

# Darwin and the Copley Medal<sup>1</sup>

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CHARLES DARWIN was awarded the Copley Medal by the council of the Royal Society in November 1864, almost exactly five years after *The Origin of Species* was published, but the award was not made for the *Origin*. How this came to be is an interesting story of forays and maneuvers in Britain's most prestigious learned society.

In 1862, the year Darwin was first nominated, the controversy raised by the *Origin* was undiminished and the criticisms leveled against it by some of the leading men of science were formidable. Darwin had "deserted the true method of induction."<sup>2</sup> Darwin's theory of natural selection, the mechanism by which species evolved, was considered wildly speculative. Critics in several fields of science pointed out that the theory called for many transitional forms, but none had been found in the geological record of the past. The earliest fossils were already advanced in structure. The present geographical distribution of species could not be explained as a continuous evolutionary development from a single center of creation. The theory called for the accumulation of small variations over vast periods of time, a process that contradicted the accepted view of heredity as a blending of characters. William Thomson (later Lord Kelvin) maintained that the great age of the earth needed by the theory of natural selection contradicted the physical laws of thermodynamics, and asserted that the cooling of the earth required only 100 million years to reach its present state.<sup>3</sup>

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<sup>1</sup> Read 27 April 2001. This paper is a shorter and somewhat revised version of the account that has since appeared in volume 12 (1864), appendix 4, of *The Correspondence of Charles Darwin* (Cambridge: Cambridge University Press, 2001). Hereafter the title will be cited as *Correspondence*. All references to the council minutes are to *Minutes of Council of the Royal Society* 3 (1858–69).

<sup>2</sup> Adam Sedgwick, in his letter to Darwin, 14 November 1859, *Correspondence* 7: 396. In 1860 he wrote two scathing reviews of the *Origin* in which he denounced Darwin's abandonment of true scientific method. *Correspondence* 8: 134, n.4.

<sup>3</sup> For these and other scientific criticisms of the *Origin*, see David L. Hull, *Darwin and his Critics* (Chicago: University of Chicago Press, 1983).

With such an array of scientific arguments being made against the *Origin* it is understandable that Major-General Edward Sabine, president of the Royal Society, and chairman of the council that awarded the medal, should feel that the award of the Copley Medal to Darwin would be a disaster, because it would inevitably be interpreted as an endorsement of the *Origin*.

#### THE COUNCIL MEETINGS OF 1862

Despite what appeared to be an unlikely prospect for success, Darwin was nominated for the Copley Medal in 1862 by William Benjamin Carpenter, a leading physiologist, who had written two favorable reviews of the *Origin*. The nomination was seconded by John Lubbock, an entomologist who in his boyhood had been Darwin's protégé. As grounds for the award they cited "the various Researches and Writings by which he has contributed to the advance of Natural History and Zoology." No mention was made of the *Origin* or of any other Darwin publication.

The only other candidate proposed to the council that year was Thomas Graham, a distinguished chemist, for his important work on liquid diffusion.

It came as no surprise on 6 November 1862, that Thomas Graham was awarded the Copley Medal by the council.

At the same meeting, the council voted on a list of the Fellows to be recommended to the members of the Society for election to the council of the following year. By statute, ten of the recommended members had to be new. One of the ten was the botanist Joseph Dalton Hooker, Darwin's best friend and a convert to his theory; another was Richard Owen, the leading British comparative anatomist, who was generally known to be Darwin's severest critic.

#### THE COUNCIL MEETINGS OF 1863

In the summer of 1863, Darwin was again nominated, this time by John Lubbock, seconded by W. B. Carpenter. The grounds for the nomination were Darwin's "important Researches in Geology, Zoology, and Botanical Physiology." An added ground was Darwin's *On the various Contrivances by which British and Foreign Orchids are Fertilised by Insects*, a work published in 1862 and acknowledged even by his critics to be an important and original contribution to botanical research. Again there was no mention of the *Origin*.

Also nominated was Henri Victor Regnault, for the second volume of his experiments to determine the laws of physics involved in the design of combustion engines. A third nominee was August Wilhelm Hofmann, "for his important Researches in Organic Chemistry."

The following week Richard Owen moved, seconded by Philip Grey-Egerton, “that the Rev’d Adam Sedgwick, F.R.S., be placed on the list of candidates for the Copley Medal for his original observations and discoveries in the Palaeozoic series of rocks and more especially for his determination of the characters of the Devonian system. . . .”

