



NATIONAL ENDOWMENT FOR THE

Humanities

DIVISION OF RESEARCH PROGRAMS

Narrative Section of a Successful Application

The attached document contains the grant narrative and bibliography of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Prospective applicants should consult the Research Programs application guidelines at <http://www.neh.gov/grants/research/summer-stipends> for instructions. Applicants are also strongly encouraged to consult with the NEH Division of Research Programs staff well before a grant deadline.

Note: The attachment only contains the grant narrative and bibliography, not the entire funded application. In addition, certain portions may have been redacted to protect the privacy interests of an individual and/or to protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title: Aristotle On Time: Chronos, Kinesis, and Aisthesis in PHYSICS IV

Project Director: Anthony Phillip Roark

Institution: Boise State University

Grant Program: Summer Stipends

Narrative

I. Motivation

In *ARISTOTLE ON TIME: CHRONOS, KINESIS, AND AISTHESIS IN PHYSICS IV*, I attempt to develop a clear and comprehensive interpretation of the theory of time Aristotle presents in chapters 10-14 of the *PHYSICS*. An examination of the existing literature reveals that my project helps to fill a rather obvious lacuna in scholarship on Aristotle's natural philosophy. There is a fair amount of contemporary scholarship that addresses certain aspects or parts of Aristotle's theory of time, but one doesn't find works that provide a careful interpretation of the theory as a whole. It's not at all surprising that this should be the case for journal articles, since taking on a task of this magnitude under the constraint of conservative word-count limits would be futile. But even much larger works fail to provide an adequate interpretation of Aristotle's theory of time, because they either treat it much too generally or too narrowly. In the former category, books like Richard Sorabji's *TIME, CREATION, AND THE CONTINUUM* and J. T. Fraser's *OF TIME, PASSION, AND KNOWLEDGE* exemplify works that give us a regrettably superficial analysis of the theory, as each of these authors has taken on a project of broad historical scope. In the latter category, Jaakko Hintikka's *TIME AND NECESSITY* and Sarah Waterlow's *PASSAGE AND POSSIBILITY* exemplify works that don't provide a complete picture of the theory, because they are interested only in how particular aspects of Aristotle's theory of time are related to other doctrines he holds (specifically, to his views on the modal notions of possibility, necessity, and the like).

Ancient commentators on Aristotle-- Simplicius (sixth century CE), for example -- are more likely to give us a "blow-by-blow" account of Aristotle's theory, but as I show in my manuscript, their interpretations miss the mark for a variety of reasons. I believe that we as contemporary philosophers are, ironically, better situated in many ways to understand Aristotle than were those who were much closer to him in history. As heirs to centuries of refinement of our conceptual tools, we may be in a better position to properly understand Aristotle's views, which are widely regarded as being among the most subtle and philosophically sophisticated that there are.

I am excited about Oxford University Press's commitment to publish Ursula Coope's *TIME FOR ARISTOTLE*, a work with ambitions similar to my own. While I have not seen the complete manuscript, which is slated for release in 2005, what I have seen of it is markedly different from my own interpretation. Indeed, I have written an article in response to Coope's "Why Does Aristotle Say That There Is No Time Without Change?" (*PROCEEDINGS OF THE ARISTOTELIAN SOCIETY* 101 (2001): 359-367) that is currently in press at *APEIRON*, a leading journal in ancient philosophy and science. The fact that Oxford has signed on to Coope's book indicates that there is among philosophers a perceived need for such scholarship. And because my interpretation is at odds with Coope's on central points of Aristotle's view, the successful completion of this project will provide scholars of Aristotle's metaphysics and natural philosophy a valuable alternative.

II. Project Description

Aristotle's definition of time in *PHYSICS IV 11* as "a number of motion with respect to the before and after" is often claimed to be viciously circular, since it is thought that "before", "after", and "motion" are terms that cannot themselves be defined independently of temporal concepts. I defend Aristotle's theory against this charge of circularity and go on to argue further that it succeeds where

other, more current conceptions of time fail.

