BOOKS: EVOLUTION

On the Ontology and Origin of Species

Richard M. Burian

Darwin described his *On the Origin of Species* as "one long argument." Michael Ghiselin attempts something similar in *Metaphysics and the Origin of Species*, although with mixed success. His book, the culmination of a three-decade long campaign for the view that biological species are not classes but individuals, is difficult, deep, and of fundamental importance. Ghiselin's aim in the book is to explicate, clarify, and develop the metaphysics of individuals underlying this view; and to show that the "place" of species within that metaphysics is (and must be) that of historical individuals bounded in space and time.

Metaphysics and the Origin of Species
by Michael T. Ghiselin
State University of New York Press, Albany, NY, 1997. 389 pp. $75. ISBN 0-7914-3467-2. Paper, $24.95. ISBN 0-7914-3468-0

Ghiselin begins his argument by developing a variant Aristotelian metaphysics of individuals without reference to any particular biological issues and then employs the results in extensive, relatively free-standing analyses of issues that refer to species in evolution, systematics, cladistics, and the like. He tries throughout to separate epistemology from ontology—the concepts we use to describe the world from the entities that we describe, and the path to knowledge (or knowledge claims) from the grounds for truth (or falsity) of those claims. Ghiselin provides a bare-bones conceptual digest of his argument in an eight-page appendix, which doubles as a helpful glossary of key terms. This summary supplies an orientation to the author's complex argument, help that is especially useful since nearly every reader will encounter unfamiliar territory. The extensive references (occupying 57 pages) offer a good entry into a set of disjunct literatures, facilitating serious follow-up to issues raised in the book.

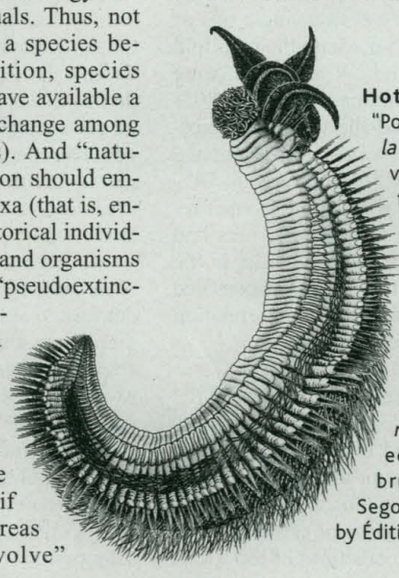
Ghiselin's discussion centers on two large issues: What metaphysics should we employ in seeking to understand what species are? And what goes wrong in thinking about species if we do not get the underlying metaphysics right? In the process, he clarifies issues sufficiently that even those who disagree violently with him may reasonably hope that engagement with his argument will help resolve some fundamental disputes about classification, evolutionary change, and the nature of species and speciation. Ghiselin's approach also opens the door to closer cooperation between philosophers of biology and biologists—cooperation that, if successful, could serve as a model for philosophers and scientists in general.

Sampling the doctrinal results of Ghiselin's investigation, we find: "Biological species are populations within which there is, but between which there is not, sufficient cohesive capacity to preclude indefinite divergence" (p. 99). (This is not a definition of a biological species, such as *Saccharomyces cerevisiae*, but of the category within which *S. cerevisiae* falls, if it is a good species.) Populations and species, here, are spatio-temporally bounded historical individuals. They have properties above and beyond those of the organisms that are among their parts—for example, a (changing) structure of subpopulations or a (potentially changing) sex ratio. Species cannot be defined and they do not have any essential properties. The parts of species may include subpopulations or populations (none of which are themselves species) and must include organisms; species themselves are parts of larger historical individuals (such as genera), which, however, lack the cohesiveness characteristic of species.

