

Paleontology and Evolution in the News

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Published online: 25 April 2009
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In recognition of Darwin's birth date, February 12, 2009, many newspapers in the United States celebrated by publishing lengthy articles about his scientific contributions. Some newspapers like the *Chicago Tribune* had correspondents report about the celebrations in Britain. In a wide-ranging article, Henry Chu, www.chicagotribune.com, who went to Downe, England, visiting Darwin's home which had just reopened to the public after an extensive renovation writes, "Here, the great scientist worked with inexhaustible patience in his Victorian study...wrote *On the Origin of Species*, the book that forever changed the way we look at the world around us—and at ourselves." He continues by observing that today, Darwin seems to be everywhere in his native land. "Libraries, zoos, art galleries, choral groups, universities, museums and, a little ironically, churches, all own a piece of the extravaganza celebrating Darwin's bicentennial, a yearlong series of 300 events that make up one of the most extensive national commemorations of a single person ever to be held in this country." Mr. Chu continues by observing that this may be fitting for someone "whose revolutionary theory of how life evolved leaped over the boundaries of pure science and into so many other spheres." He also interviews Robert M. Bloomfield, coordinator of the umbrella organization Darwin200 (see www.darwin200.org) and head of special projects at London's Natural History Museum who says that "It's difficult to overstate how pervasive Darwin's work is. He undoubtedly produced the biggest idea in science in the 19th century and, some people say, of all times." Although

Darwin's ideas still rile conservative religious groups, the fact that he can be so "effusively feted is a testimony to how secular Britain is, at least in the public square." Mr. Chu also states the Mr. Bloomfield says of Darwinism in Britain, "it isn't as polarized like it is in the United States. There are people who rant on the interplay between science and faith, but it is not the same sort of political debate in the U.K." Yet in the Natural History Museum's exhibit *Darwin: Big Idea Big Exhibition* there is a section that deals with the controversy in a short video and strangely a textbook from Georgia, but none from Britain, that contains a warning label from the local board of education "Evolution is a theory, not a fact." Mr. Chu continues by reviewing the accomplishment of Darwin as depicted in the exhibit and he describes the home and countryside where Darwin spent much of his life, a short 12 miles from London. Mr. Chu quotes an editorial from *The Times* of London: "Darwin is not merely a man of his time. The extent of his achievement gives him a plausible claim to be counted the greatest figure in this nation's history."

In the same issue of the *Chicago Tribune* a letter from Laurie Goering, the *Tribune's* chief European Correspondent describes a new book that reevaluates Darwin's principal thesis. "Charles Darwin is widely thought to have developed his natural selection theory of evolution after noting differences among finches in the Galapagos." But the title of Adrian Desmond and James Moore's new book, *Darwin's Sacred Cause: How a Hatred of Slavery Shaped Darwin's Views on Human Evolution*, explains the essence of the book and the basis of Darwin's theory.

However, Goering is not alone. The book has been reviewed in both the popular press and scientific journals. For example, W.F. Bynum's extensive assessment in the journal *Nature*, February 12, 2009 (www.nature.com/nature/journal/v457/n7231/full/4579921.html), describes this controversial

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new reconstruction of Charles Darwin's life, namely, that his family's campaign against slavery influenced his belief that all humans evolved from a single ancestor. He says that the book is unlike most publications about Charles Darwin in this bicentennial year, which repackage what a "troop of Darwin scholars have uncovered from his extensive archives and writings." W.F. Bynum believes that Desmond and Moore's book new book is an exception, and readers of the authors' earlier biography of Darwin will expect much from this new reading of Darwin's life and values. He says "They will not be disappointed."

The highly regarded *New York Times* "Science Times" section of the Tuesday, February 10, 2009 (www.nytimes.com) devoted several articles, perhaps more extensively than other newspapers, to celebrate Darwin's birthday. This issue of "Science Times offers what might be thought of as a few toasts to the man and his work. Here's to how often he was right! Here's to how his ideas have evolved! A drink to the tree of life! A moment of silence to ponder human-driven evolution!..."

