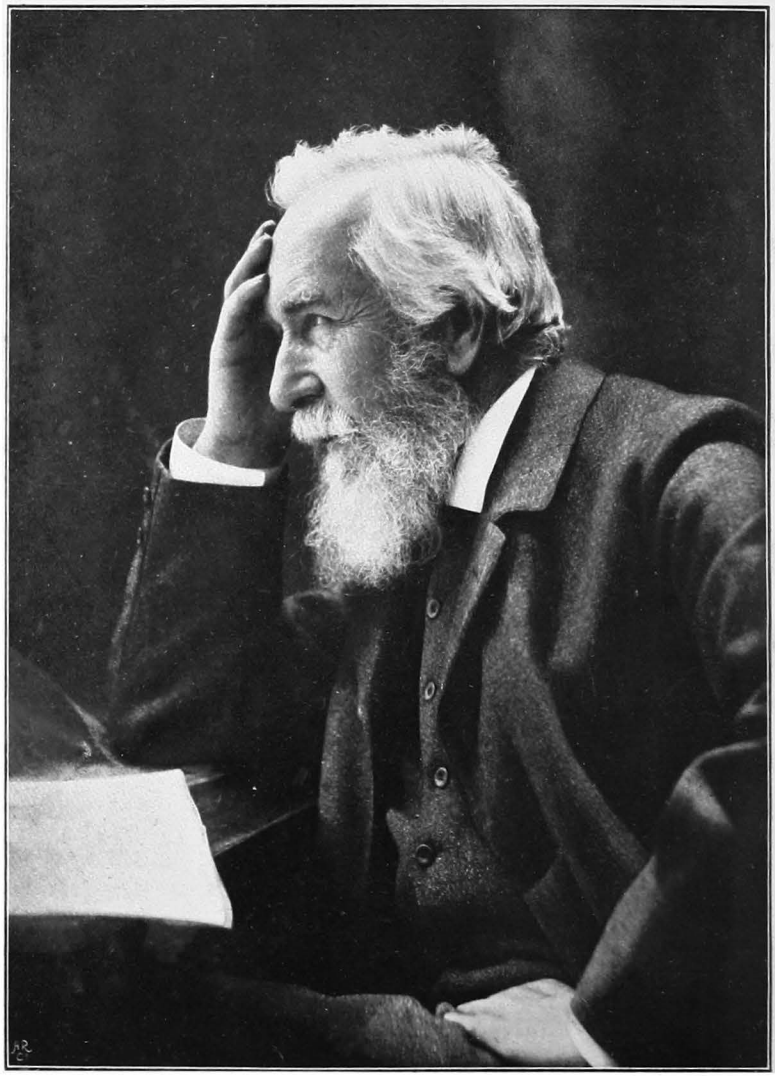
LAST WORDS ON EVOLUTION

ERNST HAECKEL



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Ernst Haeckel.

Frontispiece.

LAST WORDS ON EVOLUTION

Last Words on Evolution

A Popular Retrospect and Summary

BY

ERNST HAECKEL

Professor at Jena University

TRANSLATED FROM THE SECOND EDITION

BY

JOSEPH McCABE

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INTRODUCTION

Not very long ago the sensational announcement was made that Professor Haeckel had abandoned Darwinism and given public support to the teaching of a Jesuit writer. There was something piquant in the suggestion that the "Darwin of Germany" had recanted the conclusions of fifty years of laborious study. Nor could people forget that only two years before Haeckel had written with some feeling about the partial recantation of some of his colleagues. Many of our journals boldly declined to insert the romantic news, which came through one of the chief international press agencies. Others drew the attention of their readers, in jubilant editorial notes, to the lively prospect it opened out. To the many inquiries addressed to me as the "apostle of Professor Haeckel," as Sir Oliver Lodge dubs me in a genial letter, I timidly represented that even a German reporter sometimes drank. But the correction quickly came that the telegram had exactly reversed the position taken up by the great biologist. It is only just to the honourable calling of the reporter to add that, according to the theory current in Germany, the message was tampered with by subtle and ubiquitous Jesuitry. Did they not penetrate even into the culinary service at Hatfield?

