The chemistry's right: it was love at first sight for Richard Burton when he met Elizabeth Taylor.

I gaze at the sparkling universe: overwhelming awe."

Fisher's populist book attempts to explain the mechanism of romance. It is snappily written and filled with quotations. Here's Richard Burton's first sight of a 19-year-old Elizabeth Taylor: "She was so extraordinarily beautiful I nearly laughed out loud. She... was famine, fire, destruction and plague... Her breasts were apocalyptic, they would topple empires before they withered... those huge violet eyes... had an odd glint... Aeons passed, civilizations came and went while these cosmic headlights examined my flawed personality. Every pockmark on my face became a crater of the moon."

Fisher's thesis is that headlong infatuation is a universal human trait. The brain scans she has made of volunteers in and out of love, and their chemical background, are the scientific kernel of the story. The book's aim is to interest people who are fascinated by love found or love lost, with a light hand on the science side.

What interests me is what Fisher does not say. She makes a deliberate choice to ignore the mind-brain and evolution-culture controversies of recent decades. She does not bother justifying her approach. She quotes sociobiologists and evolutionary psychologists as sources, with no mention that they still raise many people's hackles. She simply describes a mating system that sets our emotions on fire at the sight and touch of a beloved individual, but where lust, companionship and romance do not map perfectly onto each other. Then she speculates how this system enables the successful propagation of a species that needs commitment

between partners, at least during the first four years of a dependent child's life. So far, I am with her. It is high time we outgrew the phlogiston theory of biology-free humans.

However, she also chooses to ignore the ethics of her studies. This worries me more. She accepts a chemical-based society. When love is lost, depression sets in. In mild form, it is adaptive, enabling the jilted lover to let go. In extreme forms, it is horror. Fisher reports that currently "some 7.1 million Americans take serotonin boosters to counter depression, stress, bereavement, or the despair of tragic love". She doesn't strongly advise that you join them, but points out that anything is better than suicide. When you are ready to fall in love again, she suggests reviewing your medication. Serotonin boosters could block romantic obsession, trivializing your next relationship.

I conclude that King Mark does not stalk Iseult or menace Tristan, her knightly lover. His first love potion having gone astray, he simply doses Iseult with an antidote before readministering the potion, making sure this time that she looks at him, not Tristan. Tristan is still obsessed by old-fashioned romantic love, ignoring its chemical bases. He sneaks into the castle disguised as a jester. His faithful hound recognizes his smell, but not only does Iseult not recognize him, she does not even care. Now you can decide the story's end. Does Tristan die of a broken heart? Or does King Mark don a doctor's white coat and advance on his rival, syringe in hand — not to murder Tristan, but to erase his love? ■
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Fossils off the record

To See the Fellows Fight: Eye Witness Accounts of Meetings of the Geological Society of London and its Club, 1822–1868

edited by John C. Thackray
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Martin Rudwick

The Geological Society of London, founded in 1807, was one of the first learned societies to be devoted to a specific science, and it was the first in the world to be devoted to geology. The most significant feature of its early meetings was one that nowadays we take for granted: it was agreed to allow discussion of the papers that were read.

This was in stark contrast to what was customary at the Royal Society, and at learned societies generally, where comments were relegated to private conversations after the formal meeting had ended. There was a fear that if discussion were allowed within a meeting it might degenerate into abusive argument, and that this would undermine the public image of the sciences as bodies of factual knowledge, about which there could not properly be divergent opinions.

In the event, however, the Geological Society's decision to allow discussion was vindicated, and other scientific bodies eventually adopted the same custom. It signalled a tacit acceptance of the vital role of argument and disagreement in the process of establishing and improving scientific knowledge. The Geological Society's meetings became famous for their lively arguments. As the editor of the Tory intellectual *Quarterly Review* commented: "I don't much care for geology, but I do like to see the Fellows fight."

This memorable quote has been used as the title for the late John Thackray's valuable collection of contemporary reports of the meetings of the Geological Society in its early decades. The brief official record of the titles of the papers read is followed by excerpts from letters and private journals reporting or commenting on the discussions or on the papers themselves. No formal account of the discussions was published, so these are the only evidence of what those present thought of the papers. Some other valuable accounts are of discussions at the society's informal dining club, rather than its formal meetings.

The collection starts in 1822, with an occasion that epitomizes the star-studded period in the history of English geology that had by then begun. William Buckland of Oxford University described at the club's dinner table how he had reconstructed the ecosystem of 'ante-diluvial' (Pleistocene)

Wild speculation? William Buckland won a Copley Medal for his work on the Pleistocene.

