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Misia Landau, *Narratives of Human Evolution* (New Haven and London: Yale University Press, 1991), xiii + 202 pp., \$22.50.

Readers of this journal will be attracted by the subject of this book, but they may be taken aback by the complicated argument and the initial use of literary theory. For many of these readers, it may be illuminating to see Misia Landau's ultimate goal in light of the age-old and rather simple dream of humanists to invert the relationship of science to art by demonstrating that the grounding for knowledge-claims resides not in the deterministic frameworks of the biological and other sciences, but in the humanistic and literary worlds of the narrative.

Narratives of Human Evolution resonates – initially at least – with this humanistic project, in that Landau seeks to demonstrate that science obeys the rules of art and not of science by making transparent the narrative structure of science. To achieve this, she chooses to analyze the narrative pattern of the most “intimate” of the narrative sciences (which include cosmology, geology, and evolutionary biology) – namely, paleoanthropology. Through her analysis she hopes to convince paleoanthropologists that stories of human evolution have been constrained by the narrative structures that undergird their science. To free themselves in order to tell new stories, Landau calls for them to “wrestle with the story-telling dragon” instead of ignoring it, and to admit a certain degree of “loose play” through accident and contingency in constructing their accounts.

Landau's conviction that paleoanthropology obeys narrative rules comes from her examination of the scientific narratives of human evolution in the generation beginning with Charles Darwin. These include the narratives of three well-known figures from the nineteenth century, T. H. Huxley, Ernst Haeckel, and Darwin; two narratives from the leading adversaries in early twentieth-century anthropology, Arthur Keith and Grafton Elliot Smith; and a selection of the recent narratives that followed in the wake of the “modern synthesis” of genetics and selection theory, from Raymond Dart, J. T. Robinson, Philip Tobias, Donald Johanson, and Tim White. While each of these narratives contains a standard set of “events” or “episodes” (including terrestriality, bipedalism, encephalization, and civilization), the relative ordering of the events, and thus their relative importance to the story (and the meaning of the story), varies from case to case. The relative ordering of the events is summarized in a memorable sequence of diagrams (pp. 6–9) in the prologue so that all of the narratives can be compared easily.

The major events or episodes that Landau singles out form the elements of a basic story line, and it is here that she makes her boldest argument: "paleoanthropological narratives approximate the structure of a hero tale, along the lines proposed by Vladimir Propp in his classic *Morphology of the Folk Tale* (1928)" (p. x). The aim of Propp's book was to classify more than one hundred examples of Russian fairy tales using methods of classification not unlike those used by biologists (hence the biological title). Like the biological forms of organisms, Propp thought that literary forms could be classified according to their component parts, which were seen in relation to the other parts and to the whole. While the *dramatis personae* and their actions in the fairy tale could vary according to the location in the story, some of the actions were invariant and created "slots" in the basic story line of the fairy tale. These invariant elemental components he considered to be the *a priori* functions of the fairy tale.

The archetypal story of Propp's hero tale goes something like this: the story begins with a humble hero who goes on a journey, receives special help or equipment from a donor figure along the way, goes through tests that challenge the hero, and, through this ordeal, is transformed to a higher state of being. In paleoanthropological variations on this theme, the hero is a nonhuman primate or some lowly apelike creature, which as a result of some change departs its arboreal environment and begins its evolutionary journey. In this journey it is tested and challenged repeatedly, usually by environmental factors or by other life-forms, but through the aid of a "donor figure" like natural selection, which endows it with special favors, the hero survives and triumphs during its successive struggles. These struggles in turn are part of a transformational process that leads to the emerging human as a creature of civilization. In another variation on the theme of the hero folk-tale, the "mysterious birth," the hero is an outcast born in obscurity, who, unaware of his parentage, engages in a search for his true identity. The hero is oftentimes born with special powers, or born under special circumstances that mark him and set him apart from others; these powers or circumstances become the aids or markers that guide him in discovering his own origins.

Landau demonstrates these archetypal forms operating as narrative structures especially nicely in the stories of Keith and Elliot Smith, but her goal is not to convince the reader of the existence of such deep structures, nor to give an account of how each narrative departs from the archetype, but to give an account of how the narratives depart *from each other*. In so doing she comes up with her second major argument: that the narratives of human

evolution following Darwin depart from each other and from Darwin because of differences in the causal agent, guiding force, or, in Landau's scheme, the donor figure – natural selection. Thus while Darwin felt that natural selection was the primary causal agent to account for all species change (including humans), his nineteenth-century followers Huxley and Haeckel departed somewhat from the Darwinian scheme: Huxley aimed to convince his readers that humans evolved from apelike ancestors but he never fully discussed the causal agent in his account of human evolution, while Haeckel preferred his own principle of recapitulation. Turn-of-the-century accounts of human evolution in the theories of Keith and Elliot Smith also departed from Darwinian selectionism in that they upheld some internal guiding principle or orthogenetic mechanism operating in human evolution. Only after the “modern synthesis” of genetics and selection theory, as manifested by Theodosius Dobzhansky's *Genetics and the Origin of Species* (1937), was Darwinian selectionism restored as the preferred mechanism to account for human evolution. Subsequent paleoanthropological accounts uphold natural selection as the donor figure of human evolution, but with some limitation of power. Even strong advocates of Darwinian selectionism invoked some non-Darwinian principles in explaining later stages of human evolution.