I have pleasure in now introducing the three famous

lectures delivered by Professor Haeckel at Berlin, and the reader will see the grotesqueness of the original announcement. They are the last public deliverance that the aged professor will ever make. His enfeebled health forbids us to hope that his decision may yet be undone. He is now condemned, he tells me, to remain a passive spectator of the tense drama in which he has played so prominent a part for half a century. For him the red rays fall level on the scene and the people about him. It may be that they light up too luridly, too falsely, the situation in Germany; but the reader will understand how a Liberal of Haeckel's temper must feel his country to be between Scylla and Charybdis—between an increasingly clear alternative of Catholicism or Socialism—with a helmsman at the wheel whose vagaries inspire no confidence.

The English reader will care to be instructed on the antithesis of Virchow and Haeckel which gives point to these lectures, and which is often misrepresented in this country. Virchow, the greatest pathologist and one of the leading anthropologists of Germany, had much to do with the inspiring of Haeckel's Monistic views in the fifties. Like several other prominent German thinkers, Virchow subsequently abandoned the positive Monistic position for one of agnosticism and scepticism, and a long and bitter conflict ensued. It is hardly too much to say that Virchow's ultra-timid reserve in regard to the evolution of man and other questions has died with him. Apart from one or two less prominent anthropologists, and the curious distinction drawn by Dr. A. R.

Wallace, science has accepted the fact of evolution, and has, indeed, accepted the main lines of Haeckel's ancestral tree of the human race.

In any case, Haeckel had the splendid revenge of surviving his old teacher and almost lifelong opponent. Berlin had for years been dominated by the sceptical temper of Virchow and Du Bois-Reymond. The ardent evolutionist and opponent of Catholicism was impatient of a reserve that he felt to be an anachronism in science and an effective support of reactionary ideas. It was, therefore, with a peculiar satisfaction that he received the invitation, after Virchow's death, to address the Berlin public. Among the many and distinguished honours that have been heaped upon him in the last ten years this was felt by him to hold a high place. He could at last submit freely, in the capital of his country, the massive foundations and the imposing structure of a doctrine which he holds to be no less established in science than valuable in the general cause of progress.

The lectures are reproduced here not solely because of the interest aroused in them by the "Jesuit" telegram. They contain a very valuable summary of his conclusions, and include the latest scientific confirmation. Rarely has the great biologist written in such clear and untechnical phrases, so that the general reader will easily learn the outlines of his much-discussed Monism.

JOSEPH McCABE.

PREFACE

In the beginning of April, 1905, I received from Berlin a very unexpected invitation to deliver a popular scientific lecture at the Academy of Music in that city. I at first declined this flattering invitation, with thanks, sending them a copy of a printed declaration, dated 17th July, 1901, which I had made frequent use of, to the effect that "I could not deliver any more public lectures, on account of the state of my health, my advanced age, and the many labours that were still incumbent on me."

I was persuaded to make one departure from this fixed resolution, firstly, by the pressing entreaties of many intimate friends at Berlin. They represented to me how important it was to give an account myself to the educated Berlin public of the chief evolutionary conclusions I had advocated for forty years. They pointed out emphatically that the increasing reaction in higher circles, the growing audacity of intolerant orthodoxy, the preponderance of Ultramontanism, and the dangers that this involved for freedom of thought in Germany, for the university and the school, made it imperative to take vigorous action. It happened that I had just been following the interesting efforts that the Church has lately made to enter into a peaceful compromise with its deadly enemy, Monistic science. It has decided to accept to a certain extent, and to accommodate to its

creed (in a distorted and mutilated form) the doctrine of evolution, which it has vehemently opposed for thirty years. This remarkable change of front on the part of the Church militant seemed to me so interesting and important, and at the same time so misleading and mischievous, that I chose it as the subject of a popular lecture, and accepted the invitation to Berlin.

After a few days, when I had written my discourse, I was advised from Berlin that the applications for admission were so numerous that the lecture must either be repeated or divided into two. I chose the latter course, as the material was very abundant. In compliance with an urgent request, I repeated the two lectures (17th and 18th April); and as demands for fresh lectures continued to reach me, I was persuaded to add a "farewell lecture" (on 19th April), in which I dealt with a number of important questions that had not been adequately treated.

