Knowledge and Form:
Mathematics in the works of Hermann Broch.

The Austrian author Hermann Broch (1886-1951) is best known for his literary works such as *The Sleepwalkers* and *The Death of Vergil*. His interests and abilities ranged, however, from such heterogenous fields as philosophy and politics to economic theory and ethics. The discipline which, according to his own asseveration, represented both his first love as well as the field in which his true talent lay, was mathematics. Broch studied philosophy, mathematics and physics at the University of Vienna. Among his teachers were such famous representatives of the so-called "Vienna Circle" (vocal advocates of stringent 'logical positivism') as Moritz Schlick, Rudolf Carnap and Hans Hahn. Broch's critical position toward the precepts of this school, as well as effects of the so-called 'foundational crisis' (*Grundlagenkrise*) of mathematics as it occurred in the early twentieth century, permeate the entirety of his writing. Although most of his actual mathematical work has been lost, confiscated by the Nazis after his flight from Austria in 1938 (work which he hoped would constitute a major contribution to modern mathematics), mathematical excurses are distributed throughout his many essays, including those dealing with the nature of literature and art. I argue that the significance of these passages cannot be appreciated when they are viewed in isolation, but that they much rather play a pivotal role in the formation of his thought.

The most important term in all of Broch's writings is that of *Erkenntnis* (in English this is translated alternatively as knowledge, perception, cognition, insight or recognition. The vital point in interpreting Broch is that for him the term means all of these at once.) For Broch, literature's calling is to *be* rather than to *present* "Erkenntnis'. One of the principle hypotheses of my thesis is that, in order to achieve this goal, Broch continually strives to combine aesthetic concepts with epistemological principles, and that mathematics is used as a tool to this end.

In my talk I would like to present two examples of singular role played by mathematics within both Broch's epistemological and aesthetic theory. The first is Broch's interpretation of mathematics as simultaneously mirroring the logical structures of the human mind, as well the structures of the outside world, thus unifying subject and object in the act of perception – ever the aim of idealistic philosophy. Thus Broch regards mathematics as the purest manifestation of the *Logos* in the world.

Furthermore, Broch repeatedly states that the veracity of knowledge (or *Erkenntnis*) is far more a question of form than of content. On the basis of this I argue that for Broch the form a work of literature takes (or, in his words, the 'architecture of a work') is not merely a question of technique, but rather a question of to what extent a work of art is capable of being *Erkenntnis*. This is a prime example of Broch's efforts to found aesthetic concepts in epistemological principles.

A concrete example of this principle which I would like to present in my talk is the so-called 'Axiom of Balance' (*Satz des Gleichgewichts*). Mathematical 'balance' is symmetry and I argue that Broch's method of basing the 'architecture' of his literary works on symmetry is a prime example of the synthesis of aesthetic and epistemological principles described above. In this particular case, the concept has even further reaching significance: For Broch, the highest ethical goal any human endeavour can aspire to is to overcome death. Thus one of the principle formal tasks of a writer is to transform rhythm (a temporal concept) into symmetry (a spatial concept). Transforming time into space creates at least the illusion of overcoming death.