Nicholas Wade's *New York Times*' article "A Mind Still Prescient After All These Years" begins by stating the obvious that "Darwin's theory of evolution has become the bedrock of modern biology." But for decades aspects of his theory were ignored by scientists or opposed by theologians. They quickly accepted the idea of evolution, but rejected natural selection, "the mechanism Darwin proposed for the evolutionary process." But Wade states that not all aspects of his theory are settled. "Biologists are still arguing about group-level selection, the idea that natural selection can operate at the level of groups as well as on individuals." Darwin proposed something like group selection "to account for castes in ant societies and morality in people." Intrigued by Darwin's insights, Mr. Wade asks, "How did Darwin come to be so in advance of his time?" His answer: first of all he was a genius. He had the time because, "as it is today, he was not devoted to writing grant proposals and publishing 15 articles a year." "He thought deeply about every detail of his theory for more than 20 years before publishing..." His intellectual virtues included not brushing off objections to his theory. He also had the intellectual toughness of sticking "with deeply discomfiting consequences of his theory, that natural selection has no goal or purpose." His thinking about evolution was not only deep but broad, as shown by his interest in fossils, animal breeding, geographical distribution, anatomy and plants—disciplines that gave him a comprehensive view of the world of natural history. So "not only was Darwin correct on the central premises of his theory, but in several other still open issues his views seem quite likely to prevail."

In an essay in the same issue Carl Safina writes that "Darwinism Must Die So That Evolution May Live", which may at first seem like a diatribe against some aspects of

Darwin's ideas. But far from that, it is actually a thoughtful article about why the descriptive word "Darwinism" should be dropped. He says Darwin gets so much credit that we cannot distinguish evolution from the man. "Equating evolution with Charles Darwin ignores 150 years of discoveries...By propounding "Darwinism," even scientists and science writers perpetuate an impression that evolution is about one man, one book, one 'theory'. Equating evolution with Charles Darwin overlooks the limits of his time and all progress that has occurred since. He says that Darwin did not invent a belief system, "He had an idea, not an ideology and that idea spawned a discipline, not disciples." Finally, with a high degree admiration he says that "Darwin spent 20-plus years amassing and assessing the evidence and implications of similar, yet differing, creatures separated in time (fossils) or in space (islands). That's science."

The descriptions above of these articles are necessarily brief and only contain the gist of some aspects of what the authors have to say about Darwin and evolution. These, as well as the articles on genes and building a tree of life, for example, in the "Science Times" of February 10, 2009, make it a valuable issue for both teachers and students.

One concept that emerged as a result of Darwinism is that of the missing link. The term was originally used by Charles Lyell in 1852 when he referred to the absence of a particular fossil species in a sequence of strata. However, in the biological and paleontological context, the concept of missing links refers to the search for or discovery of a plant or animal that is intermediate between two organisms, especially applied to fossils. Darwin, in his *On the Origin of Species*, 1859, wrote that the lack of transitional fossils was "the most obvious and gravest objection which can be urged against my theory." The term "missing link" became closely associated with Thomas Huxley, especially after the publication of his *Man's Place in Nature* in 1863. This dramatic phrase caught on popularity and, in addition to being informational, it was promoted, in part, by scientists in press releases from various institutions wishing to bring attention to the concept. The rest of this column contains a selection of articles from a variety of newspapers from around the United States that chose to run stories, usually on page one, about the search for or discovery of missing links. Although many of the reports deal with human ancestors, many other animal groups were also reported on. Although the use of term "transitional fossil" never disappeared, below are articles in which only the term missing link is used. In a few examples, the same stories were published by newspapers from different parts of the country that had no relationship to each other, except that they must have received the same press release. One further comment: the articles contain scientific statements that may no longer be correct. But they reflect the thinking of the time they were made.

On May 21, 1863, *The New York Times*, page 2, (www.nytimes.com) reviewed Charles Lyell's book, *The Geological Evidence of the Antiquity of Man, with Remarks on Theories of the Origin of Species by Variation*. The writer describes for the reader a summary of the contents of the individual chapters. He highlights the fact that the Pleistocene contains thousands of tools of ancient man "in immediate juxtaposition with the bones of extinct elephants, rhinoceros, hippopotamus and other types now without a representative" in various river basins of Europe. "No human bones have been found with these as yet, though now that curiosity has been so much excited on this subject some human remains will be detected in the older alluvium of European valleys, I confidently expect," says Sir C. Lyell, who also gives very curious and interesting reasons to account for their absence.

