Does the Eternity of the World Entail an Actual Infinite?

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William E. Carroll

> Of things which are generated, some are generated by nature, others by art, still others by chance, but everything generated is generated by something, and out of something, and becomes something. (***Metaphysics*** 1032a13-14)

So Aristotle observed in the ***Metaphysics***. It seems obvious that "everything generated is generated by something, and out of something, and becomes something," but, when we turn to complex examples of generation in nature, such as human generation, it is often far from obvious what these various "somethings" are and how the processes of change occur.

We owe to the Greeks, and especially to Aristotle, the foundations of science. And the Greeks knew that the first task of a science of nature is to come to understand change in all of its varied forms. For without an understanding of change we would not be able to begin to come to know either the world in which we live or ourselves. The change or changes involved in the coming-into-being, the generation, of human life attracted the special attention of Greek science. Indeed, embryology is an area of scientific reflection which offers us a particularly good insight into the nature and profundity of the Greek mind. From the pre-scientific creation myths in which the universe is a biological offspring of the gods, to the more elaborate cosmobiology of Plato's ***Timaeus***, the use of embryological language and examples to account for the generation of the cosmos sustained the centrality of biology and embryology within the Greek scientific pantheon. Furthermore, the common view that the cosmos as a whole was, in some sense, a living organism only reinforced the significance of embryological thought. Thus, an investigation of the history of embryology in ancient Greece would provide a particularly good vantage point for an understanding of all of Greek culture. Indeed, the history of

embryology in the West, from the Greeks to the present, offers for us a microcosm of the history of Western Civilization. The embryological theory or theories of any age are an arena in which all the major currents of thought meet: not only biology and the other natural sciences, but psychology, theology, metaphysics, and ethics--and, indeed, even politics and economics. This may seem a grandiose claim, but let me make an even more radical one. I think that we can measure, in some rough sense, the quality of the intellectual life of a culture by examining the nature and scope of the embryological thought manifested in that culture. I wish to try to justify these claims as I examine briefly a particularly fertile period in the history of embryology--the 13th century--and, in the process, point out the value for modern science and medicine of the insights developed in medieval embryology.

As we shall see, medieval embryology is, in many respects, a broader discipline than what we today call embryology. And, as I will argue, the specialization, the narrowing of focus, as well as the tendency toward a mechanistic and atomistic approach often characteristic of contemporary embryology and biology reflect wider trends in modern science and culture: trends which contribute to an impoverishment not only of science and medicine but also of ethics. In making such an observation, I do not wish to deny the value of the significant advances modern science has provided for our knowledge of embryogenesis. Modern embryology, physiology, and genetics--as well as biochemistry and physics--are constantly aiding us in the refinement of our knowledge of the origin and development of human life. We have answers to a great array of questions which scientists in the Middle Ages and Antiquity would not even have dreamed to ask. But sometimes we exhibit an ignorance, a kind of intellectual myopia, of many of the profound questions which ancient and medieval scientists asked: questions which have lost neither their force nor their significance despite the passage of seven centuries and more. The history of medicine, like the history of science, does not proceed so much by

rejecting the past as by building on it. Nor is this history the story of the progressive rolling back of ignorance and superstition in the face of reason and experimentation.

An investigation of medieval embryology is of considerable value, and not simply as some archaeological excursion to unearth the fossils of an extinct scientific species. We need first of all to note the fundamentally Aristotelian character of much of medieval science. During the latter half of the 12th century and into the early decades of the 13th, nearly all of the works of Aristotle were translated from Greek and Arabic into Latin. Aristotle's treatises in physics, biology, psychology, metaphysics, logic, ethics, and politics produced an intellectual revolution in the Christian West. Aristotle's analysis of human embryology provided the starting point for medieval embryology. Medieval discussions in embryology involved not only the explanation of specifically biological processes, but also questions about the animation, that is, the ensoulment, of the developing embryo, and the metaphysical identity of the embryo itself. In the context of Christian revelation, medieval scientists had to take into account the nature of the human soul, its direct creation by God, its infusion into the body, and its separability from the body at death. The requirements of Christian theology complicated an already complex set of problems. But the great scientists of the Middle Ages were emboldened in their study by the view that since the truth is one, and God is the author of all truth, the truths of science and faith cannot possibly be in conflict. Muslim commentators on Aristotle--scholars such as Avicenna and Averroes--had already wrestled with many of the same concerns, and the Christian West inherited their commentaries along with the Aristotelian texts. Although scholars revered Aristotle as "the master of those who know," his doctrines were not always easy to understand, nor were they always right. Within the broad outlines of an Aristotelian scientific tradition, that is, a tradition which adhered to the general principles of Aristotle's science of nature, there were major disagreements.

