

Outside Medicine

Gideon Algernon Mantell

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Gideon Mantell was primarily a doctor, practising his profession all his adult life. He was known to most of the leading scientists and medical men, and he was attended by distinguished colleagues during the painful last 11 years of his life. He was studious, industrious, and only moderately successful in his profession; he was unhappy in his private life; but his scientific studies earned him fame.

None of this explains why he is mentioned in most encyclopaedias, and has more than a page in the *D.N.B.* His diary was edited and annotated by a doctor, Dr. E. Cecil Curwen¹, and is sometimes to be had today. His biography, by another doctor Dr. Sidney Spokes,² is almost impossible to obtain new or secondhand. His most enthusiastic supporters today are Sussex doctors, Dr. Jack Palmer of South Chailey and Dr. A. D. Morris of Eastbourne.³

Early Life

He was born on 3 February 1790, a son of a Lewes shoemaker, who was relatively prosperous and of strict principles, so young Gideon was educated at a Dame's School in Lewes and later, under the tutelage of his parson uncle, at Swindon. He and a brother were attracted to medicine and Gideon became an articulated pupil and assistant to James Moore, a respected practitioner in Lewes (whose grave can still be discovered in St. Michael's churchyard). From this beginning he studied under Abernethy at St. Bartholomew's Hospital and ultimately qualified as a licentiate of Apothecaries' Hall and certainly became an M.R.C.S.

Thereafter he returned to Lewes as assistant to Dr. Moore, on whose retirement he purchased both the practice and the house in Castle Street. This he improved by making two houses into one, with a pillared doorway, the pillars being ornamented with ammonite-shaped capitals.

This house was to be the centre of Mantell's activities from 1818 until he moved to Brighton in 1833 (not 1835 as in the *D.N.B.*). He had married Mary Anne Woodhouse of Paddington two years earlier so his house was family home, surgery, study, nursery, and museum. He was practising physician, doctor to three parishes, an army doctor, and a male midwife. In this last capacity he had an astonishing record of success, which Morris records as two maternal deaths in 2,410 deliveries over 15 years. His record of attention to patients was equally good. He was interested in them and concerned for their progress and recovery. He would ride the countryside on horseback seeing 30 or 40 patients, and when his horse became lame, would go on on foot to

see as many as he could. He appears at this time to have been indefatigable and ambitious. One can visualize him in the little hilly town (of which he was to write a guide in 1846) striding along, acknowledging his many acquaintances, yet keeping an eye on the distant prospects, some of which he would investigate archaeologically with more enthusiasm than skill.



FIG. 1—Gideon Algernon Mantell, F.R.C.S., F.R.S., age 59.

Turning to Fossils

Riding in the country lanes his thoughts would wander on the cause and courses of disease. The nodding flowers and shrubs would be known to him by name; he would observe the country scene as naturalist and historian; and in the darkness he would recognize the stars, for he was an amateur astronomer.

Yet he knew that greater riches lay beneath his own and his horse's feet. He had been attracted to fossils since the age of 13 and knew that the remnant forests and the green fields were only the epidermis of an ancient world with wonders still unexplored and unexplained. He collected fossils and already his museum in Castle Place deserved its title, though as yet it was a private temple of his muse.

When all his journeys were done, he would sit often far into the night in the room on the first floor, to the left above the doorway, and write his notes and compile the diary which he kept more or less faithfully, and certainly quite frankly, for over 30 years. This journal is a remarkably interesting volume on

medical matters, on life and manners, and of the writer's hopes and frustrations. The original was sent to New Zealand, where his elder son Walter became an important member of the House of Assembly. A copy is in the Library of the Sussex Archaeological Society and I have read another copy which is (or was) in the University Museum at Oxford.

Mantell had discovered that his territory, which had been a fresh water deposit, was rich in fossil remains. The geological history of the region, called the Tilgate Forest, was an ever-developing story to him and one day in 1822, when his wife found a few small worn teeth and gave them into his hand, he realized that an unknown form of life had been discovered and that now his urgent task was to find its bones and recreate its dwelling places.

His search was unremitting and knew no boundaries. He was ejected from private estates only to return by stealth. All other geologists or fossil hunters were rivals. Finds had to be concealed, localities buried under the generalized title "Tilgate Forest;" quarry workers were paid or bribed. At this time his geological journeys, his professional visits, and his hours of work were indexes not only of his desire to know but to be known. A burning ambition was the fuel that drove him and was to continue to drive and consume him. Yet he had time, in this house in Lewes, to write medical papers and scientific books. He read papers before learned societies, for he had become a Fellow of the Linnean Society in 1813 and of the Geological Society in 1818, and was elected to the council of the latter in 1825.

He even interfered with the dread course of the law at this time. A farmer and a youth had been gathering grain in a field when the farmer dropped dead. Soon his wife and the youth were arrested and accused of murdering the man by arsenic. Mantell and his brother Joshua investigated the case and discovered that methods of identifying arsenic were so poor that there was little real evidence for the administration of poison but evidence that the farmer had, apparently, a record of angina pectoris. Their combined medical testimony was able to overthrow the verdict against the widow, who was released, but could do nothing for the lad—who had already been hanged.

