

# When Galileo turned to verse

The English translation of an obscure, 400-year-old Italian curiosity.

**Against the Donning of the Gown:  
Contro Il Portar La Toga**

by Galileo Galilei, translated by  
Giovanni F. Bignami  
*Moon Books: 2000. 85 pp.*

**Dava Sobel**

Rightly hailed as the father of modern physics and a mighty expositor of Italian prose, Galileo Galilei (1564–1642) also dabbled in poetry. Like other cultured gentlemen of his acquaintance, Galileo composed verses in *terza rima*, the 11-syllable-line style of Dante’s *The Divine Comedy*, and wrote sonnets, too. But although all of Galileo’s published books on natural philosophy appeared in English translations before the end of the seventeenth century, his poetry has remained an obscure Italian curiosity.

Now, at last, Giovanni Bignami, director of science at the Italian Space Agency, has translated two of Galileo’s best poems into English. The result is a book as distinguished for its physical beauty as for the quality of its text (see <http://www.galileounaluna.com>). It looks to be an artefact of Galileo’s own time, printed in a limited edition of only 2,000 copies, on “natural cotton fiber paper with neutral pH for conservation beyond time and with uncut edges”, according to a typographer’s note at the back. It is bound by hand in thick leather covers the colour of vanilla ice-cream, with a facsimile of Galileo’s signature impressed on the face, not to mention a woven bookmark sewn into the binding. Even the imprimatur on the title page — the coat of arms of the Lyncean Academy — pulls a thread through history, for in 1611 Galileo joined this early scientific society, which published two of his astronomy books, and today it counts Bignami among its members.

“This is not to be taken seriously,” Bignami states in his opening “Caveat” to the poetry. Indeed, Galileo might well have said the same. The first poem, probably written in 1590, presents the youthful Galileo at his most playful, before his father’s death in 1591 left him financially responsible for the support of his extended family on an upstart professor’s paltry salary, and before the Church Edict of 1616 constrained his broad view of the Universe. This title poem, *Against the Donning of the Gown*, pokes 301 lines of fun at the pompous practice of the University of Pisa, where Galileo began teaching in 1589, of forcing professors to wear academic gowns whenever they appeared in public. Galileo paid frequent fines for breaking this rule. In the poem he claims that people could better appreciate one another’s true virtues if everyone were to go naked, and that a man’s



Galileo the poet: he wrote that people could better appreciate one another’s virtues if everyone were to go naked.

dress tells no more about his true capabilities than a fancy flask discloses of the wine inside it. Despite the light tone and topic, the poem epitomizes Galileo’s gusto for a good argument.

Bignami has managed to retain the braided rhyme scheme of *terza rima* (ABA, BCB, CDC, and so on) in his translation. This is a remarkable feat, considering how Italian — a musical language of only seven vowel sounds that rhyme almost effortlessly (even accidentally in ordinary speech) — compares with English, which has 52 vowel sounds. The rhyming does not make the poem feel any more stretched or far-fetched in English than it sounds in Italian, however. Its original mix of highfalutin declamatory airs and low humour is well preserved.

Although *Against the Donning of the Gown* says nothing about science *per se*, the second poem in this volume addresses a true scientific conundrum that eluded Galileo all his life and fuelled some of his nastiest contests with Jesuit contemporaries. This sonnet, “Enigma”, poses a riddle to the reader: “Monster I am,” the verse begins, “stranger in shape and form/Th[a]n the harpy, the siren or the ghoul”.

What is this wretched, wraith-like creature who dwells in the dark, pursued by swarms of hunters? Galileo never published the puzzle’s answer, but Bignami shows his own (no doubt correct) solution in an image of a comet drawn by Donata Almicci.

Seventeenth-century philosophers passionately debated the nature of comets in that heady era of early telescopic observa-

tions. Although illness prevented Galileo from viewing the comets that appeared soon after he had perfected the telescope, he denounced all comets as optical illusions conjured up in the Earth’s atmosphere. “I watch my limbs disjoin and lose the fight,” the closing lines of “Enigma” lament, “As life and name and soul give up I must.”

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## Aping human societies

**Hierarchy in the Forest: The Evolution of Egalitarian Behavior**

by Christopher Boehm  
*Harvard University Press: 1999. 320 pp.*  
\$39.95, £24.95

**Adrienne Zihlman**

Are we by nature hierarchical or egalitarian? In one attempt to answer this question, Christopher Boehm seeks to explore the origins of our egalitarianism. Egalitarian societies are those that act collectively as a moral community to control social and political life. These are the kinds of societies enjoyed by democratic countries today, and before that by foragers living in small bands, by tribes of pastoral nomads and even by some chiefdoms.



Ape-shape: the roots of modern human social behaviour might be found among the Congo chimps.

