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GREGORY RADICK

EVERY LIVING THING

The Great and Deadly Race to Know All Life

JASON ROBERTS

400 pp. Riverrun. £30.

In *Every Living Thing: The great and deadly race to know all life*, Jason Roberts entertainingly traces the intersecting lives and afterlives of the two most important figures in eighteenth-century natural history, Swedish naturalist Carl Linnaeus (1707–1778) and French savant Georges-Louis Leclerc, Comte de Buffon (1707–1788) – rivals whose distinct approaches became mutually reinforcing in the work of their most illustrious successor in the next century, Charles Darwin.

As Darwin noted in *On the Origin of Species* (1859), thanks to his evolutionary theory, “the grand fact in natural history of the subordination of group under group” – species under genera, genera under orders, orders under classes, and classes under kingdoms, as initially proposed and labelled by Linnaeus – could now be fully explained. Species so similar that naturalists had grouped them into the same genus shared a recent common ancestor; similar genera contained species all descended from a more distant common ancestor; and so on, down and across what Darwin now revealed to be a branching tree of life. Linnaeus’s conception, however, had been static: he had sought to uncover a divine design, largely fixed at the point of creation chronicled in the Book of Genesis. Buffon, by contrast, had wanted to bring animals and plants – along with the Earth itself, and the rest of the solar system – within the orbit of a history unfolding in accord with Newtonian natural laws. He wasn’t an evolutionist, but his historical science made Darwin’s evolutionism possible.

Roberts’s skilful opening epitome of men who were “exact contemporaries, and polar opposites” gives a clue to his sympathies:

Carl Linnaeus was a Swedish doctor with a diploma-mill medical degree and a flair for self-promotion, who trumpeted that “nobody has been a greater botanist or zoologist” while anonymously publishing rave reviews of his own work. Georges-Louis de Buffon, the gentleman keeper of France’s royal garden, disdained contemporary glory as “a vain and deceitful phantom,” despite being more famous during their lifetimes. Linnaeus, the anxious center of his own universe, preferred the company of student acolytes. Buffon, as renowned for his elegance as for his brilliance, cut a confident swath through the court of Versailles and the salons of Paris.

The contrasts continue: the orthodox piety of Linnaeus and the scandalous irreverence of Buffon; Linnaeus’s misogyny towards daughters deemed “unworthy of education” – he forbade them to learn French, lest it lead them into temptation – and Buffon’s delight in accomplished women; Linnaeus’s separation of *Homo sapiens* (as he named us) into superior and inferior kinds, and Buffon’s aversion to “the herding of humanity into rigid categories, emphasizing instead our vast, nuanced diversity and common origin”.

The two didn’t become aware of each other until their thirties – in the 1740s – so *Every Living Thing* begins with some awkward biographical intercutting. Here the main contrast is between Linnaeus’s struggles, for an education and a livelihood, and the well-connected Buffon’s comparatively frictionless ascent. As the son of a provincial Lutheran curate (who Latinized their surname), Linnaeus was expected to inherit his father’s post. Had that happened, the botanically inclined boy might have ended up a Swedish Gilbert White, writing books on the natural history of Småland. But he was judged insufficiently bright for the priesthood and so encouraged to study medicine. Years of hardship followed at university in Lund, then Uppsala. The medical training at both institutions was poor, but his knowledge deepened with access to physic gardens and botanical texts. To his surprise, a manuscript he presented as a gift to a professor at Uppsala – *Prelude to the Betrothal of Plants* (1729), which put forward an easy-to-use system for plant identification based on the number, form and arrangement of the reproductive organs of flowers (a “botanical Kama Sutra,” Roberts calls it) – rapidly became widely known and discussed.