The noble gift of effective oratory has been denied me by Nature. Though I have taught for eighty-eight terms at the little University of Jena, I have never been able to overcome a certain nervousness about appearing in public, and have never acquired the art of expressing my thoughts in burning language and with appropriate gesture. For these and other reasons, I have rarely consented to take part in scientific and other congresses; the few speeches that I have delivered on such occasions, and are issued in collected form, were drawn from me by my deep interest in the great struggle for the triumph of truth. However, in the three Berlin lectures—my

last public addresses—I had no design of winning my hearers to my opinions by means of oratory. It was rather my intention to put before them, in connected form, the great groups of biological facts, by which they could, on impartial consideration, convince themselves of the truth and importance of the theory of evolution.

Readers who are interested in the evolution-controversy, as I here describe it, will find in my earlier works (*The History of Creation*, *The Evolution of Man*, *The Riddle of the Universe*, and *The Wonders of Life*) a thorough treatment of the views I have summarily presented. I do not belong to the amiable group of "men of compromise," but am in the habit of giving candid and straightforward expression to the convictions which a half-century of serious and laborious study has led me to form. If I seem to be a tactless and inconsiderate "fighter," I pray you to remember that "conflict is the father of all things," and that the victory of pure reason over current superstition will not be achieved without a tremendous struggle. But I regard *ideas* only in my struggles: to the *persons* of my opponents I am indifferent, bitterly as they have attacked and slandered my own person.

Although I have lived in Berlin for many years as student and teacher, and have always been in communication with scientific circles there, I have only once before delivered a public lecture in that city. That was on "The Division of Labour in Nature and Human Life" (17th December, 1868). I was, therefore, somewhat gratified to be able to speak there again (and for

the last time), after thirty-six years, especially as it was in the very spot, the hall of the Academy of Music, in which I had heard the leaders of the Berlin University speak fifty years ago.

It is with great pleasure that I express my cordial thanks to those who invited me to deliver these lectures, and who did so much to make my stay in the capital pleasant; and also to my many hearers for their amiable and sympathetic attention.

ERNST HAECKEL.

JENA, *9th May*, 1905.

APPENDIX

EVOLUTIONARY TABLES

I.—GEOLOGICAL AGES AND PERIODS

Ages in the Organic History of the Earth.	Periods of Geology.	Vertebrate Fossils.	Approximate length of Paleontological Periods.
I. Archeozoic age (primordial) Age of invertebrates	1. Laurentian 2. Huronian 3. Cambrian	No fossil remains of vertebrates	52 million years Sedimentary strata 63,000 ft. thick
II. Paleozoic age (primary) Age of fishes	4. Silurian 5. Devonian 6. Carboniferous 7. Permian	Fishes Dipneusts Amphibia Reptiles	34 million years Sedimentary strata 41,200 ft. thick
III. Mesozoic age (secondary) Age of reptiles	8. Triassic 5. Jurassic 10. Cretaceous	Monotremes Marsupials *Mallotheria* Pro-placentals	11 million years Sedimentary strata 12,200 ft. thick
IV. Cenozoic age (tertiary) Age of mammals	11. Eocene 12. Oligocene 13. Miocene 14. Pliocene	*Prosimiæ* Lemurs *Cynopitheca* Baboons *Anthropoides* Man-like apes *Pithecanthropi* Ape-men	3 million years 3,600 ft. thick
V. Anthropozoic age (quaternary) Age of man	15. Glacial 16. Post-glacial	Pre-historic man Savage and civilised man	300,000 years Sedimentary strata little thickness

