelvin. Professor Huxley's task on that occasion was one of the most difficult he had ever been called upon to perform. For in the speech to which we had just listened, Lord Salisbury had in playful banter enumerated all the *a priori* and theoretical difficulties which a layman finds in adopting the evolutionary hypothesis, and he had laid almost undue stress on what was still disputable, uncertain and unknown in science. When Lord Kelvin had sat down, Huxley rose slowly from his place, robed in the scarlet gown of an Oxford D. C. L. Some were afraid his voice could not fill that immense auditorium. Some thought the physical strain

would be too much for him. Many expected him to repudiate indignantly the suggestion that the evolutionary theory presented more problems than explanations, after it had been before the scientific world for thirty-six years. But none of these things happened. In Professor Osborn's words: "He raised his figure and his voice to their full height, and veiled an unmistakable and vigorous protest in the most gracious and dignified speech of thanks." It was the fitting conclusion to a great career.

Huxley died on June 29th, 1895, and was buried in neither Abbey nor Pantheon, but at Finchley—in the same grave as his first-born. Possibly to no other man did honours and distinctions come in so unbroken a series. He was a graduate of ten universities, a member of seventeen learned Societies in London alone, of fourteen elsewhere in the Empire, of eight in the United States, and of thirty-seven in other parts of the world. In spite of his ill-health, his industry was prodigious. He was the author of thirty-one books, eighty-eight essays, and one hundred and seventy-nine scientific memoirs.

The place of biology, and especially its practical teaching in British education to-day, are the outcome of his long fight against the old traditional and purely linguistic training. He was not merely a destructive critic; he had something to offer in the place of each thing which he condemned. By the spoken and by the written word, Thomas Henry Huxley inaugurated what it is not too much to call the era of the recognition of science within the British Dominions. He was the Carlyle of Natural History. But, unlike the Scottish sage, besides finding fault, he laid foundations which can never be removed.

He found science a Cinderella; he left her a Princess.