Without a position, Linnaeus spent much of the next decade travelling, along the way making an expedition to Lapland, finishing his medical training in the Netherlands, getting denounced for the “loathsome harlotry” of his new sexual system and publishing the book he would spend the rest of his life expanding and refining: *Systema Naturae* (1735), which

introduced his taxonomic hierarchy and encompassed animals and minerals as well as plants. Buffon, meanwhile, completed a transformation from *ancien régime* layabout to model citizen of the Republic of Letters with a study of mathematical probability that won him election to the Académie des Sciences. He settled into a routine of fourteen-hour workdays, living half the year in Paris and the other half at his rural estate in Burgundy, where he oversaw a huge tree-planting experiment aimed at improving timber production. Only after his appointment in 1739 to the directorship of Paris's Jardin du Roi, with its outstanding botanical garden, specimen collection and reputation for attracting the best naturalists in Europe, did natural history become his central interest.

He now applied himself to the problem of organizing the Jardin's materials, and on a colleague's recommendation read *Systema Naturae*. For Buffon the trouble was not its immorality, but its pretensions. Far from acknowledging that no taxonomic system can do justice to nature in its complex variability, Linnaeus declared individual organisms to be type specimens, then multiplied the levels on which type was artificially divided from type. Absurd as the results were for animals – oysters classed as worms, lobsters as insects – the divisions for plants were worse, with elms joined to carrots and oaks to bloodworts. Of the classifying methods available at the time, Buffon wrote in 1745, Linnaeus's were “the least sensible and the most monstrous”. In 1749, Buffon went public with his criticisms in the first volume of his *Histoire naturelle, générale et particulière*, which showed how Buffon thought natural history should be done: not by abstract system-building but by rich, essayistic description. It became a bestseller, ultimately comprising thirty-six volumes under Buffon's authorship – with more added after his death – and including, as a supplement, *Les époques de la nature* (1778), his unbiblical history of the solar system, the Earth and all its inhabitants.

The subtitle to *Every Living Thing* is misleading. Buffon and Linnaeus weren't really racing against each other. It was time they were up against, and tasks whose difficulty – like the number of species – they had underestimated. Buffon never made it beyond mammals (again, Linnaeus's coinage), birds and minerals. Linnaeus, whose scheme was comprehensive in outline from early on, went further. Fame helped, bringing fans who began sending specimens for categorization to Uppsala, where, from 1741, he held a professorship and looked after the botanical garden. Buffon's objections notwithstanding, the Linnaean vision -- with every species assigned its rightful place and (another innovation) a two-part, genus-identifying Latin name – captured imaginations. Classifying the Linnaean way became an enjoyable and, for those determined not to notice the smut, wholesome pastime. In the age of empire, it also

proved useful for surveying colonial possessions, though it could be dangerous, too, as eager young men bent on discovering species new to Linnaean science in remote and hostile environments sometimes found to their cost. “Lofling gave his life for Flora and her lovers, and they mourn his loss”, pronounced Linnaeus after the fever-wracked death of his former student Peter Löfning in the jungles of Guyana.

The book’s final chapters bring the story from the late eighteenth century into the present. There are some superb passages, especially on the Jardin during and after the French Revolution, and on how James Edward Smith, one of Linnaeus’s English admirers, came to acquire his collections, manuscripts and library – all now at the Linnean Society’s premises at Burlington House in London – from his impecunious widow. The coverage is patchy, however, and the author’s Buffonian allegiances get the better of him. A striking omission is Darwin’s grandfather Erasmus, who popularized Linnaeus’s sexual system in a somewhat risqué poem, “The Loves of the Plants” (1789), and established a botanical society so that the major Linnaean compilations of plant genera and species might be translated into English. As for Erasmus’s grandson Charles, *Every Living Thing* neglects entirely the *Origin*’s linking of Linnaean hierarchy to genealogy and concentrates instead on the minor issue of the supposed resemblance between Buffon’s ideas about how bodies form and Darwin’s hypothesis of pangenesis. (In the 1875 edition of his *Variation of Animals and Plants under Domestication*, Darwin wrote that his hypothesis, although superficially resembling Buffon’s, was “essentially different”.) No doubt Jason Roberts is right to conclude that the emphasis on sheer complexity in today’s biology vindicates Buffon. Yet in species-identification apps popular the world over, Linnaeus lives on.