Metaphysics, Embryology, and Medieval Aristotelianism

Let us begin by sketching the place of medieval embryology within the larger framework of an Aristotelian science of nature. Embryology is a sub-division of biology, and biology is a part of a wider science of nature, a science which Aristotle and the medievals called physics, from the Greek word '***physis***', which means nature. Nature, for Aristotle, is a principle or cause of movement and rest in things: and nature is a principle or cause which belongs to the essential makeup of a thing. Thus physics studies all those things which move as the result of an intrinsic principle or cause. The distinction between living and non-living things in nature is that living things possess ***an active*** cause of characteristic self-movement. The term for this cause of self-movement in living things is ***psyche*** (in Greek), ***anima*** (in Latin), soul (in English). Thus, plants and animals have souls, as do men. The soul is a cause of the characteristic behavior of different living things. Aristotle distinguishes three fundamental kinds of souls: vegetable or nutritive, sensitive, and rational. The soul, remember, is an informing principle; it organizes the activity of the living being and, in an important sense, the soul makes that living being what it is. It should be obvious that there must also be something to be organized, some matter to be informed. Here we meet one of the elementary principles of Aristotelian thought: hylomorphism [from the Greek words for matter (***hyle***) and form (***morphe***)]. And, remember, the form of a living thing is its soul. The natural world is to be understood in terms of both form and matter. Any kind of materialism, that is, any explanation which relies ***exclusively*** on what we might term the ultimate building blocks of matter, is false: false in physics, false in biology, false in embryology.

It is, of course, one thing to recognize that a carrot, a dog, and a man each has a soul. It is quite another to explain those changes which produce a carrot, a dog, or a man. An Aristotelian scientist would be the first to affirm, for example, that without knowledge of the coming-into-being of a man one does not know what a man is. But, before we can investigate the problems surrounding the specific changes studied in

embryology, we must be more precise about what change is. And the clarity of Aristotle and his medieval scientific heirs on the nature of change--and then the application of this knowledge to embryology--is especially impressive. Those who engage in contemporary embryological discussions have much to learn on ***this*** subject from their Latin and Greek forebears. Let me suggest why, and in the process provide evidence for my initial point concerning the broader nature of medieval science over against the greater specialization of modern science and medicine. The larger justification here is: not to understand change renders one impotent in explaining particular kinds of change.

What happens in any change? Some prior state or condition ceases and some new state or condition comes into being. I move from place "X" to place "Y"--locomotion. I leave one place; I cease to be at one location, and I come to occupy another place. But what if I were to grow six inches, or, what is unfortunately more likely, to add 20 pounds? Would not either of these be a different kind of change from change of place? In fact, adding weight or height would be a change in quantity. And what if I were to learn how to fly an airplane? I would change from a condition of not-knowing how to fly to knowing how to fly--a change different in kind from either change of place or change in quantity. But notice that in each of these three types of change there is an underlying subject--namely, me--which undergoes some kind of change. If this were not so, how could I say that *I* learn, or *I* grow, or *I* move?