The lynchpin of my interpretation is an explication of theoretical entities that Aristotle calls "the before and after in motion", entities that I have dubbed "kinetic positions". It is surprising that this, the central notion in Aristotle's theory, has remained so poorly understood. Kinetic positions are point-like events within a movement that can be specified as functions of a moving object's actual spatial location and the telos, or end, of the movement. On Aristotle's view, time is an aspect of motion, and kinetic positions are the lower-level metaphysical counterparts of instants. It is in this sense that Aristotle's account is reductionistic: time derives its existence and structure from that of motion, and motion derives its existence and structure from that of spatial magnitudes. I have presented this element of my complete reconstruction in the form of a journal article ("Aristotle's Definition of Time Is Not Circular", *ANCIENT PHILOSOPHY* 23 (2003): 301-318), but its effectiveness is diminished by the limitations inherent in that form of publication.

Within the context of my manuscript, showing how Aristotle derives the temporal continuum from the spatial continuum forms the central core of my interpretation and takes the better part of three chapters. Before setting out on that task, though, I devote two chapters to laying the groundwork for my interpretation. In the first chapter, I tease out three distinct threads that form our concept of time: temporal extension, temporal passage, and periodicity. This is not entirely original work, but it is troubling to me that other commentators on Aristotle's view too often treat our concept of time as monolithic, seemingly unaware of the fact that failing to take into account its different facets can yield flawed results. Next, I survey the history of timekeeping, noting how the technology of fourth-century Athens might have influenced how time was conceived at that point in history. (As I show in a subsequent chapter, it seems to have had significant influence upon Aristotle, whose appeal to *klepsyras*, or water-clocks, in the *CONSTITUTION OF ATHENS* is quite telling.) As a formal piece of stage-setting, I present a concise interpretation of the view of time articulated in Plato's *TIMAEUS*. It is unclear whether the view is Plato's own, but Aristotle evidently took it to be, and it is always a good idea to begin reading Aristotle with Plato's views in mind, since the lines of influence are pervasive.

One of the necessary elements of the core of my interpretation is explaining the role of perception within Aristotle's temporal theory. The principal claims regarding this role are clear enough in the *PHYSICS*: time would not exist if there were no soul (223a22), because there would be no time if there were no now (220a1), and the now is simply a kinetic position qua possible object of perception (219b27). Despite their clear articulation, the justification for, and implications of, these claims requires looking beyond the *PHYSICS* into other treatises, primarily *DE ANIMA*. This introduces additional challenges. Much of the difficulty of this portion of my project resides in the fact that a crucial line of the text in *DE ANIMA* is corrupt. What one does with a stray "ai" interposed between two meaningful terms ("osmasthai" and "aisthanesthai" -- "smelling" and "perception") makes quite a bit of difference in what Aristotle's account of perception amounts to. If the meaningless "ai" is dispatched as a bit of dittography, a weary scribe's graphic hiccup, then Aristotle's claim is that smelling just is (i.e., is nothing more than) a perception. In this case, smelling is a conscious event that does not properly include any physiological change (though it may nonetheless be associated with one). If, on the other hand, the "ai" is supplemented with a kappa to form a meaningful word ("kai" -- "and"), then Aristotle's claim is that smelling is also a perception. On this reading, smelling properly includes both a physiological change and a logically distinct conscious event.

This issue bears directly on my interpretation of Aristotle's theory of time. It is critical for my interpretation's success that Aristotle be committed to the possibility of instantaneous perception. Now if perception essentially involves physiological change, it is difficult to see how this should be possible, since (as Aristotle himself notes at *PHYS.* 218b15, i.a.) every change takes some time to

transpire. But if perception does not include any change as a proper part, the possibility remains open that beings like ourselves are capable of instantaneous perception. As it happens, Aristotle commits himself to this capacity in a different treatise (DE SENSU 448a22-26), but his remarks there do nothing to illuminate how we are supposedly able to do so. In order to vindicate my interpretation of his temporal theory, I must develop Aristotle's view on this matter in a way that is consistent with the rest of my reconstruction.