At the meeting of 5 November 1863, the council “Resolved by ballot—that the Copley Medal be awarded to the Rev’d Adam Sedgwick.”

Darwin’s correspondence provides some information about what went on in the adjudication discussions of the council. Four days after the award of the medal to Sedgwick, Darwin’s brother Erasmus wrote that “Dr Carpenter showed me the extract from Mill’s *Logic* which he read when he argued for your having the Copley Medal.” The reference is to the passage in J. S. Mill’s *System of Logic* in which he states that Darwin’s theory of natural selection in the *Origin* is an “unimpeachable example of a legitimate hypothesis.”<sup>4</sup>

It is significant that the *Origin* was put forward in the discussions as an argument for awarding the medal to Darwin, though it had not been mentioned in the formal motion proposing him. The strategy of Darwin’s supporters was apparently to omit mention of the *Origin* in the formal grounds of the award, but to argue in the adjudication meetings that the *Origin* made a strong case for awarding him the Copley Medal. Since the minutes recorded only the formal actions of the council, there would be no public record that the *Origin* played any part in the award. Darwin’s supporters may have thought that this procedure might reduce the opposition of those who, like General Sabine, thought that awarding the Copley Medal to Darwin would be considered an endorsement of the views expressed in the *Origin*.

The next day Erasmus sent more news from Carpenter. “The numbers were 8 to 10 for Charles,” he wrote, “but the Cambridge men mustered very strongly for Sedgwick.” These numbers must have been an estimate Carpenter made before the voting session, since only seventeen members were present at that meeting. The Cambridge men were indeed strong in numbers. Six of the members had close ties with the university, and with Richard Owen’s vote, only one of the ten other members of the council was needed to have a majority.<sup>5</sup>

Unknown to Darwin’s supporters was a letter of 12 November 1863 from Sabine to his friend John Phillips, president of the Geologi-

<sup>4</sup>J. S. Mill, *System of Logic*, 5th ed. (1862), 2: 18n.

<sup>5</sup>The six members of the Royal Society Council of 1863 with Cambridge ties were: James Clerk Maxwell (fellow of Trinity College 1855); W. H. Miller (professor of mineralogy 1855–80); Edward Sabine (LL.D. 1855); George Gabriel Stokes (Lucasian professor of mathematics); J. J. Sylvester (second wrangler, St. John’s College 1837); and Robert Willis (professor of experimental physics).

cal Society. The letter leaves no doubt that Sabine was so strongly against Darwin's candidacy that he felt it necessary to use his influence and power as president of the council to secure the award for Sedgwick. Sabine wrote,

It may be that I do not partake sufficiently by reason of my age, of the spirit of the opinions which appear to have taken a strong hold of the younger Geologists and Zoologists. With all respect for Darwin's great services, and recognising that his work on Orchids must be classed amongst these, I cannot see without extreme concern the efforts of a very strong party to obtain the award of the Copley Medal to him expressly on the ground of his conclusions as to the "Origin of Species." A more decided interference [than] I desire to exercise a second time with the thorough independence of the votes of individual members of the Council was required to prevent such an award from being made in this year instead of to Sedgwick. We may not have so good an alternative next year.<sup>6</sup>

#### THE COUNCIL MEETINGS OF 1864

Of the candidates nominated for the Copley Medal in 1864, three—Regnault, Hofmann, and Darwin—were carried over from 1863. This time Darwin was nominated by George Busk, a surgeon and naturalist, and seconded by Hugh Falconer, paleontologist and botanist, an admirer of Darwin, though not a convert to his theory. A fourth candidate was Hermann Helmholtz. The grounds for the nominations of the three candidates carried over were unchanged; Helmholtz was nominated for his "Researches in Physics and Physiology."

If this roster reflected Sabine's effort to find an alternative to Darwin, it is probable that he favored Helmholtz, who, at age forty-three, was recognized as one of the leading men of science in Germany. Sabine may have assumed that three medical men added to the newly elected membership of the council of 1864 would increase Helmholtz's chance of gaining the support needed to win the medal. Also, Helmholtz was a close friend of William Thomson, the physicist critical of the view of the great age of the earth held by the geologist Charles Lyell and by Darwin.

The make-up of the council of 1864, if professional interests and age carried any weight in balloting, was not one likely to award the medal to Darwin. Of the twenty-one members, Busk, Falconer, and Hooker were the only natural scientists. There were ten in the physical sciences, three mathematicians, four practicing medical men, and one historian. Only six members were under fifty years old.