But, what of the change that produces the "I"? Surely there must be such a change since *I* am not eternal. And, just as surely, the change must be radically distinct from the three types we have noted so far because a wholly new subject has come into being. The kind of change which results in the coming-into-existence of a new subject, that is, of a new determinate "this," Aristotle calls generation. And the corresponding going-out-of-existence of a determinate "this," Aristotle calls destruction. The four different kinds of change all have something in common--they are all

changes--but they are also quite distinct from one another. And, as we have seen, the first three kinds of change (changes of place, in quantity, and of a quality, such as knowledge) share some specific features which separate them from the fourth category of change. The first three kinds of change are changes ***in*** or ***of*** or ***to*** a determinate this; the fourth kind of change is that which results in or produces a new subject, a new determinate this. I emphasize these crucial distinctions because without them a science of nature is not possible: neither for Aristotle, nor for medieval thinkers, nor for us.

Note that any view of change which identifies ***all*** change simply as the rearrangement of fundamental particles is excluded by the analysis I have just given. Both ancient atomism and its modern variants would deny that there is any kind of change other than change of place. Such a view, of course, denies any real distinction between living and non-living things, and reduces all the natural sciences to a materialistic physics.

Medieval embryology recognized two kinds of change which fell within its purview: generation and growth. It was not easy to identify with precision the actual moment of human generation--an identification made more difficult given the Christian belief in God's direct creation of the human soul. The difference between generation and growth was clear in theory, but identifying the distinction given the evidence available was difficult.

In every change there is an agent as well as material which undergoes change. And medieval embryologists wrestled with identifying the agency and the matter in human generation. With Aristotle, they knew that there must be an active principle which is responsible for causing the coming-into-existence of the new life. The new life possesses an informing principle, that is a soul, as well as material which is informed. Both form and matter must be accounted for. For the most part, medieval embryologists accepted the following general observation which Aristotle makes at the beginning of *On the Generation of Animals*:

> ...the male and female principles may be put down first and foremost as the origins of generation, the former as containing the efficient cause of generation, the latter the material of it. The most convincing proof of this is drawn from considering how and whence comes the semen; for there is no doubt that it is out of this that those creatures are formed which are produced in the ordinary course of nature; but we must observe carefully the way in which this semen actually comes into being from the male and female. For it is just because the semen is secreted from the two sexes, the secretion taking place in them and from them, that they are the first principles of generation. For by a male animal we mean that which generates in another, and by a female that which generates in itself.... (***On the Generation of Animals*** I. 2, 716a5-15)

The "semen" or seed mentioned here is a generic term which refers to the male and female contribution to the process of generation. Aristotle thought that nutrition and generation were intimately connected: in both processes material substances are assimilated and transformed into a living being. In the Middle Ages, embryologists spoke of "perfect blood" as the source of the material of human generation. Avicenna, the great Muslim philosopher and physician, provided the fullest commentary on the connection between nutrition and generation. "Perfect blood" was the result of a series of increasingly complex digestions of food. These digestions or concoctions, as they were often called, occur through the agency of a power, a vital heat, which has its seat in the heart. "Perfect blood" is the result of the fourth level of digestion and most of it serves to nourish the various parts of the body. The superfluous "perfect blood" in the male undergoes a fifth digestion--quite literally, a fifth cooking--by which it is transformed into male semen and thus receives the power to act in the generation of

another organism. The superfluous "perfect blood" in the female provides the matter, the menstrual fluid as it was called, which will be informed by the activity of the male semen. Avicenna thought that the male semen first disposes the menstrual fluid to become a living being and then the semen produces life in it. In the Middle Ages, the term often used for this interaction between semen and menstrual fluid was coagulation. The mode of the production of life, through the activity of the male semen, was the subject of considerable debate. The semen possesses some kind of active, informing power: there must be such an active informing power or else no change could occur. But how does the semen possess such a power and what happens when it exercises this power on or in the menstrual fluid? Some commentators, following Galen, thought that the semen mixes with the menstrual fluid and operates, so to speak, within the mixture. Others thought that the semen exercised its role while remaining external to the menstrual fluid.