These doctrines, obviously, have significant consequences for both biology and the metaphysics of individuals. Thus, not every organism belongs to a species because, on Ghiselin's definition, species must be sexual (or at least have available a regular means of genetic exchange among their component organisms). And "natural" genealogical classification should employ strictly monophyletic taxa (that is, entire clades), for these are historical individuals just as much as species and organisms are. From this we see that "pseudoextinction is an apparent but not real cessation of existence of a taxon that results from use of paraphyletic taxa [those that leave out the common ancestor]; a lineage that is classified apart from the whole is misinterpreted as if it had ceased to exist, whereas all that it has done is evolve" (p. 307). On the philosophical side, (historical) individuals need not be cohesive (as genera are not), cannot be defined, and do not have essences. And even cohesive individuals, such as a geographically disjunct species, can have spatially isolated parts; although historical individuals, at least, must have spatio-temporal continuity. This sampling of Ghiselin's conclusions should make it clear that he draws striking consequences by rigorous reasoning from a foundational investigation that, at first, seems distant from biological subject matter.

This said, the book is also one-sided and frustrating. Some of the one-sidedness rests on a substantive issue: Ghiselin often insists on a "digital" (yes-no) separation of categories that are not obviously exclusive and exhaustive. His black-and-white metaphysics allows no room for alternatives. For example, "the distinction between class and individual is altogether fundamental: everything is one or the other" (p. 302). Ghiselin himself flirts with the ideas that species might be processes and that they might be accounted for by an ontology on which processes are a third autonomous category, not classes, not individuals, and not derivative from individuals. Yet he ends up forcing processes into the Procustean bed of somehow always inhering in or belonging to individuals, thereby (among other things) preserving the exhaustiveness and exclusivity of the categories class and individual. His text, at least, does not provide sufficient argument to justify this choice.

The second, related ground for frustration is that Ghiselin's presentation of both metaphysical and biological positions often fails to take full account of the reasons for holding opposing views. There are times when Ghiselin is so convinced of the



V. MARTIN/IFREMER

Hot taxonomy. The "Pompei worm," *Alvinella pompejana*, from the vent communities of the East Pacific Rise. It dwells inside organic tubes in active chimney walls, living at temperatures up to 80°C (exceptionally to 105°C). (From *Handbook of Deep-Sea Hydrothermal Vent Fauna*, edited by Daniel Desbruyères and Michel Segonzac, and published by Éditions IFREMER, 1997.)

The author is in the Department of Philosophy, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061–0126, USA. E-mail: rmburian@vt.edu

correctness of his views that he seems to think that controversy should have ended simply because he has stated those views and provided supporting arguments. Opponents who were not converted are "muddle-headed." This is particularly apparent in the later chapters, which are devoted to a series of biological issues on which Ghiselin has previously written extensively. Here, he is often traversing familiar territory to support views he has expressed elsewhere. As a result, it is harder than it should be to connect these views with the general issues and the metaphysical framework established in earlier chapters. Also, Ghiselin undermines his own effort to engage fully with those holding muddled or opposing views.

Despite my concerns about lost opportunities and the excessively controversial tone into which Ghiselin occasionally slips, his project is extremely promising. It deserves serious attention from everyone interested in biological ontology or foundational questions in cladistics, evolution, and systematics.

BOOKS: ANTHROPOLOGY

Rescued Account of a Vanished People

Gustavo Politis

Coming more than 20 years after the tragic death of the French anthropologist Pierre Clastres, the publication of the English translation of his *Chronicle of the Guayaki Indians* is long-delayed justice. The novelist Paul Auster had become ardently attracted to the original (*1*) when it first appeared. While trying to earn a living as a translator, he had prepared the manuscript for a publisher that became insolvent just before the book's planned publication. His translation was lost for 18 years, and Auster thought it had disappeared forever. (Living hand to mouth at the time, he had not retained a copy of his own.) The translator was reunited with his work two years ago, while signing books after a lecture in San Francisco; a passionate collector of books had rescued a copy of the bound galleys from the remainder bin at a secondhand bookstore. Auster's deep, positive feelings about Clastres's narrative emerge throughout his translation, which captures the original's freshness, sense of humor, and intellectual insight.