Dinosaurs and Iguanodons

At first, Mantell collected, studied, and described fossils from the chalk: his later work on the teeth and bones of the unknown vertebrate resulted in an early description of the saurian (or reptile) in 1822 in *The Fossils of the South Downs*. While the description could not be complete and the animal was unnamed it is and was recognizable as an entity and the first of what were later to be known as the dinosaurs, a name which Dr. Richard Owen had first coined in 1841.⁴ Mantell continued to study the bones, to correspond with the French naturalist Cuvier, and in May 1825 was able to publish for the Royal Society an account of his animal as *Iguanodon* (*Iguana*-tooth), because of the similarity of its teeth to those of the modern lizard. But *Iguanodon* was large and later discoveries have made it almost completely known (fig. 2).

The effect on Mantell of this publication was great for it secured his introduction to the Royal Society. Here he was established in a large house in the centre of Lewes, with a demanding but rewarding medical practice; an author of three books, who could write M.R.C.S., F.L.S., F.G.S., and F.R.S. after his name, and all at the age of 35.

The charms of Lewes, and even of its gentry, grew less, and Mantell heard the call of Brighton, only a few miles away, but with its elegant houses, its exotic Pavilion, and the numerous attendants at William IV's court. For some reason Mantell, the doctor, conceived the idea that his reputation as a naturalist and museum maker would enhance his medical practice. At any rate in 1833 he moved to No. 20, The Steyne, which stands prominently on its eastern side and until recently was Cook's Hotel.

One of his friends, the author, Horatio (Horace) Smith, welcomed him in a long effusion which began:



FIG. 2—*Iguanodon*. A Modern Restoration (taken from *Dinosaurs* by W. E. Swinton, British Museum of Natural History, 1969).

"Columbus of the subterranean world!
Star of Geology! whose rays enlighten
What Nature in her darkest depths had buried . . .
Mantell! We proudly welcome thee to Brighton."

To this new and considerable mansion his collection was moved on 1 November 1833. It contained fossils from the chalk, numerous bones from Tilgate, the *Iguanodon* (now about to be supplemented by a new discovery from Maidstone), the incomplete skeleton of the armoured dinosaur *Hylaeosaurus* (wood or weald lizard) *armatus* described before the Geological Society in 1832, and a very considerable number of fossils that are all detailed in a later work. By this time Mantell had realized that the Secondary Era of geological time was "The Age of Reptiles," a name he first used in 1831.

The efforts of Mantell were recognized widely and he was in frequent communication with Benjamin Silliman (1779-1864) of Yale, who was a somewhat similar individual, for being an honorary M.D., a professional chemist, he lectured on mineralogy and geology, and had a wide interest in natural history. In 1835 Yale College awarded the degree of LL.D. (*in absentia*) to Mantell on the prompting of Silliman and there is little doubt that Mantell himself was not backward in pleading his own cause. No other university gave him any like honour, though he earned medals and commendations from English scientific societies, including the Royal Medal of the Royal Society.

Museum Venture

His desire now was to see his collection and his work publicly recognized. He was, therefore, greatly pleased in 1836 when the Sussex Scientific Institution and Mantellian Museum was founded. The Society began by taking over the house in The Steyne and the collections. This resulted in his wife and family being housed at Southover. "My family removed to Southover and I to lodgings on the Steyne . . . My collection to be arranged for public exhibition for 2-3/4 years . . . but I am sick of the cold-blooded creatures I am surrounded by . . . a change of circumstances with me is but a change of troubles . . . I will not record them" runs his diary for 25 April 1836. Life was

never to be the same. The circumstances made him deliver a series of lectures and he soon found himself much in demand as a public speaker, and, of course, the object of jealousy from colleagues. He also wrote *Thoughts on a Pebble or a First Lesson in Geology*, published in 1836, (which ran to eight editions), and the material of his Museum lectures appeared in *The Wonders of Geology* (1838), a work so successful that its two volumes also had eight editions and several translations.

Alas, the museum venture failed for lack of financial support, and the collection was bought by the Trustees of the British Museum in 1839 for £4,000. It was never, of course, dealt with by the Museum to Mantell's satisfaction (but in 1851 he wrote *Petrifactions and their Teachings or a Handbook to the Gallery of Organic Remains of the British Museum* that included the 25,000 or so of his own collecting). Not only had the museum failed but he found, as William Harvey had done earlier, that scientific discovery is no boon to medical practice. The Brighton gentry proved as unsatisfactory as patients as the Lewes gentry had done so in September 1838 he moved to Clapham Common, to a house that is now 28, South Side.

Here he founded The Clapham Athenaeum of the Advancement of Literary and Scientific Knowledge and lectured on geology. One result was that an appreciative membership presented him with a 100 guinea microscope that was at once put to use on the pond life of Clapham Common. Characteristically this resulted in a book, published in 1846, *Thoughts on Animalcules, or, A Glimpse of the Invisible World Revealed by the Microscope*. This was reviewed at length by the *Lancet* and in the book Mantell actually anticipated the germ theory of disease.