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<sup>6</sup> *Correspondence* 11: 669.

On 27 June, Erasmus Darwin wrote to Darwin that he was to be proposed for the Copley Medal and that Falconer had asked for a list of Darwin's papers, and other material to be used in establishing the grounds for the award. In the same letter Erasmus told Darwin that "several of the mathematicians are in your favour."

On 25 October Falconer wrote to William Sharpey, a secretary of the council, that he could not be present on 27 October, when discussion of the candidates was to begin, but that he would certainly be in London on 3 November for the balloting. In the meantime he asked to be heard on the grounds on which he had seconded Busk's nomination of Darwin. He then referred to a classified list he had made of the scientific labors of Darwin in "geology, physical geography, zoology, physiological botany and genetic biology." Lastly, Falconer added, "I consider this great essay on *Genetic Biology* [the *Origin*] to constitute a strong additional claim on behalf of Mr. Darwin for the Copley Medal."

When the voting took place on 3 November, with twenty members present, it was "resolved by ballot that the Copley Medal be awarded to Charles Darwin F.R.S. for his important Researches in Geology, Zoology, and Botanical Physiology." As always, the minutes make no mention of the discussion at the adjudication meeting, nor of the number of votes cast for the candidates.

Immediately after the meeting Falconer wrote to congratulate Darwin and added, "Your friends—including myself did not fail to stand up for the 'Origin of Specs'—as establishing a strong claim." A note next to his signature indicates that Darwin had a majority of twelve of the twenty members present. Hooker later told Darwin in confidence that James Alderson and Thomas Watson (both M.D.'s, new members, and in their seventies), though knowing nothing about Darwin, had nevertheless given him their votes.

#### THE ANNIVERSARY MEETING

The Copley and the other medals awarded by the Royal Society Council were traditionally presented at the anniversary meeting of the Society, which in 1864 fell on 30 November. Sabine in his citation of the Copley Medal stated that the grounds of the award to Darwin had been his contributions to geology, zoology and physiological botany, and proceeded to discuss the work Darwin had done in each field.<sup>7</sup>

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<sup>7</sup>Sabine here uses the term Falconer used in his letter to Sharpey, 25 October 1864. The council minutes of 3 November 1864 have "botanical physiology" as one of the grounds that Busk and Falconer used in their formal nomination. No change was made in the *Proceedings of the Royal Society* (1864).

Then, at the conclusion of the zoology citations, Sabine suddenly referred to the *Origin of Species*, saying, "Some amongst us may perhaps incline to accept the theory indicated by the title of this work, . . . while others perhaps incline to refuse, or at least to remit to a future time, when increased knowledge shall afford stronger grounds for its ultimate acceptance or rejection. Speaking generally and collectively, we have expressly omitted it from the grounds of our award."

When the time came for the motion to print the address, T. H. Huxley, who later claimed, with Busk, to have heard the words as "expressly excluded," rose and asked that the minutes of the council meeting be read. When this was done, the minutes contained only the formal resolution on which the council had voted. There was no mention of the *Origin* at all and no report of the discussion that had taken place.

Huxley's intervention caused a sensation. It was clearly intended to convey a charge that Sabine had gone further than the council and had interjected his personal view that the council's award was not an endorsement of the *Origin*.

On 5 December, George Gabriel Stokes, who, as a secretary of the Society, had read Sabine's anniversary address to the membership, wrote to Huxley to say that he had checked both the manuscript and the printed text from which he had read, and the expression was "expressly omitted" in both versions. Huxley replied that he "never had a clearer or more distinct impression in his life" than that he had heard "expressly excluded," but yielded to the printed version (which the members had voted to be published). Nevertheless, Huxley still objected to "expressly omitted" because, he claimed, it would be understood as saying that the omission, and the public notification of the omission, were "the result of a distinct determination of the Council as a body."<sup>8</sup>

Stokes, in reply, described what he claimed took place at the adjudication meeting at which the medal was awarded.

The proposal of the Copley Medal to Darwin was as you know made . . . on other grounds. The work on the origin of species was however too important to be passed sub silentio, and therefore, he [Busk] gave reasons for not including that among the grounds of the award. When the matter thus came formally before the Council, the President from the Chair used words of this general purport:—"Then we are to understand that the work on the origin of species is not included among the grounds of the award. . . ." This was assented to, and the Council considered and voted on Mr Darwin's claims accordingly.

