

## **Gowan Dawson, *Show Me the Bone: Reconstructing Prehistoric Monsters in Nineteenth-Century Britain and America***

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It is not difficult to find metaphors for scientific research as being parallel to crime investigation, whether in true or in fictional stories. A classic example is Sherlock Holmes, the great detective in Arthur Conan Doyle's novels, whose trademarks include extensive knowledge of criminology and methodical deductions. To solve the mysteries of nature or the human world, in Doyle's words (through Holmes), scientists and detectives both require feats of insight to "correctly describe a whole animal by the contemplation of a single bone" (14). The heroic scientist to whom Doyle refers is French anatomist Georges Cuvier (1769–1832). Cuvier's law of correlation deeply influenced his contemporaries' thoughts on the representation of science. Gowan Dawson's *Show Me the Bone* attempts to explain how Cuvier's axiom triumphed and declined in the mid-nineteenth century and how its residue continued to thrive afterward outside the scientific realm.

Cuvier was an innovative pioneer of paleontology aiming to make the discipline as reasonable as physical sciences. Cuvier's law of correlation, the method to "infer the size, appearance, and even life habits of animals from just a single part of their anatomy" (3), was highly admired in nineteenth-century Europe and America. Cuvier invoked the story of Zadig, the wise man who is able to identify the track of the king's escaped horse in Voltaire's eponymous fiction, to describe the feat of his method. Despite the law's later challenge and eventual overthrow, the representation of the law of correlation had become deeply rooted in literature and popular culture. It became a clichéd image of scientists for representing their mental powers.

The transfer of the Cuvierian axiom from the specialist context to the cultural realm was actually a two-way exchange. Cuvier referred to the feat of his method as that of the fictional character Zadig; the popularity of Cuvierian correlation later inspired the creation of Sherlock Holmes. As Dawson remarks, the "Zadig-like process of

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backward reasoning . . . was conflated with Cuvier's conviction that the paleontological accomplishments . . . were attributed to his understanding of rational laws" (362). This observation brings out the main thesis that "literary factors helped shape perceptions of the law of correlation, among practitioners as much as the public, and often . . . diverged from the opinions of the elite scientific community" (13).

The book consists of four thematic parts in chronological order. The first part, chapters 1 and 2, narrates the arrival of the law of correlation in Cuvier's lifetime, in the early nineteenth century. Here Dawson stresses the circulation of Cuvierian correlation outside France, particularly in the English-speaking world. Despite the French Revolutionary War and later Napoleonic blockade of Britain, news of Cuvier's fossil research still crossed the Channel via commercial science and literary periodicals. British enthusiasm for Cuvier's science was partly because his understanding of animal structure suited the picture of harmonic mechanisms by divine design. Although Cuvier himself was ambivalently silent with regard to religion, the law of correlation became "increasingly central to the Anglican tradition of natural theology" (6). On the other hand, Cuvier's organic laws were amenable to divergent interpretations: Whig radicals or militant materialists could also find backup from his science. Cuvierian correlation also reached the other side of the Atlantic via a large number of reprinted British books and periodicals. Cuvier's Swiss protégé, Louis Agassiz (1807–73), who later immigrated to the United States, was instrumental in consolidating Cuvierian correlation in America.