What kind of being is the male semen, especially when separated from the male body? It brings life, in some sense; is it itself a living thing? If so, is it a human being; is it an animal? What seemed clear was that the semen's role in bringing about life was that of a kind of instrument, but it was not a distinct living being, like an individual animal. A further question, with respect to human generation, is whether the male semen "brings with itself," in some sense, the rational soul of the yet-to-be-generated child. If it "brings" the soul, then the soul of an individual would exist before the individual exists, i.e., even before conception. But we must remember that human souls do not simply float around; they are the informing principles of human beings. If the male semen in any sense possessed a human soul it would be a human being, and the act of generation would not be in the union of male and female, but rather exclusively in the male's production of the semen. Such a view, sometimes related to what was called preformationism, was not uncommon in antiquity. The act of intercourse, in such a view, was the implanting of an already existing miniature human

being into the female, where it then matured. Such an explanation was clearly rejected by Aristotle and his medieval successors.

Preformationism could not account for the radical change which was generation. Sexual intercourse would involve ***only*** a change of place: the putting of the already existing human being into the woman's body. For medieval embryologists, the female menstrual fluid was essential: it possessed the potentiality to become a living being. And the male semen possessed the power to transform that potential life to actual life. A word of warning here: we must be careful when we use terms such as potentiality and actuality. They have many different senses. We may speak, for example, of my power or potentiality to solve a problem in arithmetic, or we may speak of the power or potentiality of a one-year-old child to solve the same problem. Clearly there is a difference: I have a kind of active potentiality to solve the problem, while the child has a passive potentiality, because the child needs first to learn arithmetic, needs, that is, to undergo a change called education, in order to acquire the same potentiality with respect to solving the problem as I have. The female menstrual fluid has a passive potentiality to be animated [note the passive voice of the verb]: once animated, that is, once a new reality has come into existence, it possesses active potentialities to grow and to develop. These active potentialities are characteristics of its actual status of being alive. In describing pre-natal development, medieval thinkers were well aware of the several senses of potentiality: senses which we would do well to keep in mind in contemporary discussions concerning embryo research, genetic engineering, ***in vitro*** fertilization, abortion, and the like. To affirm that the developing embryo has various potentialities, however, does not mean that it is only a potential human being.

Regardless of the exact details of what occurred, medieval embryology, following Aristotle's lead, affirmed that some kind of animation occurred when male semen met female menstrual fluid. The real problem was what kind of animation occurred at conception, and what

further animation occurred prior to birth. And, of course, somewhere, somehow in this process God infuses the rational soul. What is the relationship between the rational soul and the animation of the embryo? The truths of science cannot contradict the truths of faith, and medieval thinkers of the caliber of Albert the Great and Thomas Aquinas labored mightily to bring together Aristotelian biology, sound metaphysics, and Christian revelation.

Aristotle argued that the developing embryo first lived the life of a plant, then the life of an animal, and finally the life of a man. It followed, therefore, that there was a kind of successive animation of the developing embryo: perhaps a movement from possessing a vegetative or nutritive soul to an animal soul to a human or rational soul. One of the most revealing debates in medieval embryology concerned the explanation of the animation of the embryo. In the intellectual arena of this discussion we encounter examples of the best thinking in all the major disciplines of the age: from biology and physics to metaphysics and theology. If the embryo "first lived the life of a plant" and then the "life of an animal," was it first a plant and then an animal, or was its existence only similar to the existence of a plant and then of an animal? In other words, what kind of being (or beings) was the developing embryo? What was the nature of the various changes that took place in embryogenesis? And we must also remember that the embryo is not a human being unless or until it possesses a rational soul; and since the rational soul is created directly by God, it is not the result of a biological process. Nevertheless, in the great symmetry of the creative order, the rational soul crowns and completes, perfects, if you will, a biological process.

We can identify two broadly different schools of thought in the 13th century on the question of the animation of the embryo. Philosophers and scientists such as Albert the Great emphasized the fundamental continuity in the development of the embryo from conception. The generation of new life occurs at conception, and from then on there is a dynamic process of growth

without radical leaps. And in the midst of this process, with the articulation of the human brain, God intervenes, creates the rational soul, and thus completes the process of the coming-into-existence of a new human being. Thus, Albert seems to affirm that the single change which is the generation of a new being is "stretched out" in a continuum from conception to the infusion of the rational soul some forty days later. Albert thought that it was biologically absurd to think that the embryo was actually first a plant, then an animal, and finally a man: such a view, he argued, would require that one species could change into another species. Prior to the existence of the brain, the developing embryo was ***in via***, on the way, to becoming a human being. And this initial development, continuous from conception, is perfected by God's creation and infusion of the rational soul.