In Clapham he had already described (in *The Lancet*) green-stick fracture in the radius and written *The Medals of Creation*, in two volumes (1844), and it was here too in 1843, that he became an official F.R.C.S. In 1847 he completed his *Geological Excursions Round the Isle of Wight*, which ran to three editions. His diary for 25 February 1847 reads "Took to Buckingham Palace a copy of my Geology of the Isle of Wight and a case of fossils consisting of nearly 100 specimens illustrative of the same for Prince Albert."

He described a new dinosaur, *Regnosaurus*, based on a jaw from Tilgate, like that of *Hylaeosaurus*. He described still another dinosaur *Pelorosaurus* ("monstrously gigantic" reptile) based on a large humerus from Cuckfield, in 1850, and *Telerpeton*, a reptile from north-east Scotland, in 1852. Neither *Pelorosaurus* nor *Telerpeton* has stood the test of time so far as nomenclature is concerned. His large *Pictorial Atlas of Fossil Remains* (which contains many illustrations from the works of Dr. James Parkinson) was published in 1850 and with the *Petrifactions and Their Teachings* (1851) were his last writings.

Later Years

In October 1841 he had been injured when he jumped out of his carriage and was nearly run over. The injury plagued him for the rest of his life and during the final years he was in constant pain and used sedatives in some quantity. His last book was that written in 1851, a year in which he moved to Chester Square in Belgravia and attempted to cope with a West End practice. But he still lectured and busied himself with scientific affairs.

A lonely man, complaining of relative poverty, he still maintained a reasonable household and a medical assistant. He struggled along, he visited the wonders of the 1851 exhibition, and was, in 1852, elected president of the West London Medico-Chirurgical Society. Early in November of that year he insisted on giving a lecture though he had to be helped onto the platform at Clapham. Desperately ill, he managed to get through it but it was all too much. On 10 November he died "of opium taken medically to relieve pain," aged 62. He was buried in Norwood (not Lewes as the *D.N.B.* states).

He is labelled today in Sussex as "the discoverer of the *Iguanodon*," but when in 1842 Richard Owen published the term and classification Dinosauria, two of the three forms on which they were based were Mantell's. He maintained a lively correspondence and friendship with the leading figures of his time. He was elected to the Athenaeum in 1840, so he moved in a society of which Darwin and Dickens were already members. Both wrote to him, though I have not been able to trace Dickens's letters. Tom Hood wrote a piece for him about Tilgate Forest in A.D. 2000, though I have sought for it in vain. After 1839 we never hear of his wife (though he wrote to her in 1841), but his son Walter merited a mention in the *D.N.B.*

But the fossils remain; the old quarry at Cuckfield can be discerned and for his lasting memorial are his many, still readable, books. His diary records an ambitious, querulous, loyal (and sometimes disloyal) friend, and a zealous and often jealous worker. He earned a state pension of £100 in his last years, but he never got what he wanted most—and sometimes saw his friends get—a knighthood. Certainly he was worth it. And the Diary remains a mine of information not, as yet, sufficiently quarried.

References

- ¹ *The Journal of Gideon Mantell, Surgeon and Geologist*, ed. E. Cecil Curwen. Oxford, Oxford University Press, 1940.
- ² Spokes, S., *Gideon Algernon Mantell, Surgeon and Geologist*. London, J. Bale, Sons, and Danielson, 1927.
- ³ Morris, A. D., *Proceedings of the Royal Society of Medicine*, 1972, 65, 215.
- ⁴ Owen, R., *Report of the British Association, for 1841, 1842, 102.*

Any Questions?

We publish below a selection of questions and answers of general interest

Influenza Vaccines

Is there an influenza vaccine available which offers full immunity for all past and future A/HK variants?

I assume that the questioner is really concerned about the possible choice of modern killed virus vaccines given by injection. In Britain and the U.S.A. the vaccines licensed for sale all contain the antigens of viruses which have been common causes of recent influenza A and B epidemics; the concentrations of antigen are higher than they used to be and vaccines of this type are known to be effective. There is a new vaccine, Mutagrip, which contains a strain 30c selected at the Pasteur Institute in Paris as a mutant of the A/Hong Kong/68 strain. This

mutant resembled the A/Eng/42/72 serotype which occurred in nature but studies at the World Influenza Centre show that it does not resemble particularly closely the strains which have occurred in epidemics since then. Furthermore, the resemblance is found in the haemagglutinin antigen only, not in the neuraminidase antigen, which is also important for protection and which in the 30c strain is the same as A/HK/68, but which has changed substantially in epidemic strains. It seems unlikely, therefore, that Mutagrip will give as good protection as a standard British or American vaccine, though there are to my knowledge no results of specific trials made to test this point.

In my view there seems to have been something wrong with the theory on which the research leading to Mutagrip was based. The idea was that once antigenic change had started