The second part of the book focuses on the popularization of Cuvierian correlation in Britain during the 1840s and 1850s. English zoologist Richard Owen (1804–92) is the key figure in this part: each chapter explores one case of Owen's efforts to promote Cuvierian correlation. Chapter 3 deals with the reconstruction of the *Dinornis*, a.k.a. the giant moa, an extinct genus of flightless birds in New Zealand. Chapter 4 sees serializations in periodicals as a means to popularize paleontological findings. Chapter 5 discusses Owen's involvement in the making of the life-size dinosaur models in the Crystal Palace at Sydenham. Owen, who was fashioned by contemporaries as the "British Cuvier," had a keen sense of using the media—sometimes unfairly. For example, to secure the credit for reconstructing the *Dinornis*, Owen and his supporters orchestrated a series of literary reproductions. Dawson argues that such "scissors-and-paste" journalism, anonymous authorship, and the covert bonds of personal friendship made "highly partisan and even deliberately distorted accounts of the *Dinornis* as if they were merely exciting reports from impartial sources" (120) that could be as influential and widely read as possible. Owen's mastery and careful deployment of Cuvierian correlation also showed in his public lectures and supervision for the display of the Crystal Palace dinosaurs. Whether out of self-promotion or popularization, Owen's doings successfully boosted the general public's interest in prehistoric monsters and the prestige of Cuvierian correlation.

Owen's controversial personality had a doubled-edged effect on Cuvierian correlation. Both the proponent and the axiom attracted fame as well as criticism. The third and the fourth parts, chapters 6–10, narrate the siege and demise of Cuvierian correlation, respectively, after the mid-nineteenth century. The most fervent opponent of Owen was Thomas Henry Huxley (1825–95), who preferred empirical deduction rather than the putative method of necessary correlation. A common myth is that Huxley objected to Cuvier's science because of its suggestion that each species was an unchanging well-integrated "design." However, prior to the publication of Charles Darwin's *On the Origin of Species* (1859), the disputes over Owen and his

endorsement of necessary correlation had already become intense among naturalists between 1854 and 1857. Huxley's argument provided an empirical and secular approach to organic structure. Within a few years, as Dawson indicates, "almost the entire scientific community . . . had shifted to the anti-Cuvierian position first outlined by Huxley" (241). Outside scientific circles, nevertheless, the connections between Cuvierian correlation and detective minds had grown in literature and popular culture. Numerous authors from Dickens to Doyle created characters based on the feat of powerful backward reasoning. Cuvierian correlation earned its afterlife in the realm of imagination.

In many ways, *Show Me the Bone* reminds me of James Secord's classic book *Victorian Sensation* (2000). Both works analyze a broader sociocultural context behind controversial scientific knowledge. In *Victorian Sensation*, by tracing the production, circulation, and reception of an infamous best seller, Secord shows how the science of progress disseminated and evoked intense public debates before the Darwinian theory of evolution. In *Show Me the Bone*, Dawson demonstrates the social, religious, and political factors in the popularity of Cuvierian correlation through literature ranging from encyclopedias to guidebooks. The two works, however, have different emphases. Secord focuses on the reactions to the best seller and therefore conducts detailed analysis of its readership. In contrast, Dawson emphasizes the process of how a scientific axiom transfers from the specialist context to literary or cultural realms.

The use of literature and spectacles to promote prehistoric monsters in early Victorian Britain has also been discussed in Ralph O'Connor's *The Earth on Show* (2007). O'Connor indicates that Victorian popularizers, including men of science, clergymen, hack writers, and show managers, borrowed familiar language from the Bible and modern poetry in their accounts of the prehistoric world. Such romantic depictions of a vanished ancient past hold a fascination for the public, hence the growing prestige of geology and paleontology. Nevertheless, romantic poetry was just one motif used in contemporary literature of popular science. The main contribution of *Show Me the Bone* is to provide another aspect of the popular construction of prehistoric monsters: the element of "romanticized" reasoning that boosted the powers of science.

Overall, *Show Me the Bone* is a sophisticated and readable work. For readers interested in the interactions among science, literature, and popular culture, Dawson offers a sound study of the entanglements between scientific deduction and detective genre. Moreover, the cases of the interactions in *Show Me the Bone* involve two-way traffic—both literary and scientific realms exert influence on each other. For readers interested in the history of science popularization, the book describes the early construction of the popularity of paleontology and prehistoric animals among the public. Though *Show Me the Bone* does not detail the development of Cuvierian science and its later disputes over Darwinian evolution, it is still a good companion to the dissemination of Cuvierian correlation.

## References

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