By the 1870s the public was well aware of the concept of "missing links," enough so that William E. Curtis, a reporter for *The Inter Ocean*, could make an offhanded remark about a "missing link" in the dispatch he sent to his newspaper when he was one of several reporters accompanying the George Custer 1874 Expedition to the Black Hills. *The Inter Ocean*, one of Chicago's major daily newspapers, now almost forgotten, began in 1865 as the *Chicago Republican*, was renamed *The Inter Ocean* in 1871, perhaps symbolic of Chicago's rise to global prominence. Curtis' article was written at the campsite at the base of Inyan Kava, elevation 6,600, on July 23, 1874 and published August 17, 1874, volume 3, Issue 145, page 2. "We have entered the Black Hills, and are today at the base of the highest peak. So far, we have seen nothing remarkable; the miners have discovered no gold; the geologists have whacked in vain for the fossil of the "missing link;" the naturalists have emptied their saddle pockets day after day without revealing the existence of any new wonders of life; the soldiers have fought no Indians; and so far the expedition, in a positive sense, has been unsuccessful." Shortly after writing this dispatch gold was discovered, starting the great gold rush that culminated in 1876 with the discovery of large amounts near Lead, South Dakota. Although not mentioned by name in the article, George Bird Grinnel was one of the scientists who accompanied the expedition. Described as an anthropologist, historian, naturalist, and writer, he became a prominent early conservationist and wrote extensively about Native American life, organized the first Audubon Society, and was the editor of *Field & Stream Magazine* from 1876–1911. Part of his early career was spent collecting vertebrate fossils for and with Professor Othneil Marsh of Yale University.

In 1878, *The Inter Ocean* reported on and extracted from a sermon by Rev. Booke Herford on "The Evolution Theory." Rev. Brooke was born in England in 1830 and educated in a Unitarian school. After many years in various churches in England, he accepted a position in Chicago in

1875 and then in Boston in 1882, where he was also an occasional preacher at Harvard University. In addition to his sermons, he was a prolific author and co-editor of the monthly *The Unitarian*. In the article "The Evolution Theory," *The Inter Ocean*, March 11, 1878, volume 6, issue 298, page 2, "the sermon was preached, the clergyman said in his opening remarks, in accordance with a number of requests for his opinion upon the theory of evolution which has come so prominently before the public of late years. He did not claim to speak as a scientist, but merely as one interested in the wonderful investigations and discoveries which have been and are now going on. He had the highest veneration for those men, who...were spelling out the facts of the mighty universe and trying to find out the words and meaning. He believed they were laboring in the very noblest integrity and love of truth." The article then reports on his understanding of the evolution theory. He stated that evolution is one of the most important of laws and methods of nature, which is coming out in a clearer light each year. He said it was of interest to read about Darwin's experiment with pigeons and the tracing the horse back to three-toed examples, "but these links were the merest trifles compared to others which have to be supplied." It was a wonderful discovery to find a fossil bird which "looks like one of the missing links between birds and beasts." But what is that gap in comparison to that "between animals with their skeletons inside and animals with their skeletons outside them..."

The popular notion of "missing links" was so well known by this time that William L. Alden, a writer of satirical wit, knowledgeable about geology and paleontology, and author of at least 120 columns in the *New York Times* about a wide-ranging variety of topics, wrote about "The Missing Link," March 28, 1876, page 4, here in part reproduced. He obviously had a good grasp of the subject for his time. "The absence of any connecting link between apes and man has always been a stumbling-block in the way of those who would otherwise fully accept the Darwinian Theory. We may be willing to admit that the monkey, by strict industry and attention to business, developed himself into a baboon, and that the earnest and ambitious baboon gradually became an eminent and esteemed ape. Between apes and men, however, there is a vast difference, and hitherto no traces have been found of any intermediate type. If we could only find a fossil ape who had developed trousers, or a fossil man with an evident and respectable tail, the Darwinian theory would receive very strong confirmation... The joy with which Darwinians will learn that the missing link has at last been found can hardly be overestimated. There is no doubt, however, in the mind of Mr. Silas Wilcox, of Prince Edward Island, that he has found the identical link, and that he now has it in his front parlor ready for exhibition to such scientific persons as may be willing to pay him a reasonable fee...The oddest feature of

this discovery is the light it throws upon a strange custom of the early apes. They evidently held Prince Edward Island as a developing place. When the ape wanted to better his condition by ascending to a higher scale of being, he took passage for the island, and on his arrival there put on trousers and a silk hat, and assiduously practiced the art of walking erect. No ape could do this in his native country without exciting the derision of his fellows. At Prince Edward Island, however, he would meet none but those who were engaged in similar practices, and,...they would rigidly abstain from laughing at one another...the fact remains that a skeleton, simian in point of tail and arms, but human in all other respects, has been discovered by Mr. Wilcox in his peat bog or in the bottom of his brown jug.”

The Daily Trenton Star Gazette, November 1, 1880, volume 34, issue 260, page 1, reprinted an English newspaper article on “A Missing Link.” “Prof. Owen’s researches among South African fossils have just brought to light another of those curious connecting links between widely different classes of animals which the theory of evolution has led us to expect and which the diligence of fossil hunters has now made familiar.” The article explains that people are accustomed to hear about birds with lizard-like tails or with teeth in their jaws. But Prof. Owen’s discovery is of deeper interest because it helps bridge the gap between mammals and cold-blooded vertebrates. One by one the gulfs which separated fish, amphibians, reptile, and bird have been filled up but not that between reptile and mammal. The new South African fossils, contain aspects of the “duck-mole” of Australia, the “creature familiarly known as the beast with a bill” or the platypus. “It is a lizard-like reptile with a tendency toward certain low types of mammalian structure.”