I am fortunate to have the support of an internal grant to aid in this particular effort. As one of three faculty in the College of Arts and Sciences to have been selected to participate in the Faculty Research Associates Program for the 2004-2005 academic year, my course load this semester has been reduced by two-thirds. Teaching just one class of Ancient Philosophy, I am engrossed in ancient texts and have adequate time to research and write this important chapter of my manuscript.

The final chapter of my manuscript is distinctive in that it directly relates Aristotle's theory of time to contemporary puzzles about time. J. M. E. McTaggart, C. D. Broad, and other twentieth-century philosophers have leveled potent arguments against the possibility of temporal passage, the "flow" of time. If they are sound, such arguments are devastating to our ordinary conception of time, since it certainly seems as though the ever-shifting present is an ineliminable part of it. Armed with Aristotle's definition of time, I show how temporal passage can be immunized against these arguments. The very feature of Aristotle's account that has earned scorn over the centuries (namely, defining time in terms of motion) is also the feature by which he is able to accommodate temporal passage without the incoherent results of more "standard" conceptions of time. In this respect, Aristotle's view might inform future theoretical work in the nature of time.

III. Plans and Prospects

My manuscript is approximately eighty-five percent complete. The grant under which I am now working will provide me with the time needed to research and draft the remaining chapter. I am seeking an NEH Summer Stipend to support my revision and finalization of the manuscript during the months of July and August, 2005. This kind of work requires concentrated and uninterrupted attention for an extended period of time; a Summer Stipend would provide just such conditions. In the interim, I will actively be seeking a publisher for the book.

While I own many of the texts that will be needed to complete this project, I anticipate making at least one trip to Seattle in order to use the library at the University of Washington, whose holdings include editions of the Greek texts that are either unavailable or prohibitively expensive on the commercial market. Because much of my work hinges on subtleties detectable only in the Greek, it is imperative that I have access to the full array of texts and commentaries.

I am most eager to complete this project and make it available to others working on Aristotle and ancient natural philosophy. An NEH Summer Stipend would contribute significantly to its completion.