Yet, if Albert be right, what kind of being is the embryo prior to the creation of the rational soul? If it did not first have a vegetable soul and then an animal soul, was it alive at all? After all, to be alive means to have a soul. Any living thing has a single soul, a single informing principle from which its characteristic behavior flows. A human being does not have three souls--one for vegetative functions, another for sensory functions, and a third for thinking and willing. Without a single informing principle, a single soul, a living being would not be one thing, would not possess unity. Albert rejected any view which affirmed more than one soul in man, but he did affirm that prior to the articulation of the brain the human embryo existed ***in via***. What he meant, it seems, is that since there was a gradual, progressive development of the embryo, there must be a corresponding gradual development of its informing principle, its soul. In affirming the essential continuity of the biological process, Albert was left with a very troublesome dilemma: he was forced, so it seems, to blur the distinction between that change which is generation and the changes involved in growth and development. In his commitment to the unity of natural processes, Albert had difficulty in accounting for the metaphysical unity of the embryo prior to the infusion of the rational soul.

It was Thomas Aquinas, Albert's brilliant student at the Universities of Paris and Cologne, who recognized many of the difficulties in his master's emphasis upon the continuity of embryogenesis. For Aquinas, the movement from conception to the infusion of the rational soul is discontinuous: indeed, it is a series of distinct generations and corruptions. The final radical change produces a human being, about forty days after conception: and from this point on to death it is a human being who undergoes change. Albert had rejected the notion that there was a series of generations and corruptions because he thought it involved biological absurdities: one species' generating another. Aquinas rejected Albert's view of the continuity of the process because he thought such a view involved metaphysical absurdities. Aquinas argued that any living being is *fully* the kind of living being which it is: one is not a partial plant, or 10% of a monkey, or an incomplete human being. One is either a plant or not, a monkey or not, a human being or not. An individual living thing possesses the form, that is, the animating principle which makes the living thing what it is. This principle is either present or not: it cannot be a little bit present. The change by which the whole living being comes into existence is generation. And such a change ***must*** occur instantaneously; it cannot be stretched out over time. Only those changes which occur ***in*** or ***to*** already existing things would be stretched out over time. Aquinas concluded that the embryo ***as a whole***, considered in relation to its proper end, that is a human being, was "on the way to perfection." But this "way to perfection" involved three fundamentally distinct changes each identified with the generation and corruption of distinct souls: vegetative, sensitive, and rational. Thus, for Aquinas there is no individual human life until the infusion of the rational soul. Or, to put it another way, for Aquinas the radical change which results in human life occurs ***within*** the process of embryogenesis.

Both Albert the Great and Thomas Aquinas accepted the idea of the successive animation of the embryo, although they explained it

differently, and the differences are connected to the ways in which they tried to avoid denying the unity of man, the distinctions among the various kinds of change, and the naturalness of the biological processes which occur in the embryo prior to the infusion of the rational soul. With Aristotle, they thought that the diverse powers of man--broadly speaking, the nutritive, sensory, and the rational--came into existence successively, one after the other, in the developing embryo. Albert and Thomas, as I have said, accounted for this successive animation in different ways, but they were convinced that the various powers of the soul could not actually exist in the embryo until the appropriate organs had developed. Thus, they did not think that the rational soul could be present without the brain's having developed. The soul is an informing principle, but the material informed must be appropriately complex to receive the form. A rock, for example, does not possess the kind of matter suitable to receive a rational soul. It was precisely the realization of this metaphysical truth which seemed to require a successive animation of the embryo. So long as one is committed to the successive animation of the embryo, an understanding of embryogenesis which unites biological and metaphysical principles seems to remain elusive.