An article, “Another ‘Missing Link’” was published in the *Omaha Daily Herald* in 1881, volume 16, issue 72, page 6. It turns out that it is from the same source as the previous entry. Here the editor of the newspaper was a little more expansive than in the previous rendition. But as is often typical of these articles, the reader does not really get an idea of what the fossils looked like, how well they are preserved, and often their age. The editor of the newspaper was Dr. George L. Miller, who arrived in Omaha in 1854 from Syracuse, New York, after receiving his medical degree in New York City in 1852. His brief medical career in Omaha ended when he became involved in Democratic party politics and journalism. He started the *Democratic Omaha Daily Herald* in 1865 and was its editor until 1887, during which time he built it into a nationally influential paper. Miller was also a promoter of tree planting and a booster of Nebraska agriculture. With others, he was instrumental in successfully introducing winter wheat in Nebraska and advocated a new method of sowing wheat. The article states that “Professor Owen’s researches among South African fossils have just brought to light another of

those curious connecting links between widely different classes of animals which the theory of evolution has led us to expect, and which the diligence of fossil-hunters has now made familiar. Already we have grown accustomed to hear of birds with lizard-like tails or with teeth in their jaws, or sauriana with wings, and of horses with three toes. But Professor Owen’s new species is one of still deeper interest, because it helps us to bridge over the gap between the mammals and the cold-blooded vertebrates, one by one the gulfs which separated fish, amphibian, reptile, and bird have been filled up; and now the last of them, between reptile and mammal, seems in a fair way to be filled up in its turn by these South African remains. The fossil bones are those of an extinct reptile which in some points of its skeleton offers an analogy to the Ornithorhynchus, or duck-mole of Australia—the creature familiarly known as “the beast with a bill” ...and Professor Owen has accordingly bestowed upon the South African form the formidable name of *Platypodosaurus*...It is, in fact, a lizard-like reptile with a tendency toward certain low types of mammalian structures...and...all these forms are exactly what, on the theory of evolution, one would expect to find.”

The article refers to Richard Owen, who was celebrated for his scientific achievements and gave the dinosaurs their name. He was also feared and hated by some of his contemporaries. This conflict was brought to a head when Owen rejected the theory of evolution by natural selection as proposed by Darwin. Darwin was introduced to Owen earlier by Charles Lyell and offered Owen the opportunity to work on the fossil bones he collected in South America, Owen’s work was one of the influences which led Darwin to later formulate his own ideas on the concept of natural selection.

“Conwell’s Talk On The Creation. He Accepts the Bible Narrative as Confirmed by Science” is reported in *The Philadelphia Inquirer*, October 14, 1891, volume 125, issue 106, page 5. This report is a summary of a talk he gave at Grace Baptist Temple on his belief in Darwin’s theory of evolution and the Biblical narrative of the creation of man. He said “I am satisfied that the weight of scientific opinion is in favor of the theory that man was an independent creation as it appears to be stated in the Bible.” He said that the best writers on the subject of evolution have said that the missing link between man and monkey has not been found and that “the space between the highest known monkey race or fossil traces of monkey and the lowest known specimen of humanity grows vaster, wider as investigation comes closer.” He says that five years ago people believed in evolution and winked at the Bible statement, but now we are condemned by science, and asks us to confirm the old belief in the Bible. As far as Adam and Eve go, the Bible is “theoretically and literally true but there is also some interpretation of these events which we

do not yet understand.” As meanings of Biblical statements get clearer, “we will find that Adam and Eve may refer historically to races of mankind...” He says that clear answers have not been given in regard to race as recounted in the Bible, “but as God unrolls His own explanation we may find many of our present ideas both unscientific and heretic.” Russell H. Conwell, Pastor of Grace Baptist Temple (Church) and founder of Temple College, now University, was also a lawyer and journalist until ordained as a pastor in 1881. He had a national reputation as a lecturer and authored about 40 books. The *Philadelphia Inquirer* was founded as the *Pennsylvania Inquirer* in 1829, making it the third-oldest daily newspaper in print in the United States. Highly regarded for its reporting during the Civil War, it printed special editions for Union soldiers, which were sought after by Confederate Generals who believed its war coverage was accurate. After the war, economic conditions and illness of the editor took a toll, decreasing its circulation so that by 1889 it was down to 5,000 from a high of 70,000 just before publication of the above article. However new owners and reorganization started it on the road to recovery.