2A.—MAN'S GENEALOGICAL TREE—*First Half*

EARLIER ANCESTRAL SERIES, WITHOUT FOSSIL REMAINS, BEFORE THE SILURIAN PERIOD

Chief Stages.	Ancestral Stem-Groups.	Living Relatives of our Ancestors.	Paleontology.	Ontogeny.	Morphology.
Stages 1—5: PROTIST-ANCESTORS Unicellular organisms	1. MONERA (Plasmodoma) without nuclei	1. CHROMACEA (*Chroococcus*) *Phycochromacea*	O	!?	I
	2. ALGARIA Unicellular algæ with nuclei	2. PAULOTOMEA *Palmellacea* *Eremosphaera*	O	!?	I
1—2: Plasmodomous Protophyta	3. LOBOSA Unicellular (Amœboid) Rhizopods	3. AMŒBINA *Amœba* *Lecocyta*	O	!!	II
3—5: Plasmophagous Protozoa	4. INFUSORIA (Unicellular)	4. FLAGELLATA *Euflagellata* *Zoomonades*	O	?	II
	5. BLASTÆADES Multicellular cell-colonies	5. CATALLACTA *Magosphaera* *Volvocina* *Blastula?*	O	!!!	III
Stages 6—11: INVERTEBRATE METAZOA-ANCESTORS 6—8: Cœlenteria, without anus or body-cavity	6. GASTRÆADES with two germinal layers	6. GASTRULA *Hydra, Olynthus, Orthonectida*	O	!!!	III
	7. PLATODES I. *Platodaria* (without nephridia)	7. CRYPTOCŒLA (*Convoluta*) (*Proporus*)	O	?	I
	8. PLATODES II. *Platodinia* (with nephridia)	8. RHABDOCŒLA (*Vortex*) (*Monotus*)	O	?	I
9—11: Vermalia, with anus and body-cavity	9. PROVERMALIA *Rotatoria* Primitive worms	9. GASTROTRICHA *Trochozoa* *Trochophora*	O	?	I
	10. FRONTONIA (*Rhynchelminthes*) Snouted worms	10. ENTEROPNEUSTA *Balanoglossus* *Cephalodiscus*	O	?	I
	11. PROCHORDONIA Worms with chorda	11. COPELATA *Appendicaria*	O	!!	II
Stages 12—15: MONORRHINA-ANCESTORS Earliest vertebrates, without jaws or pairs of limbs, with single nostril	12. ACRANIA I. (Prospondylia)	12. LARVÆ OF AMPHIOXUS	O	!!!	II
	13. ACRANIA II. Later skull-less animals	13. LEPTOCARDIA Amphioxus (Lancelet)	O	!	III
	14. CYCLOSTOMA I. (Archicrania)	14. LARVÆ OF PETROMYZON	O	!!!	II
	15. CYCLOSTOMA II. Later round-mouthed animals	15. MARSIPOBRANCHIA Myxinoides Petromyzontes	O	!	II