Yorkshire, based on fossils recently found in Kirkdale Cave: "The hyaenas, gentlemen, preferred the flesh of elephants, rhinoceros, deer, cows, horses &c., but sometimes unable to procure these & half starved they used to come out of the narrow entrance of their cave in the evening down to the water's edge of a lake which *must* once have been there, & so helped themselves to some of the innumerable water-rats in which the lake abounded." The prosaic young Charles Lyell was baffled: "We could none of us discern how far he believed himself what he said," he reported to his friend Gideon Mantell, who had not been present. (In fact, Buckland had good evidence for his reconstruction, and the Royal Society gave him a Copley Medal for it.)

The last report comes from 1868, when summaries of the discussions at meetings began to be published in the society's *Proceedings*. By this time, the brilliance of the earlier period had begun to fade.

Thackray's book should not be read from cover to cover, but random dipping will yield some absorbing and often entertaining vignettes of a lively and argumentative bunch of highly intelligent scientists. And for historians the book is an invaluable aid to further research, as it brings together comments that illustrate the character and development of some important controversies, including those about the Devonian system and the Pleistocene glaciations. We should be grateful to those of John Thackray's friends who have worked hard to bring his anthology to publication; it is a fine memorial to a colleague who was much loved and respected, and is greatly missed.

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Science in culture

Animated animals

Jean-Baptiste Oudry's paintings brought beasts to life.

Martin Kemp

How should we portray an animal to provide information to those who are unfamiliar with it? It depends on what sort of information is to be conveyed. An illustration concerned with identification will pay attention to shape and detail, treating the subject like a static specimen. Animal behaviourists will require that action be given priority — even expression, as in Darwin's *The Expression of the Emotions in Man and Animals* (1872). Ecologists will look to the setting of the animals in their environments. But answers to this question have also changed over the centuries.

Before the eighteenth century, picture books of the world's fauna generally displayed animals as specimens, rarely in action. Painters, by contrast, typically set appropriate animals in stirring narratives, such as lion hunts, or within other pictures, such as portraits of aristocrats. The greatest painter of animals in the eighteenth century, Jean-Baptiste Oudry (1686–1755), not only portrayed animals with exceptional vitality in traditional genres, but also changed the way that 'zoological' specimens could be characterized.

In the 1730s, Oudry was commissioned by Louis XV's surgeon, Francois Gigot de La Peyronie, to undertake a series of paintings, many life-sized, of the prized exotics in the Royal Menagerie in Versailles, France. The paintings were apparently intended for the royal collection and were to be engraved. But when La Peyronie died in 1747, the project lapsed and the pictures remained in the artist's hands. They were scooped up by the Duke of Mecklenburg-Schwerin, another of Oudry's patrons. Now, much of the series has returned to France from the Staatliches Museum in Schwerin, Germany, for a compelling exhibition at Versailles.

Based on wonderfully spirited drawings, the paintings of animals exude a sense of their living presence, their deportment, character and expression. They are action portraits, sometimes heroic, sometimes sentimental, sometimes amusing. There is, not surprisingly given that Oudry illustrated the *Fables* of Jean de La Fontaine, a strong anthropomorphic element to the paintings. But the anthropomorphism has a solid base, not unrelated to Darwin's seminal book, *The Descent of Man*.

Oudry described the *Male Leopard* (right), a painting exhibited at the Paris Salon in 1741, as "a male tiger [sic] in choleric disposition". Its companion piece portrays "a female tiger in a tranquil attitude". These brief descriptions serve to key Oudry's portraits into the great tradition of characterizing the humours and temperaments in painting exemplified by the teaching of Charles Le Brun, founder of the French Academy. Animals, like people, were seen to exhibit generic characteristics: lions, like warrior-kings, were bold but just; foxes were cunning; mice were timorous; females maternal and docile. They also manifested the specific emotions of the moment.

Le Brun provided a series of physiognomic formulae with which to convey character and expression. His treatise on *General and Particular Expression* showed how such sentiments and feelings as love, jealousy, pain, anger, terror and sadness were displayed by the configuration of all of the features of the head. Oudry's *Male Leopard* is the feline embodiment of Le Brun's *Choler Mixed with Rage*. The eyebrows are arched, the brow is bunched, the eyes open wide, seeming to protrude from their sockets; the lips are drawn back to reveal the teeth; and nostrils and whiskers flare. The leopard's tail thrashes angrily, and it twists with lithe agility to confront an unseen adversary. Oudry's fizzing brushwork matches the vivacity of his draughtsmanship.

Although Darwin was sharply critical of Le Brun's formulaic tendencies, he did insist on the underlying universality of expressive mechanisms, many of which have survived in humans divorced from their functional contexts. Oudry's common factor was the doctrine of the humours; Darwin's was the descent of man from animals. Like all great artists, Oudry achieves an insight that transcends the doctrines of his times.

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Jean-Baptiste Oudry's *Male Leopard* reveals the beast's emotions.