Frederick A. Cook wrote a lengthy article in *The Philadelphia Inquirer* on April 15, 1894, volume 130, issue 105, page 21, about his forthcoming trip to Antarctica. He says that when he leaves for the south Polar regions, it will renew explorations which have been discontinued for half a century. The article reviews in depth the history of Antarctic exploration and recites what is known about the area, which is not much. Cook says that the time of “Antarctic fever” when people searched for the mysteries of the region has been long over. As a result there has been little interest about the South Pole, and it hardly occurs to many people that we have a South Pole. This was also the period when people were searching everywhere for the “missing link,” and the South Pole was no exception. Cook’s intention was to look for the possibility of an unknown race of “Human Beings” and search for fossils of the “missing link.” “If, however, we accept what seems the most reasonable theory of the peopling of the Southern Sea Islands, that of accidental drifts from Asia, Africa, and other islands—the possibility opens up of an undiscovered race of human beings in the Antarctic. If men, and with them other forms of life, have been carried thousands of miles by winds and tides, it is not unreasonable to suppose that still others may have been carried a little further...Man is able to adapt himself to all known parts and conditions of the earth, and if stranded on the South Polar continent he would doubtless find some means of subsistence.” Dr. Frederick A. Cook was a controversial figure in the history of polar exploration. In the article above he was probably writing about the forthcoming Belgian Antarctic Expedition (1897–1899), where he was doctor and photographer. The expedition was

poorly equipped, but they were able to collect a significant amount of scientific data and were the first to overwinter in the Antarctic region (a result of poor navigation). He was also a surgeon on Robert Peary’s 1891–1892 Arctic expedition. He claimed to have reached the North Pole on April 22, 1908, but that has been disputed, and he also claimed to have attained the summit of Mount McKinley in September, 1908. He was a founding member of the Explorer’s Club.

The *Philadelphia Inquirer*, February 3, 1895, volume 132, issue 34, page 13, published “The Missing Link: A Dutch Surgeon in Java Unearths the Needed Specimen.” The article states that objections to the theory of evolution by opponents to it, is due to the fact that evolutionists have been unable to provide tangible proofs of the continuous series of living organisms which would connect the most diverse families and species. “Especially has this objection been brought up in connection with the descent of man.” Where is the prehistoric monkey-like animal he has descended from? And “where are, at least some of the chain of creatures, growing more and more human with lapse of time, that connects it with the modern man?” Up to this time the only answer has been that the geologic record is imperfect. “Now a fossil has been found which bring it closer to the latter than to the former,” which has an interesting bearing upon the original birthplace of the human race. A fossil has been found which may prove to be at last one of the links in the chain. “This creature has been unearthed by Dr. Eugene Dubois, a surgeon in the Dutch army, stationed in Java... and describes a *Pithecanthropus Erectus*: A Man-like Transition-form From Java.” The specimen is notable in “supplying the ‘missing link’ between the simiidae and hominidae...” In other words, between man and the higher apes, “which has been so long and so anxiously been awaited.” Dubois also believes it shows that “our race first came into being in Asia,” which “accords with the traditional view that Asia is the cradle of mankind, and by no means contradicts the Biblical story, if we grant that the process of creation was that of a gradual development from lower forms.” It has been written that Dr. Eugene Dubois was the first person to ever deliberately search for fossils of human ancestors. Earlier human fossil remains were found by chance. He gave up his job as lecturer in anatomy at Amsterdam University and left for Indonesia (then, Dutch East Indies) to look for fossils of human ancestors. Like Darwin and many others, he felt humans evolved in the tropics and chose the East Indies because it was a Dutch Colony which would make living more amenable, and that gibbons lived there, which he thought initially were allied to humans. He got a job as a medical officer in the Dutch Army and eventually was posted in Java, where he searched for fossils. In 1890 and 1891 he met with some success and in 1892 found a skull cap that eventually became known as Java Man. He

published the results of his study in 1894 and returned home in 1895. His interpretations were accepted by some but remained controversial, and by 1900 he ceased discussing Java Man, hid the fossils in his home, and went on to other subjects. Under pressure by scientists he allowed access to his fossils in 1923.

On August 30, 1898, the *Kansas City Star*, volume 18, issue 346, page 4, published “There Is No Missing Link: A London Professor’s New Theory of Man’s Descent.” The *Kansas City Star* was founded on September 18, 1880 at a time when three other newspapers were published there. Kansas City was a cow town then, violent and lawless, with muddy streets, few sidewalks, and horse manure everywhere. One of the founders, William R. Nelson, campaigned for improvements, and his legacy to the city includes its parks, boulevard system and art museum. Today the *Star* is the only Kansas City newspaper that survives. Ernest Hemingway got his start as a reporter for the paper before he left to become an ambulance driver during World War I.