Might it be that modern science, especially genetics, reveals the kind of complexity, at or shortly after conception, which allows for complete animation all at once? In fact, the only real argument against the view that human life begins at conception depends upon the idea of the successive animation of the embryo. Albert and Thomas did the best they could with the biological information at their disposal. They were not successful in forging a unified account of the origin and development of human life before birth. Nevertheless, they both provide valuable insights into the important questions we must still address, and they illustrate for us the way to think clearly and systematically in the science of embryology, or in any science. Despite their differences about the animation of the embryo prior to the infusion of the rational soul, Albert and Thomas knew that there was a fundamental distinction between the instantaneous change which is the

generation of human life and other changes such as growth and development. They knew that embryological theory cannot violate the wider truths of metaphysics, biology, and theology. They also knew that these higher disciplines cannot deny the appropriate autonomy of the science of embryology. Embryological theory has to exist in the broader framework of scientific, philosophical, and theological truth: and this is true not only for ancient and medieval thinkers, but for us as well.

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Does the Eternity of the World Entail an Actual Infinite? Yes!

Ronald Keith Tacelli, S.J.

Here is my thesis: That the world is eternal (or perhaps better said: everlasting) entails an actual infinite of some kind--that is, entails an infinity which can truly be called actual and not merely potential. Note, first: I do ***not*** claim (at least not here) that such an actual infinite cannot really be. Nor, secondly, do I claim that there must have been a first moment of creation.[1] All I wish to argue is the following thesis--simple, straightforward, and true--that an eternal or everlasting world entails an actual quantitative infinite.

Let me state what I mean by those words 'actual quantitative infinite'. I mean a limitless many which nevertheless comprise a completed set--a set the number of whose members cannot be increased no matter what finite number is added to it. And so the kind of quantity I have in mind really is infinite. It is not actually finite but capable of endless possible increase or division in thought. That kind of infinity is rightly called potential.

Why then do I hold that the hypothesis of an everlasting world entails an actual quantitative infinite? We can best understand it, I think, if we suppose that the world is of finite duration.[2] Suppose it began a year ago. In that case we would say that a finite number of events makes up the past history of the universe. Whatever the problems with divisibility and therefore with potential infinity, there must be a limited number of events the succession of which has culminated in ***this*** present event; only a finite so

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[1] That case has been well argued by William Lane Craig. Cf. ***The Kalam Cosmological Argument*** (New York: Barnes and Noble Books, 1979) and ***Apologetics*** (Chicago: Moody Press, 1984), pp. 73-93. Cf. also J.P. Moreland: ***Scaling the Secular City*** (Grand Rapids: Baker Book House, 1987), pp. 15-42.

[2] I presume also that the world is of finite extension; that it does not comprise an actually infinite ***and*** presently existing number of things.

many could have preceded it. The set of events--the entire series of past successive motions which must have been completed for the present event to be reached--must be finite. We cannot number them, perhaps; we may be unable--in fact we certainly are unable--to count them. But this inability means that we have neither the time nor the wit nor otherwise the means to carry out such an operation. It does not mean that the series of past events cannot in principle be assigned a number; because the words 'in principle' indicate that the series is of a certain ***sort***--i.e., that the series is ***finite***--i.e., that it has--and can have--only so many members.

And so the hypothesis of a finite universe itself involves the apprehension that the quantity of past events comprises a limited series; that only so many events have succeeded each other in order that the present event be reached. It involves us in assigning ***number*** to the past--though not a number we must be able to name. What we know is this: given the hypothesis, there could only have been a limited, or finite, number of past events. The ***amount*** of time that fills the past can only be so much; the series of events it measures only so many.

But now suppose the world never began. Suppose it is infinitely old. Well, since we had no trouble, on the hypothesis of a year-old world, in saying that the set of past events is finite, so, on the hypothesis of an infinitely old universe, the set of past events--a set which terminates in what is happening ***now***--must in that case be infinite. And it must be an ***actually*** infinite set--in this sense: that its infinity has ***already*** been achieved. For just as, if the universe were finite, the series of past events must have happened and have been completed--must have been "gone through"--in order for the present event to have been reached, so, too, this must have happened if the universe is eternal or everlasting. But then the past must comprise a completed infinite set of events: a set which terminates in this event, and to which other events--somehow!--are being added.