Overall, Landau's arguments in *Narratives of Human Evolution* are bold and original, and they stimulate the reader to think deeply about the problem of knowledge. She writes in a lucid and engaging style that is refreshingly free of literary and technical jargon. The organization of the book is somewhat complex and convoluted for a shorter book, but this is the inevitable outcome of compressing a complex and convoluted subject to this length of finished text. The book itself has a pleasing design, and the diagrams of the narrative sequences are both clever and helpful in demonstrating Landau's arguments. The transdisciplinary features of the project will make the book interesting to a wide audience that includes not only her intended audience of paleoanthropologists, but also historians of biology, philosophers, and students of science studies, as well as an assortment of thinkers in the humanities. But the book also has serious problems that, for different reasons, will disappoint this very same wide audience.

For historians of evolution, Landau's argument that natural selection was the primary point of departure for followers of Darwin will catch no one by surprise. That natural selection was problematic as a causal agent for evolutionary change, that the followers of Darwin departed from the original Darwinian framework, and that Darwinian selectionism was restored during the evolutionary

synthesis are now well-established “events” or episodes themselves in that “other” narrative, the history of evolutionary thought. Apart from reaffirming the suspicion that there is a kind of anthropomorphism and teleology that comes with Darwinian selection – this she does through her depiction of selection as donor figure – Landau does not offer much insight into the contemporary understanding of the history of evolution. The lack of a substantive historical discussion of the reasons for departure will also be unsatisfying for more general historians of biology and historians of science, who will see *Narratives of Human Evolution* as a missed opportunity for a rich contextualist history. Only the successive embedding and reweaving of the scientific narratives of human evolution with other narratives, like the narrative of the West or the personal narratives of the storytellers, would give the satisfying reasons for departure that Landau seeks to find.

For philosophers, students of science studies, and paleoanthropologists, the role of fossil finds in the construction of the narrative will appear to be insufficiently discussed, given the importance of the philosophical issues at stake. While Landau demonstrates rather nicely the interpretive features of paleoanthropology through the controversies over the meaning of fossil finds with the example of the Piltdown skull and its varying signification for paleoanthropologists, she fails to discuss how knowledge-claims are made by the simultaneous constraints of narrative and fossil evidence. In classical philosophical terms, there is little in the way of a substantive discussion of how theory and available data work in paleoanthropology. Nor is there much discussion of the extent to which such narrative structures operate in what she considers experimental sciences like physics, which the reader must assume she thinks as being nonnarrative in nature. This is unfortunate, for what comes across to the reader is not so much that there is a rich and complex interplay between narrative pattern and the material evidence for evolution, but that paleoanthropology is much more determined by its narrative structure than by its fossil evidence. Philosophers will bristle at these conclusions, given the lack of a sufficiently developed argument. The very same failing will have the even more unfortunate effect of turning away her intended audience of paleoanthropologists: few practitioners will heed her call to examine their narratives if they mistakenly interpret her to mean that their factual scientific theories are *nothing but* fictional fairy tales.

But the most troubling feature of the book is Landau’s choice of structuralist literary theory to ground her theoretical and methodological concerns. The choice of Propp, who grounded his own

knowledge-claims about literature in the science of morphology, has the devastatingly self-subversive effect of reducing literature to science. That this escaped Landau is perplexing, for she devotes an entire subheading to "The Science of Literature and the Literature of Science" in her discussion on Propp (p. 3). The damage to her ultimate goal by the choice of Propp is compounded by her easy acceptance of the notion of archetype, whose definition she borrows from the literary theorist and the text most associated with the making of a science of literature, Northrop Frye and his *Anatomy of Criticism* (another biological title). Failing to problematize the notion of archetype, Landau thus opens the door to essentialistic and typological thinking, and adopts a methodology that is strongly reductionistic. These currents of thought would hardly pass as humanistic by contemporary standards in the humanities. Then too, there also remains unanswered the ultimate unanswerable question: Where do archetypes come from? If we accept her explanation that there may be a biological basis for these deep structures (see p. 176 for the passing suggestion), then the argument for biological determinism becomes, not weakened, but fortified.

For readers of this journal who are not sufficiently versed in literary theory to understand the severity of this criticism, the problem with Landau's argument – to revert to a form of reductionism – can be pinpointed by the repeated use of one word: rule. If art and science are both unquestionably and equally rule-governed activities, as she assumes, then how is freedom from deterministic structures to be attained? Landau's appeal to accident and contingency is her only option here, for undergirding her thought is the belief that all forms of knowledge must obey a priori rules. But even with accident and contingency, the humanistic wish for freedom fails to be realized. So long as the belief is held that art (and narrative) obey rules, there is little room for humanistic expression, let alone scientific practice. For these reasons, the book, as it stands, will turn away those very same humanists who, otherwise, would have been most sympathetic to Landau's project. The end result of Landau's argument is disappointing: what could have been the fulfillment of an age-old desire for humanistic liberation only results in enslaving the human further.

V. B. Smocovitis

Robert J. Richards, *The Meaning of Evolution: The Morphological Construction and Ideological Reconstruction of Darwin's Theory*