The article begins by stating that “A cablegram from London says the Cambridge congress on zoology, which sat during last week, will be remarkable for a fascinating paper by Professor Haeckel on the present knowledge of the descent of man. He does not hesitate to declare that science has now established the absolute certainty that man has arisen through various stages of evolution from the lower form of animal life during a period estimated at 1,000 million years. Lamarck, Darwin, and finally corps of other investigators possessed the knowledge which must now be accepted as the crowning achievement of science during the nineteenth century...Prof. Haeckel thus summarized the steps in evolution. The monophyletic origin of all mammals—that is to say their origin from the common parent form from monotremata upward to man... The most important fact is that man is a primate and that all primates—lemurs, monkeys, anthropoid apes, and man—descended from one common stem.”

Ernst Haeckel (1834–1919) coined many terms in biology including phylum, phylogeny, ecology, and the Kingdom Protista. He promoted and popularized Charles Darwin’s work in Germany and developed the “phylogeny recapitulates phylogeny” theory. He did not support evolution by natural selection, rather believing in a Lamarckian inheritance of acquired characteristics.

“Is There A Missing Link?” (*Tacoma Daily News*, September 5, 1898, volume 32, issue 131, page 2) is the question. “The News recently referred to Rev. Dr. Zahm’s acceptance of the theory of evolution, while definitely rejecting Darwinism and declaring that the best scientific thought of the day concurs in the rejection. At the congress of zoology at Cambridge, England, Professor Haeckel took the opposite ground. He says there is no longer a missing link in the tracing of the descent of man. He declares there

is no doubt of the absolute certainty that man has risen through various stages of evolution from the lowest form of animal life, and that this knowledge is the crowning achievement of science in this century. Recent discoveries of fossil remains in Java, Madagascar and Australia are held to complete previous evidence. The professor holds that the origin of all mammalia from one common parent form upward to man is no longer a vague hypothesis, but an established fact. This single common ancestral form must be derived from a carboniferous amphibian, which in turn descended from lower vertebrates. Man is a primate, and all primates—lemurs, monkeys, anthropoid apes and man—descended from one common stem. The evolution period is estimated by an eminent geologist at 1,000,000,000 years. Lord Kelvin supposed himself to have proved that this world as a scene of life cannot be more than 25,000,000 years old.” The *Tacoma Daily News* is no longer published. Rev. Dr. Zahm, professor of Physical Sciences at Notre Dame, Indiana, believed that nothing in Catholic dogma precludes the view that man is descended from the ape or some other animal, should science in its search at last reveal the missing link. He cites St. Thomas to justify Darwin and St. Gregory in defense of Laplace.

The Biloxi Daily Herald, January 27, 1900, volume 2, issue 139, page 3, reports on “Traces of Missing Link,” an article originally published in the *New York Herald*. Dr. George F. Becker, the government geologist sent to the Philippines, in his report expresses the opinion that the “ape-like the creature termed the ‘missing link’—may have had its earliest haunts in those isles of the sea, at a time when, not less than 200,000 years ago, they were connected with the mainland of Asia by a sort of land bridge, via Borneo.” The article also reports that the pygmy peoples of the Philippines and other islands of the Pacific “according to Dr. Becker and Prof. Marsh, are descended directly from the original stock of the so-called missing link.” The articles go on to explain that scientists say that the idea of a missing link is no longer a theory and that it has been proved by the discovery of fossils in Java, not very far from the Philippines. “Certainly the creature in question was not human, but in size brain power and erect posture approached much nearer to man than any other animal hitherto known.” The article explains how these ancestors evolved. Slowly they improved generation after generation, physically and mentally. Their arms grew shorter, their legs longer, and their brain cases bigger until the Java Man, or the upright monkey-man as scientists have named the animal, was evolved. “Here at last was the destined ancestor of the monkey-like Negritos of Luzon. The land bridge by the way of Borneo allowed this new species of anthropoid to spread.” *The Biloxi Daily Herald* was founded in 1884 and is known today as the *Sun Herald*. Dr. George Ferdinand Becker (1847–1919) was sent to the

Philippines with the military expedition at the time of the Spanish-American War to study its geological and mineral resources. His report was prepared at the request of Admiral Dewey. Dr. Becker was part of the group of geologists who in 1879 established the United States Geological Survey with Clarence King. He was an expert in mining geology and geophysics and was chief of the Division of Chemical and Physical Research in the Geological Survey. The investigations under his direction led to the establishment of the Geophysical Laboratory of the Carnegie Institution.