So in ***denying*** that the universe is finite we are ***in that very act*** assigning quantitative measure to the series of past events. Or more

accurately: we are assigning quantitative ***measurelessness*** to them. We apprehend that they are ***in***-numerable in principle--that is: that there must be an infinity of past events, and that this infinity forms a set or series which has reached, by the succession of finite events, this present event. And if this is true, then an infinite sequence has by successive addition been completed.

Think of the birth of Christ. And imagine that all creation had from everlasting been groaning to bring forth the Savior. Finally, 2000 years ago, there happened what the universe had always been striving to accomplish. Would you not have to say that an infinite task--in an admittedly extended sense of 'task'--had been completed; that all the steps leading to the completion of the task must have been completed--must have been gone through--and that given the hypothesis of an eternal universe, the steps--or events leading to this final event--must have been infinitely many?

Some have said that the so-called infinity of past events means merely ***our*** inability to count them; but our inability to carry out an operation does not mean that the past events might not have been; for if the world is eternal, then they were. It means merely that we cannot assign a number to past days. Why not? Because there cannot be an infinite number.

Now true enough: we cannot complete the counting of the set of past events. But the set is not completely a product of our act of counting. Nor of our act of thinking. Rather: ***before*** we begin to count, we know (on our hypothesis) that the events which have preceded this one cannot be counted. We know that this succession really did precede the present. Our question is: Must it comprise a completed infinite series? Our inability to count is another way of answering the question Yes. It is our apprehension of the quantitative infinity involved in the hypothesis that makes us realize we cannot count the members.

Starting now, we could never "go through" all the days of creation--not even if we were sempiternal angels. No matter how far back we could get, there would be infinitely more events in the past to "go through." So a

sempiternal angel, even in an infinite time, could never get through the entire series. But somehow the series ***has been gone through*** successively by finite increments. Granted: between this point and any definite point we could name in the past, there will always be a finite distance, so to speak: there will always be a finite number of events intervening. But that only means that there is no definite point infinitely distant from the present. It does not mean that on the hypothesis of an everlasting world there must not be infinitely many events preceding ***any*** event in the past no matter how remote from the present. Just the opposite. For on the hypothesis of an everlasting world, there must exist an event which occurred before any past event we could name. How do we know this? Because the hypothesis involves the apprehension that past events must be infinitely many.

All past events ***must have occurred*** before this present event. For this present event is present not merely to remote days we may at our leisure imagine. It is ***ex hypothesi*** present to a beginningless past; and all past events must actually have happened for this present one to be.

As Kant put it: "If we assume that the world has no beginning in time, then up to every given moment an eternity has elapsed, and there has passed away in the world an infinite series of successive states of things." Those states have indeed passed away. That is part of what we mean by calling them past. But their being past does not mean that there were not many of them, and it emphatically does not mean that we cannot know how many there were. For if the universe is everlasting then we can know.

Consider the following. We are supposing that the universe is eternal or everlasting. Suppose, too, that the Catholic Church always existed--that the Catholic Church is as old as the universe. Therefore there never was a time--except between elections--when there was not a Pope. Suppose, further, that the Popes had only one name, John Paul. Now the series of Popes is formed by one John Paul's being elected, reigning, dying, and being succeeded by another. I have just been elected Pope. What would--could--I name myself? John Paul the...what? The infinitieth? But

why should I be called that and not the one before me--or the one before him? For if the Church is as old as the universe, an infinity of John Pauls must already have preceded any John Paul who reigned in the past. And that is the crucial point.