2B.—MAN'S GENEALOGICAL TREE—*Second Half*

LATER ANCESTRAL SERIES, WITH FOSSIL REMAINS, BEGINNING IN THE SILURIAN

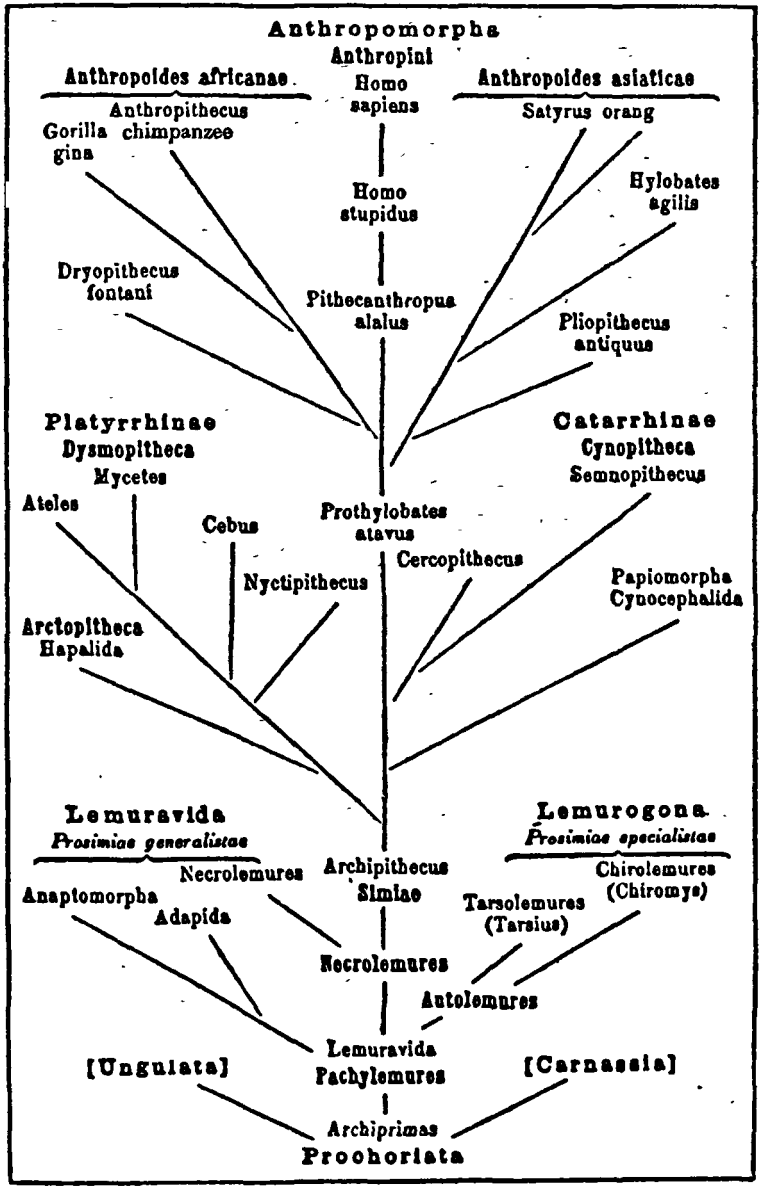
Geological Periods.	Stem-Groups of Ancestors.	Living Relatives of our Ancestors.	Palæontology.	Ontogeny.	Morphology.
Silurian	16. SELACHII Primitive fishes *Proselachii*	16. NOTIDANIDES Chlamydoselachus Heptanchus	I	! !	III
Silurian	17. GANOIDES Plated fishes *Proganoides*	17. ACCIPENSERIDES Sturgeon, Polypterus	II	!	II
Devonian	18. DIPNEUSTA *Paladipneusta*	18. NEODIPNEUSTA Ceratodus, Protopterus	I	! !	II
Carboniferous	19. AMPHIBIA *Stegocephala*	19. PHANEROBRANCHIA and Salamandrina (Proteus, Triton)	III	! ! !	III
Permian	20. REPTILIA *Proreptilia*	20. RHYNCOCEPHALIA Primitive lizards Hatteria	III	! !	II
Triassic	21. MONOTREMA *Promammalia*	21. ORNITHODELPHIA Echnida Ornithorhyncus	I	! ! !	III
Jurassic	22. MARSUPIALIA *Prodidelphia*	22. DIDELPHIA Didelphys, Perameles	I	! !	II
Cretaceous	23. MALLOTHERIA *Prochoriata*	23. INSECTIVORA Erinaceida (Ictopsida+)	III	!	
Older Eocene	24. LEMURAVIDA Earlier lemurs Dent. 3, 1, 4, 3	24. PACHYLEMURES (*Hypopsodus*+) (*Adapis*+)	III	? ?	II
Later Eocene	25. LEMUROGONA Later lemurs Dent. 2, 1, 4, 3	25. AUTOLEMURES (*Eulemur*) (*Stenops*)	II	! ?	II
Oligocene	26. DYSMOPITHECA Western apes Dent. 2, 1, 3, 3	26. PLATYRRHINÆ (*Anthropops*+) (*Homunculus*+)	I	!	II
Older Miocene	27. CYNOPITHECA Baboons (tailed)	27. PAPIOMORPHA (*Cynocephalus*)	I	!	III
Later Miocene	28. ANTHROPOIDES Anthropoid apes (tailless)	28. HYLOBATIDA Hylobates Satyrus	I	! !	III
Pliocene	29. PITHECANTHROPI Ape-like men (alali = speechless)	29. ANTHROPITHECA Chimpanzee Gorilla	II	! ! !	III
Pleistocene	30. HOMINES (loquaces = with speech)	30. WEDDAHS Australian natives	I	! ! !	III

3.—CLASSIFICATION OF THE PRIMATES.

N.B.—* indicates extinct forms, † living groups, ‡ the hypothetical stem-form. *Cf. History of Creation*, chap. xxvii. ; *Evolution of Man*, chap. xxiii.