On January 21, 1906, the *Macon Daily Telegraph*, page 6, declared “Horse Evolution Now Completed,” which referred to the fact that after years of search and “just when all hope of success had been abandoned a discovery of Orohippus, the mountain horse, fills in the last gap in the record which science has long endeavored to make perfect.” The American Museum of Natural History expedition began in 1901 under the direction of Professor Henry Fairfield Osborn on a trip to the Big Horn Basin of northern Wyoming. They searched this area because fragments had been found and named by Professor Marsh in 1872. After a number of expeditions including the present one, hope was given up that a specimen would be found. As luck has it, it turns out that on the very last day of the expedition in 1905, just as the explorers were about to return home they were rewarded with a skeleton—a skull, backbone, limbs, and other parts. “The museum now can put on display the complete record of horse evolution from the early days of the Eocene period, estimated at three million years ago to the present time. This completed record may also lead to the conclusion that the horse originated in the United States.” Mignon Bartlett established the *Macon Telegraph* in 1826 as a weekly newspaper. In 1848 it was able to receive news easily from distant places when the world’s longest telegraph line extended from New York to New Orleans, passing through Macon, Georgia. Today it is the third largest newspaper in Georgia, now published as the *Telegraph*. Professor Othneil Marsh (1831–1899), a paleontologist at Yale University, named about 500 species of fossil animals, including the dinosaur suborder Sauropoda (1878) and Theropoda (1881). However, he did not spend much time in the field; most specimens were supplied to him by fossil hunters. Marsh proposed in 1877 the theory that birds were descended from dinosaurs. Charles Darwin wrote Marsh saying that his work on “many fossil animals of N. America has afforded the best support to the theory of evolution...” He is perhaps most famous for his rivalry with paleontologist Edward Drinker Cope.

“Is It Man or Man-Ape? Fossil Remains Discovered in France Puzzle the Scientists” is the headline in an article in the magazine section, page 6, of the *New York Times* on January 3, 1909. The article refers to fossilized remains discovered in a cave in France because they “aroused

intense interest among scientists as it was claimed that they constituted a sort of ‘missing link’ between the primitive Pithecanthropus and man as he is today.” The specimens from near La Chapelle aux Saints were found by three priests and include a skull that seems “to be that of a man or ape man, of a very low type, but of greater cranial capacity than any hitherto discovered.” The article describes in layman’s terms in detail the comparison of the specimen with modern man. Because of its cranial capacity, it is considered to be a human skull. The *New York Times* was founded in 1851 originally as the *New York Daily Times*. Its name was changed to its current name in 1857. The “Science Times” section, published on Tuesday, often contains current articles about evolution and paleontology, although such articles are not limited to that section only, while additional articles may be found on its web site (www.nytimes.com). Its extensive archives are invaluable to students and teachers and are easily accessible.

“The missing link between reptiles and mammals for which scientists have been searching since Darwin first put forth his theory of evolution, has been discovered in Northwestern Texas by Professor Samuel Wendell Williston, of the University of Chicago...” The article, in the *Morning Oregonian*, volume 49, issue 15275, page 1, November 11, 1909, states that the more than 15,000,000-year-old fossil remains of an enormous lizard-like animal have been sought for decades and were discovered by the university’s expedition in the region north of the Wichita River. The article explains, but without naming the creatures, that they “sought water in their death struggles and expired in pools of quiet water.” It then reports, “The fossils are now being prepared so that they may be put on exhibition at the university.” The article was also reprinted on November 14, 1909, volume 27, issue 302, page 18, in the *Fort Worth Telegram*. The *Morning Oregonian* was founded in 1850 and changed its name to the *Oregonian* in 1937. It is the largest newspaper by circulation in Oregon. The *Fort Worth Star* began publishing in February, 1, 1906. In November, 1908 the paper purchased its competition, The *Fort Worth Telegram*. Today it is published as the *Fort Worth Star-Telegram*, the fourth largest newspaper by circulation in Texas. Samuel Wendell Williston (1951–1918) was employed by Othniel Marsh to collect fossils and work in his lab from 1876–1885. During this time, he received his M.D. from Yale in 1880 and Ph.D. in entomology in 1885. He was first to propose that birds developed flight by running rather than leaping from tree to tree. In 1903, he was elected president of the Society of Vertebrate Paleontologists.

“Darwin’s Theory is proved by Sussex Skull, Scientists think: Bones Show Race of Apelike, Speechless Men Lived Ages Ago; Find Is Believed Missing Link of Man’s Existence” are the headlines in the *San Jose Mercury Evening News* for December 31, 1912, volume 59, page 1. “A race of

apelike and speechless men, inhabiting England hundreds of thousands of years ago, when they had for their neighbors the mastodon and other animals now extinct, is the missing link in the chain of man's evolution, which leading scientists say they have discovered in what is generally described as the 'Sussex Skull'."