Boehm ranks human and prehuman groups on a scale ranging from despotism to egalitarianism. His thesis is that human societies evolved from a despotic ape ancestor in a society in which alpha individuals exerted dominance over the others, and subordinates reacted with hostility. From this aggressive beginning, a mix of political arrangements evolved. Boehm's task is to analyse how a chain of evolutionary events has shaped human nature.

The analysis is based on ethnographic work by Boehm and other anthropologists and on Boehm's observations of chimpanzee behaviour at Gombe, Tanzania. In contrast to the hierarchical apes, dominated by their alpha males, the nomadic human foraging bands and sedentary tribal groups use a variety of social controls to prevent such domination by bullies or big egos: disapproval, ridicule, ostracism and, when all else fails, assassination. The quality most valued in a leader is generosity; maintaining successful leadership depends upon listening, consulting, seeking consensus and keeping a low profile. The political structure of such societies is a 'reverse-dominance hierarchy', in which despotic human nature is turned to radically new political use.

The arguments in the first half of this well-written volume are original, persuasive and richly supported by examples from Boehm's personal experience, observations and mastery of the ethnographic literature. But when, in his quest for the origins of modern human behaviour, Boehm ventures into the forest to examine the three living species of African great apes — *Gorilla gorilla*, *Pan troglodytes* and *Pan paniscus* — he is on much soggier ground.

In this twilight zone, we find ourselves transported back several decades to the many versions of the hunting hypothesis that link hunting and eating meat to the origin of

sharing, a sexual division of labour, a big brain, language, and politics. In support of this Big Picture of how we evolved, Boehm focuses on the despotism of the African apes — from the mountain gorilla male guarding his harem, to the aggressiveness, occasionally lethal, of Gombe chimpanzees — which he believes serve as the model for the Common Ancestor. Boehm dismisses the other Congo Basin population of chimpanzees, *P. paniscus*, which are less hierarchical, less aggressive, less male dominated and more affiliative.

But neither mountain gorillas nor Gombe chimpanzees are broadly representative of their species. Mountain gorillas lie at the eastern and altitudinal extremes of their range, although they have been studied more intensively than the more numerous western lowland gorillas. Gombe chimpanzees cover the easternmost range of this widely distributed species, in an environment under stress from habitat encroachment by humans — a plausible factor in their observed aggressiveness.

If Boehm wanted a parsimonious ape model for his egalitarian bands of human hunter-gatherers, he could have started with *P. paniscus* and saved himself the trouble of explaining how humans evolved from an extreme *P. troglodytes* paradigm. *Pan paniscus* shares food, does not have lethal intergroup encounters and is similar to humans in having small canine teeth and little female-male size difference. This anatomy tends to refute Boehm's argument that reduction in canine size is explained by the origin of weapons for hunting, which rendered big canines redundant.

It would seem more logical to treat the two extant chimpanzee species as spanning a broad range of 'chimpanzee politics' — from 'might is right' at Gombe by Lake Tanganyika to 'make love not war' at Wamba in the Congo Basin. As both species are equally

closely related to *Homo sapiens*, there is no *a priori* reason to choose one rather than the other as the progenitor of 'human nature', whatever that may be.

Can we really trace the origin of human behaviour, with its many complex manifestations, through recorded time to *Homo erectus* of half a million years ago, the australopithecines and the five-million-year-old ape ancestor, of which virtually nothing is known? I'm not convinced that we can, and Boehm's speculations along these lines do little to persuade me.

But in seeking the sources of egalitarian societies, Boehm has taken up an important question. I was fascinated by his life among the Navaho and the Montenegrins, and his candid account of his own mistakes in trying to illustrate the sophisticated controls at work in these societies. Such societies and the many others he cites vary in the details of their operation, just as the ape and other primate societies that have been studied vary from one to another. Ambivalence, compromise, the eternal conflict between the individual urge for dominance and the social desire for equality, are worth investigation. But the forest primeval, populated by hypothetical ape ancestors possessing brains one-third the size of our own, may not be the best place to search for the answers. ■

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## A helping hand on elementary matters

### Lucifer's Legacy: The Meaning of Asymmetry

by Frank Close

Oxford University Press: 2000. 268 pp.  
£16.99, \$27.50

### P. W. Anderson

In this ambitious book, Frank Close attempts no less a task than to bring the general reader all the way from zero (assumed) knowledge of modern physics to an understanding of the present status and of some crucial questions in the physics of elementary particles. Close's writing is beguiling, mingling personal and historical anecdote with carefully measured doses of exposition in such a way as to guide the reader painlessly into rather deep intellectual waters.

Close chooses to base this enterprise on the idea of symmetry (and the loss thereof), which is an excellent choice. The theories of modern physics can be thought of, to a great extent, as 'applied symmetry'; they are permeated with, and in many ways even based upon, arguments using the symmetries of space and time. Yet, as Close emphasizes, the