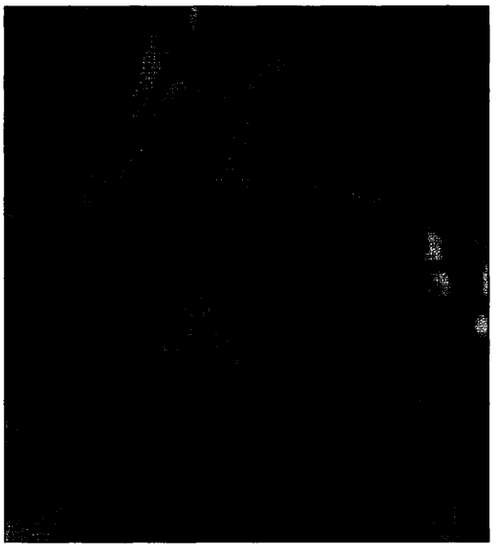
Chronicle of the Guayaki Indians
by Pierre Clastres
Translated by Paul Auster
Zone Books, New York, 1998. 352 pp. $25.50, £21.95. ISBN 0-942299-77-9. Paper, Faber and Faber, London. 253 pp. £9.99. ISBN 0-571-19398-6.

Pierre Clastres, a typical representative of the French ethnological tradition, spent much of 1963 and 1964 among the Guayaki, a small Indian group living in the rainforest of Paraguay. Although he is best known for his research in political anthropology (at his death he was director of studies at the Ecole Pratique des Hautes Etudes in Paris), Clastres's fieldwork among the Guayaki shaped his future thoughts and deeply influenced his subsequent research. The chronicle is not only about the life of the Guayaki soon after their contact with the Paraguayans. It is also about a young ethnologist's perceptions of them, and his worries over the obscure destiny he envisioned for their future.

Clastres lived with two Guayaki groups: the Atchei Gatu and the Atchei Iroiangi. The Atchei Gatu had been settled in a permanent camp at Arroyo Morotí for over three years when Clastres arrived there, but the Iroiangi had come out of the forest only a few months prior to his arrival. The two groups had always lived in the forest without trying to know each other. Clastres found the Atchei Gatu were helpful and collaborative upon his arrival; the Iroiangi, however, only began to talk to him five months later, after they became sick. Although this was a difficult period for Clastres, it provided a unique opportunity to learn from the recently contacted Iroiangi with the help of the more friendly Atchei Gatu.

Although the Atchei were known since the 18th century (Jesuit Father Lozano accurately described them and named them Ka'aygua), Clastres' study was one of the first complete reports on these groups and provided a new interpretation of their lack of horticulture prior to their settling in Arroyo Morotí. Horticulture was absent not because the group had never acquired it, but because it had been lost. The idea that a nomadic lifestyle precludes horticulture is no longer assumed—at least for Amazonia, where hunter-gatherers (like the Nukak) may tend some orchards in the forest while still maintaining a very high rate of mobility.

The book illustrates the life of the Guayaki extremely well, focusing on aspects of traditional hunter-gatherer groups that are not usually given such attention. Although the Guayaki were settled and eating manioc every day (and meat less often) when Clastres lived among them, their spiritual life had not been shaken and their cosmology remained very much alive. Therefore, he was able to record—with great detail and sharp observations—the ritual around the birth of a child, the initiation ceremonies of both girls and boys,



PIERRE CLASTRES/LIBRAIRIE PLON

Incomplete initiation. After being painted for the traditional ceremonies, this girl refused to undergo the ritual scarification.

and the protocols for hunting and eating forest animals. Clastres describes a Guayaki cosmology that, like those of most indigenous groups in the Americas, differs from our western view of the world, which is deeply embedded in a narrow rationalism and is essentially materialistic. The Guayaki did not consider themselves as occupying any position in the natural and supranatural order. Instead, plants, animals and rocks are part of an intricate network of spirits, "owners" or "masters" who dominate the world and with whom humans have to negotiate in order to live their lives. This explains why for the Guayaki, hunting was not simply a matter of killing animals, why some animals were taboo as food, and why making fire with a smoldering stick was a serious, almost sacred act—no one would speak and the women were not allowed to watch while the reed was spun between a man's hands.

The entire book is written in a flowing narrative through which the difficulties that Clastres had during his stay are easy to recognize. ("Indians are not information machines, and it would be a great mistake to think that they are always ready to answer questions.") Sometimes Clastres makes fun of himself: "...I was there to ob-

The author is in the Departmento de Arqueología, Facultad de Ciencias Sociales, Universidad del Centro de la Pcia. de Buenos Aires, Del Valle 5737, 7400 Olavarría, Argentina; and in the Universidad Nacional de la Plata, Argentina. E-mail: politis@isis.unlp.edu.ar