Orders.	Sub-Orders.	Families.	Genera.
I PROSIMIAE Lemurs (Hemipitheci) The orbits imperfectly separated from the temporal depression by a bony arch. Womb double or two-horned. Placenta diffuse, indeciduate (as a rule). Cerebrum relatively small, smooth, or little furrowed.	1. LEMURAVIDA (*Palalemures*) Early lemurs (generalists) Originally with claws on all or most fingers: later transition to nails. Tarsus primitive.	1. PACHYLEMURES* (*Hypopsodina*) Dent. $44=\frac{3}{3}\cdot\frac{1}{1}\cdot\frac{4}{4}\cdot\frac{3}{3}$ Primitive dentition	*Archiprimas*‡ *Lemuravus** Early Eocene *Pelycodus** Early Eocene *Hypopsodus** Late Eocene
		2. NECROLEMURES (*Anaptomorpha*) Dent. $40=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{4}{4}\cdot\frac{3}{3}$ Reduced dentition	*Adapis** *Plesiadapis** Necrolemur*
	2. LEMUROGONA (*Neolemures*) Modern lemures (specialists) All fingers usually have nails (except the second toe). Tarsus modified	3. AUTOLEMURES† (*Lemurida*) Dent. $36=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{3}{3}\cdot\frac{3}{3}$ Specialised dentition	*Eulemur* *Hapalemur* *Lepilemur* *Nycticebus* *Stenops* *Galago*
		4. CHIROLEMURES† (*Chiromyida*) Dent. $18=\frac{1}{1}\cdot\frac{0}{0}\cdot\frac{1}{0}\cdot\frac{3}{3}$ Rodent dentition	*Chiromys* (Claws on all fingers except first)
II SIMIAE Apes (*Pitheci* or *simiales*) Orbits completely separated from the temporal depression by a bony septum. Womb simple, pear-shaped. Placenta discoid, deciduate. Cerebrum relatively large and much furrowed.	3. PLATYRRHINAE Flat-nosed apes *Hesperopitheca* Western apes (American) Nostrils lateral, with wide partition 3 premolars	5. ARCTOPITHECA† Dent. $32=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{3}{3}\cdot\frac{2}{2}$ Nail on hallux only	*Hapale* *Midas*
		6. DYSMOPITHECA† Dent. $36=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{3}{3}\cdot\frac{3}{3}$ Nails on all fingers	*Callithrix* *Nyctipithecus* *Cebus* *Mycetes* *Ateles*
	4. CATARRHINAE Narrow-nosed apes *Eopitheca* Eastern apes (Arctogoea) Europe, Asia, and Africa. Nostrils forward, with narrow septum 2 premolars Nails on all fingers	7. CYNOPITHECA† Dent. $32=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{2}{2}\cdot\frac{3}{3}$ Generally with tail and cheek-pouches Sacrum with 3 or 4 vertebræ	*Cynocephalus* *Cercopithecus* *Inuus* *Semnopithecus* *Colobus* *Nasalis*
		8. ANTHROPOMORPHA† Dent. $32=\frac{2}{2}\cdot\frac{1}{1}\cdot\frac{2}{2}\cdot\frac{3}{3}$ No tail or cheek-pouches Sacrum with 5 vertebræ	*Hylobates* *Satyrus* *Phopithecus** *Gorilla* *Anthropithecus* *Dryopithecus** *Pithecanthropus** *Homo*

4.—GENEALOGICAL TREE OF THE PRIMATES



EXPLANATION OF GENEALOGICAL TABLE I

CHRONOMETRIC REDUCTION OF BIOGENETIC PERIODS

THE enormous length of the biogenetic periods (*i.e.*, the periods during which organic life has been evolving on our planet) is still very differently estimated by geologists and paleontologists astronomers and physicists, because the empirical data of the calculation are very incomplete and admit great differences of estimate. However, most modern experts aver that their length runs to 100 and 200 million years (some say double this, and even more). If we take the lesser figure of 100 millions, we find this distributed over the five chief periods of organic geology very much as is shown on Table I. In order to get a clearer idea of the vast duration of these evolutionary periods, and to appreciate the relative shortness of the "historical period," Dr. H. Schmidt (Jena) has reduced the 100,000,000 years to a day. In this scheme the twenty-four hours of "creation-day" are distributed as follows over the five evolutionary periods:

I. Archeozoic period (52 million years)	= 12h. 30m.
II. Paleozoic period (34 million years)	= 8h. 7m.
III. Mesozoic period (11 million years)	= 2h. 38m.
IV. Cenozoic period (3 million years)	= 43m.
V. Anthropozoic period (0·1-0·2 million years)	= 2m.

If we put the length of the "historic period" at 6,000 years, it only makes *five seconds* of "creation-day"; the Christian era would amount to *two* seconds.

POSTSCRIPT

EVOLUTION AND JESUITISM

THE relation of the theory of evolution to the teaching of the Jesuits is in many respects so important and so liable to misunderstanding that I have felt it very desirable to make it clear in the present work. I have, I think, clearly showed that the two doctrines are diametrically and irreconcilably opposed, and that the attempt of the modern Jesuits to reconcile the two antagonists is mere sophistry. I wrote with special reference to the works of the learned Jesuit, Father Erich Wasmann, not only because that writer deals with the subject more ably and comprehensively than most of his colleagues, but because he is more competent to make a scientific defence of his views on account of his long studies of the ants and his general knowledge of biology. He has made a vigorous reply to my strictures in an "open letter" to me, which appeared on 2nd May, 1905, in the Berlin (or Roman) *Germania*, and in the *Kölnische Volkszeitung*.