"Professor Arthur Keith says that the discovery marks by far the most remarkable advance in the knowledge of the ancestry of man ever made in England and supports the view that man was derived not from a single genus or species, but from several different genera." Professor Keith describes and compares the brain with other discoveries of ancient man as well as various aboriginal groups and comes to the conclusion that, because of the structure of the lower jaw, the skull belonged to "a race of men who lacked the power of speech." The strata also contained "eoliths," flint forms that, at the time, were thought to be the most primitive examples of human workmanship, "which are so plentiful in the Kentish plateau, a short distance to the north of the discovery." The *San Jose Mercury* was founded in 1851 as the *San Jose Weekly Visitor*. The *San Jose Evening News* was founded in 1883. In 1983 both papers merged into the *San Jose Mercury*. The "mercury" in the name comes from the importance of the metal during the California gold rush. Located in San Jose and Silicon Valley, California, it covered many of the key events in the history of computing. Arthur Keith (1866–1955) was a Scottish anatomist and anthropologist and an important researcher in the study of human fossils. He published several books on human anatomy and evolution; in one, *A New Theory of Human Evolution* (1948) he supported the idea of group selection.

The *Aberdeen Daily American* and the *Idaho Statesman* on October 19, 1920, published the same story, although with differing headlines, on page 1. It was about an expedition to Asia to be carried out by the American Museum of Natural History, organized to search for the "missing link," the remains of the near-man "that scientists since Darwin have longed to examine..." The article reports that the organizers say that even if the five-year expedition fails to find any evidence of man's prehistoric forebears, the effort is planned to bring back "the greatest natural history collection the world has seen. Huntsman, cowboys, erudite professors and scientists will be included in the party led by Roy Chapman Andrews." With the exception of the 1891 discovery in Java, all human fossil fragments have been discovered in continental Europe and England, "Nevertheless, leading scientists believe Asia was the early home of the human race and that whatever light may be thrown upon the origin of man will come from the great Central Asian plateau." Today the *American News* (Aberdeen, South Dakota) is the current name of a newspaper that began in 1885, and through simple name changes as well as mergers, former names such as *The*

Aberdeen Daily American are now history. The *Idaho Statesman* of Boise, Idaho began as a tri-weekly newspaper in 1864. Roy Chapman Andrews (1884–1960), a director of the American Museum of Natural History, is best known for his expeditions to China, the Gobi Desert, and Mongolia. His explorations yielded a treasure trove of dinosaur skeletons as well as the first known dinosaur eggs; however, none of trips yielded information about the history of early humans.

"Every discussion of the subject of evolution is almost certain to bring to the surface the question of the missing link." In human development there are a reasonable number of links in the chain. As a result "the missing link is probably not as important as it is sometimes made out to be, although it would be decidedly valuable" if additional links would be found says the author of "The Missing Link" in *The Miami Herald* of June 8, 1922, volume 12, issue 195, page 6. "The search for the evidence that will bridge over the chasm in the present chain of life has been carried on with great earnestness by the scientists, not because it has been considered essential to the establishment of the evolutionary process, but because the lack of this final bit of evidence has given the opponents of evolution what they consider an argument of value against the theory." The author goes on to say that scientists are worried that the missing link would not be found and the opponents of evolution are afraid it would. Also mentioned in the article is a comment by Dr. W.D. Matthew about the expeditions of the American Museum of Natural History to the Gobi Desert and northern India. "No competent expert questions evolution. There are a good many reasons to believe that man and the higher apes, which are his nearest relatives, came from somewhere in Asia, whether north or south of the Himalayas, we do not know...But somewhere on that continent, if anywhere, we shall find our original ancestor..." and the "first report from our explorers in the desert of the Gobi points to a favorable answer in that hope." He also says that the line of battle between those who believe in evolution and those who do not has been drawn and that a certain type of mind cannot reconcile the theology and evolution without reference to the missing link. *The Miami Herald* was first published in 1903 as *The Miami Evening Record* but was renamed *The Miami Herald* in 1910. William Diller Matthew (1871–1930) is universally recognized as one of the great paleontologists of his time who worked primarily on fossil mammals, especially horse evolution.

In general, from about this time forward the use of the term "missing fossil" diminished in the popular press. Eventually paleontologists began giving up referring to a specimen as a "missing link," using instead such phrases as "transitional forms" or "direct ancestors." Today, of course, cladistics is all about transitional features.