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<sup>8</sup> For full texts of the letters exchanged between Stokes and Huxley from 5 to 9 December 1864, see *Correspondence* 12: 446–58.

Stokes does not mention the source of this account. It may have come from his own memory or from informal notes made by him or by the treasurer, whose function as officer of the Society it was to take minutes. Nor is it known what Busk said, but it was apparently acceptable to the other Darwin supporters on the council. Busk would not have been outraged at Sabine's "expressly excluded" (as he heard it) if it correctly reflected what he as the proposer had said was the reason for omitting the *Origin* at the meeting. The most probable reason was that he had done so in order to avoid controversy. But the question at issue was not only whether Sabine's report of the council's collective opinion was accurate, but whether it should have been made public when it was not, as the term "expressly" implied, a decision made by the council after deliberation and formal balloting. Indeed, since no objection to it was made, Stokes's account was probably accurate, though expressed in more formal language than the situation required. Huxley, in his reply to Stokes, "gladly" accepted his authority for it, but denied that assent to the president's statement "from the Chair" justified Sabine's inserting the passage in his public address. Huxley maintained that no public allusion whatever to the *Origin* was justified.

So the matter was left. Darwin's supporters had succeeded in getting the Copley Medal for him, but Sabine had succeeded in making it clear that the award was not an official endorsement of the *Origin* by the Royal Society.

Huxley's attack did, however, result in a change in the official record of Sabine's statement in the anniversary address. When it was published in the *Proceedings of the Royal Society*, the words "expressly omitted" were deleted and the wording was changed to read, "Speaking generally and collectively we have not included it in our award." Although not a complete victory for Huxley, it does appear to be a concession to his view that "expressly" implied a distinct determination by the council as a body.

At the anniversary dinner following the meeting, Charles Lyell gave the address, and took the opportunity to give his opinion of the award of the Copley Medal to Darwin. "I am aware," he said, "that it is not for the *Origin of Species* that the Copley Medal has been conferred, but I am also sure that it is with that work that the public and more especially the rising generation will naturally recollect the honour which we are now doing to my friend."<sup>9</sup>

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<sup>9</sup>The full text of Lyell's dinner address is published with M. J. Bartholomew's "The award of the Copley Medal to Charles Darwin" in *Notes and records of the Royal Society of London* 30 (1975-76), pt. 2 (January 1974), 209-18. Bartholomew's paper is concerned chiefly with defending Sabine's account of the council's action against Huxley's attack.

look at it - sufficient  
 the so many men, good  
 of time; that all be  
 deceived. - Forgive the  
 want of severity &  
 remember that you have  
 made me a very  
 poor gentleman.  
 I beg believe me  
 your very sincerely obliged  
 Charles Darwin

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Darwin

Darwin's exuberant signature in his letter of thanks to General Edward Sabine, president of the Royal Society (Royal Society, Sabine: 388). The C is four times larger than normal. The letter is reproduced by permission of the President and Council of the Royal Society.

Darwin was not able to receive the Copley Medal in person because of a protracted illness that left him too weak to attend the anniversary meeting. A few days later, when he read Sabine's anniversary address, he expressed only mild disappointment that the *Origin*



had been passed over, but was elated by what was said in praise of the work he had done in natural history. He expressed much the same sentiments in his letters to friends. Although he knew that the citations had been written by Hooker, Busk, and probably Falconer, he was nevertheless genuinely impressed and filled with pride that this eulogy came from the president of the Royal Society. His letter to Sabine makes clear how he felt:

My dear General Sabine,

You must permit me to thank you for your splendid eulogium on what I have done in natural history. . . . As I read your address in the Reader I declare that I felt quite amazed at what I had done. You have made me hold my head very loftily with infinite pride. I sh<sup>d</sup> of course have liked you to have said a little more on the "Origin", but you could write only according to your own judgment or to that of those in whom you trust. You will think me very presumptuous, when I say that I now feel no shadow of doubt on the future progress of Natural Selection, for I have lately received from Germany such a string of excellent names of men, who have already declared or who will immediately declare, their full adhesion to the principle, that I look at it as impossible that so many men, good & true, should all be deceived.—Forgive this outburst of vanity & remember that you have made me a very proud gentleman.

Pray believe me Yours very sincerely obliged Charles Darwin<sup>10</sup>

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<sup>10</sup>Darwin to Edward Sabine, 4 December [1864], *Correspondence* 12: 439.