The sophistical objections that Wasmann raises to my lectures, and his misleading statement of the most important problems, oblige me to make a brief reply in this

"Postscript." It will be impossible, of course, to meet all his points here, and convince him of their futility. Not even the clearest and most rigorous logic makes a man a match for a Jesuit; he adroitly employs the facts themselves for the purpose of concealing the truth by his perverse misstatements. It is vain to hope to convince my opponent by rational argument, when he believes that religious faith is "higher than all reason." A good idea can be formed of his position from the conclusion of the eleventh chapter of his work, *Modern Biology and the Theory of Evolution* (p. 307). "There can never be a real contradiction between natural knowledge and supernatural revelation, because both have their origin in the same Divine spirit." This is a fine comment on the incessant struggle that "natural science" is compelled to maintain against "supernatural revelation," and that fills the whole philosophical and theological literature of the last half century.

Wasmann's orthodox position is shown most clearly by the following statement: "The theory of evolution, to which I subscribe as a scientist and a philosopher, rests on the foundations of the Christian doctrine which I hold to be the only true one: 'In the beginning God created the heavens and the earth.'" Unfortunately, he does not tell us how he conceives this "creation out of nothing," and what he means by "God" and "heavens." I would recommend him to consult Troelslund's excellent work, *The Idea of Heaven and of the World.*

Almost at the same time that I was delivering my

lectures at Berlin, Wasmann was giving a series of thoroughly Jesuitical lectures on the subject at Lucerne. The Catholic Lucerne journal, *Vaterland*, describes these lectures as "a work of emancipation" and "a critical moment in the intellectual struggle." It quotes the following sentence: "At the highest stage of the theistic philosophy of evolution is God, the omnipotent creator of heaven and earth; next to him, created by him, is the immortal soul of man. We reach this conclusion, not only by faith, but by inductive and strictly scientific methods. The system that is reared on the theistic doctrine of evolution is the sole rational and truly scientific system; the atheistic position is irrational and inscientific."

In order to see the untruth of this and the succeeding statements of the modern Jesuits, we have to remember that the Churches—both Protestant and Catholic—have vigorously combated the theory of evolution with all their power for thirty years, ever since the first appearance of Darwinism. The shrewd clergy saw more clearly than many of our naïve philosophers that Darwin's theory of descent is the inevitable key-stone of the whole theory of evolution, and that "the descent of man from other mammals" is a rigorous deduction from it. As Karl Escherich well says: "Hitherto we read in the faces of our clerical opponents only hatred, bitterness, contempt, mockery, or pity in regard to the new invader of their dogmatic structure, the idea of evolution. Now (since Wasmann's apostasy) the assurances of the Catholic journals, that the Church has

admitted the theory of evolution for decades, make us smile. Evolution has now pressed on to its final victory, and these people would have us believe that they were never unfriendly to it, never shrieked and stormed against it. How, they say, could anyone have been so foolish, when the theory of evolution puts the wisdom and power of the creator in a nobler light than ever. We find a similar diplomatic retreat in the popular work of the Jesuit, Father Martin Gander, *The Theory of Descent* (1904): "Thus the modern forms of matter were not immediately created by God; they are effects of the formative forces, which were put by the creator in the primitive matter, and gradually came into view in the course of the earth's history, when the external conditions were given in the proper combination." That is a remarkable change of front on the part of the clergy.

We see the astonishing system of the Jesuits, and of the papacy of which they are the bodyguard, not only in this impossible jumble of evolution and theology, but also in other passages of Wasmann, Gander, Gutberlet, and their colleagues. The serious dangers that threaten our schools, and the whole of our higher culture, from this Jesuitical sham-science, have been well pointed out lately by Count von Hoensbroech in the preface to his famous work, *The Papacy in its Social and Intellectual Activity* (1901). "The papacy," he says, "in its claim to a Divine authority, transmitted to it by Christ, endowed with infallibility in all questions of faith and morals, is the greatest, the most fatal, the most successful

error in the whole of history. This great error is girt about by the thousands of lies of its supporters; this error and these lies work for a system of power and domination, for ultramontanism. The truth can but struggle against it. . . . Nowhere do we find so much and such systematic lying as in Catholic science, and in the history of the Church and the papacy; nowhere are the lies and misrepresentations more pernicious than here; they have become part and parcel of the Catholic religion. The facts of history tell plainly enough that the papacy is anything but a Divine institution; that it has brought more curses and ruin, more bloody turmoil and profanation, into humanity's holiest of holies, religion, than any other power in the world."