Bibliography

- Annas, Julia. "Aristotle, Number and Time." *PHILOSOPHICAL QUARTERLY* 25 (1975): 97-113.
- Anscombe, G. E. M. "Aristotle and the Sea Battle." In *THE COLLECTED PHILOSOPHICAL PAPERS OF G. E. M. ANSCOMBE: FROM PARMENIDES TO WITTGENSTEIN*. Oxford: Basil Blackwell, 1981.
- Bolotin, David. "Aristotle's Discussion of Time: an Overview." *ANCIENT PHILOSOPHY* 17 (1997): 47-62.
- Bostock, David. "Aristotle's Account of Time." *PHRONESIS* 25 (1980): 148-169.
- Broad, C. D. "Ostensible Temporality." In *THE PHILOSOPHY OF TIME*. Gayle, ed. Garden City: Anchor, 1967.
- Brumbaugh, Robert S. "Time Passes: Platonic Variations." *REVIEW OF METAPHYSICS* 33 (1980): 711-726.
- Conen, Paul F. "Aristotle's Definition of Time." *THE NEW SCHOLASTICISM* 26 (1952): 441-458.
- Cornford, F. M. *PLATO'S COSMOLOGY*. London: Routledge and Kegan Paul, 1937.
- Corish, Denis. "Aristotle's Attempted Derivation of Temporal Order from That of Movement and Space." *PHRONESIS XXI* (1976): 241-251.
- De Tollenaere, M. "Aristotle's Definition of Time." *INTERNATIONAL PHILOSOPHICAL QUARTERLY* 1 (1961): 453-467.
- Fitzgerald, Paul. "The Truth About Tomorrow's Sea Fight." *JOURNAL OF PHILOSOPHY LXVI* (June 1969): 307-329.
- Frasier, J. T. *OF TIME, PASTION, AND KNOWLEDGE*. Princeton, NJ: Princeton University Press, 1990.
- Graham, Daniel W. "Aristotle's Definition of Motion." *ANCIENT PHILOSOPHY* 8 (1988): 209-215.
- Hintikka, Jaakko. *TIME AND NECESSITY*. Oxford: Clarendon, 1973.
- Inwood, Michael. "Aristotle on the Reality of Time." In *ARISTOTLE'S PHYSICS: A COLLECTION OF ESSAYS*, Judson, ed. Oxford: Clarendon Press, 1991.
- Kosman, L.A. "Aristotle's Definition of Motion." *PHRONESIS* 14 (1969): 40-62.
- Kretzmann, Nonnan. "Aristotle on the Instant of Change," Part II. *PROCEEDINGS OF THE ARISTOTELIAN SOCIETY*, Supp. Vol. 50 (1976): 91-114.
- McClelland, Richard T. "Time and Modality in Aristotle, *METAPHYSICS IX.3-4*." *ARCHIV FUR GESCHICHTE DER PHILOSOPHIE* 63 (1981): 130-149.
- McTaggart, J. M. E. *THE NATURE OF EXISTENCE*, Vol. 2. Cambridge: Cambridge University Press, 1927.
- Mellor, D. H. *REAL TIME*. Cambridge: Cambridge University Press, 1981.
- Miller, Fred. "Aristotle on the Reality of Time." *ARCHIVE FOR GESCHICHTE DER PHILOSOPHIE* 56 (1974): 132-155.
- Mohr, Richard D. "Plato on Time and Eternity." *ANCIENT PHILOSOPHY* 6 (1986): 39-46.
- Owen, G. E. L. "Aristotle, Number, and Time." *PHILOSOPHICAL QUARTERLY* 25 (1975): 97-113.
- Owen, G. E. L. "Plato and Parmenides on the Timeless Present." *MONIST* 50 (1966): 317-340.
- Ross, W. D. *ARISTOTELIS DE ANIMA*. Oxford: Oxford Classical Texts, 1956.
- Ross, W. D. *ARISTOTELIS PHYSICA*. Oxford: Oxford Classical Texts, 1950.
- Shoemaker, Sydney. "Time Without Change." *JOURNAL OF PHILOSOPHY* 66 (1969): 363-381.
- Simplicius. *ON ARISTOTLE'S PHYSICS 4.1-5, 10-14*. J.O. Urmson, trans. Ithaca: Cornell University Press, 1992.
- Smith, John E. "Time, Times, and the 'Right Time'; Chronos and Kairos." *MONIST* 53 (1969): 1-13.
- Sorabji, Richard. "Aristotle on the Instant of Change," Part I. *PROCEEDINGS OF THE ARISTOTELIAN SOCIETY*, Supp. Vol. 50 (1976): 69-89.
- Sorabji, Richard. *TIME, CREATION, AND THE CONTINUUM*. London: Duckworth, 1983.
- Taylor, A. E. *A COMMENTARY ON PLATO'S TIMAEUS*. Oxford: Oxford University Press, 1928.
- Vlastos, Gregory. "The Disorderly Motion in the *TIMAEUS*." In *STUDIES IN PLATO'S METAPHYSICS*. Allen, ed. London: Routledge and Kegan Paul, 1965.
- Waterlow, Sarah. "Aristotle's Now." *PHILOSOPHICAL QUARTERLY* 34 (1984): 104-128.
- Waterlow, Sarah. *PASSAGE AND POSSIBILITY*. Oxford: Clarendon, 1982.
- Waterlow, Sarah. "Instants of Motion in Aristotle's *PHYSICS VI*." *ARCHIVE FUR GESCHICHTE DER PHILOSOPHIE* 65 (1983): 128-146.
- White, Michael J. "Aristotle on 'Time' and 'A Time'." *APEIRON* 22 (1989): 207-224.
- Williams, D. C. "The Myth of Passage." *JOURNAL OF PHILOSOPHY* 47 (1951): 457-472.