This severe judgment on the papacy and Jesuitism is the more valuable as Count von Hoensbroech was himself in the service of the Jesuit Congregation for forty years, and learned thoroughly all its tricks and intrigues. In making them public, and basing his charges on numerous official documents, he has done great service to the cause of truth and civilisation. I was merely repeating his well-founded verdict when, at the close of my first lecture, I described the papacy as the greatest swindle the world has ever submitted to.

A curious irony of Fate gave me an opportunity, the same evening, to experience in my own person the correctness of this verdict. A Berlin reporter telegraphed to London that I had fully accepted the new theory of Father Wasmann, and recognised the

error of Darwinism; that the theory of evolution is not applicable to man on account of his mental superiority. This welcome intelligence passed from London to America and many other countries. The result was a flood of letters from zealous adherents of the theory of evolution, interrogating me as to my unintelligible change of front. I thought at first that the telegram was due to the misunderstanding or the error of a reporter, but I was afterwards informed from Berlin that the false message was probably due to a deliberate corruption by some religious person who thought to render a service to his faith by this untruth. He had substituted "supported" for "refuted," and "error" for "truth."

The struggle for the triumph of truth, in which I have had the most curious experiences during the last forty years, has brought me a number of new impressions through my Berlin lectures. The flood of calumnies of all kinds that the religious press (especially the Lutheran *Reichsbote* and the Catholic *Germania*) poured over me exceeded any that had gone before. Dr. Schmidt gave a selection from them in the *Freie Wort* (No. 4, p. 144). I have already pointed out, in the Appendix to the popular edition of the *Riddle of the Universe* [German edition], what unworthy means are employed by my clerical and metaphysical opponents for the purpose of bringing my popular scientific works into disrepute. I can only repeat here that the calumniation of my person does not move me, and does not injure the

cause of truth which I serve. It is just this unusually loud alarm of my clerical enemies that tells me my sacrifices have not been in vain, and that I have put the modest key-stone to the work of my life—"The advancement of knowledge by the spread of the idea of evolution."

THE END

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EVOLUTION OF MAN.

By ERNST HAECKEL.

THE original Library Edition of this work (published at two guineas) has long been out of print. The popular and abridged edition has had an enormous sale, despite the fact that the type is rather small and that several of the Illustrations and the whole of the beautiful Plates are omitted. This new Library Edition is complete in every way. It has been printed from new type, fairly bold and well spaced, and on excellent paper. The two volumes consist of nearly 800 pages; the binding is elegant, with gilt tops; and the price is phenomenal—12s. 6d. net. Only a very large sale will justify the venture. Arrangements have been made to issue the work simultaneously in London and New York.

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"Translator and publishers are alike to be congratulated on this really handsome edition of Haeckel's monumental work, *The Evolution of Man.* Mr. McCabe's English rendering is in every way admirable, while paper, print, and illustrations are all that the most exigeant can desire. It is an issue worthy of the subject and of the author, a record befitting one of the most important investigations in the domain of Nature ever undertaken in the history of scientific research.....We doubt whether those even who are well acquainted with Darwin's *Origin of Man* and the main facts of evolution understand clearly the special discovery associated with the famous Jena Professor, or the magnificent theory he so marvellously grasped and so triumphantly proved.

".....It is a grand conception, this of the great physiologist, that every man, in the brief term of his pre-natal development, should go through these successive changes, by which man has, in countless ages, been evolved from the punitive germ-cell; and it is triumphantly vindicated in *The Evolution of Man.* It is impossible to do justice in words to the patience, the labour, the specialised skill and industry involved in the preparation of this monumental work. And it is a further tribute to the genius of the author that, while his work is characterised by German profundity and thoroughness, the results of his investigations into some of the obscurest problems of embryology and physiology are so given and summarised as to make the book 'the popular scientific study' that Haeckel himself terms it and intended it to be."

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