Some want to say that if the other members of the series are no longer actually existent, the problem of the actual infinite does not arise. But surely it does. As the elected Pope, I am part of this series of Popes. The other John Pauls are no longer alive; true enough. But their having been alive, their having reigned, and their reigns having been completed is a necessary condition for my standing in the place I do of Papal succession. That the other John Pauls no longer actually exist (I decline even to raise the question of the infinity of souls) is part of what allows me to deny potential infinity to the series of their past successions. The series of Popes is a series of successive reigns, and each reign must be completed before the next one can succeed. Their infinity is not a matter of dividing up in thought a quantity given as ***actually finite.*** I am finite, to be sure; and so was every other John Paul. That is just the point. It is ***because*** the universe is eternal and ***because*** there has always been a Roman Catholic Church and ***because*** the Popes have always been John Paul that I know there must have been infinitely many John Pauls before me. I may be perplexed what number to call myself--John Paul the infinitieth? the infinitieth-plus-one? But our main concern is with the ***ground*** of that perplexity: my knowledge that the set of Popes which preceded me (and each one of the others) must be infinitely many.

Of course you never ***have*** to raise these problems about number--just as you never ***have*** to worry how there can be motion if the world is an infinite body. But once you reflect on the hypothesis you must apprehend that it involves an infinity of past events, succeeding each other in endless time and by endless succession, terminating in this present event. And therefore ***this*** event is the end-point of an infinite series formed by successively completed finite events (i.e., papal terms). The beginningless

series terminates ***here***, in my election. And since it is the series of Papal elections that my election is a part of, the possibility of my election stands or falls with the possibility of there having been infinitely many Papal elections (and completed terms) before mine. And therefore even though I am finite, the series of events in which I now take part must be actually--and not merely potentially--infinite. The necessary condition (and so part of the meaning of the possibility) for this reign is the completion of all others preceding. All the others preceding must be infinitely many. So the necessary condition for there being this actual reign is that there must ***already*** have been infinitely many before it, and thus the completion of an infinite series is part of the meaning of this present reign.

Or consider another, and more familiar, example.[3] A certain smith has been at work for as long as the world has existed. And whenever he pounds a nail, his hammer breaks. Exactly how many hammers has he broken? Well, if the world is eternal, then we know that he must have broken an actually infinite number of them. You may doubt whether such an infinite set is possible--whether there would be room for the smith to strike, or indeed whether there would be room for the smith at all amidst an infinity of broken hammers. But that he must have broken infinitely many hammers in succession is open to no such doubt.

There is a disanalogy here, I grant, to the series of past events. For the hammers would comprise a presently existing set. But this difference is not relevant to the question of actual infinity. For suppose that in its breaking, each hammer ceases to be. We can still ask: How many hammers has the smith used up? (He surely has used up more than one.) And we can know that if the world is everlasting he must have used up infinitely many. They may not be there for us to see, but that does not make them irrelevant to our understanding of (or possible interest in) what the smith is doing now. After all, suppose you had to pay a penny for every hammer the smith has

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[3] Cf. St. Thomas: ***Summa Theologiae***, Ia, 46, 2, ad7.

broken. You would, I think, become intensely interested in whether or not the world is eternal. For if it were, you would know that your debt could not be finite. Why? Because if the world is everlasting, and if the smith has always been using hammers and breaking them, then infinitely many hammers must have been used up before the one he is using now. It's that simple.

If there ***were*** a first motion, the past would be finite; that is, there would have been a limited number of motions to which temporal measure could apply. But on the hypothesis of an eternal universe the very opposite is true. There must have been infinitely many motions to which temporal measure has actually applied. Not all at once. Of course not. Motion and its measure are not "all at once". But in order for there to be this motion ***now***, there must, on our hypothesis, ***have actually been*** infinitely many motions preceding. They were but are not. They are not because they are past. But the present motion would not be the present motion of an ***eternal*** universe unless infinitely many motions preceeded it. The latest motion in the history of the universe is reached through the coming-to-be and ceasing-to-be of past motions--of ***all*** past motions. For the latest motion on the history of the universe is the latest of its entire history. Its present is present to the ***entire*** past.

Has the present moment been reached through the coming-to-be and ceasing-to-be of infinitely many motions? If the world is eternal, then the answer can only be Yes. For the being of ***this*** present motion ***as present in an eternal universe*** depends on its being present to infinitely many motions which have succeeded each other. Which means: an infinity of such comings-to-be and ceasings-to-be must have been traversed. The universe (the collection of all beings changing in space and time) has arrived at this point in its history; but to arrive here, infinitely many motions must have succeeded each other. This present motion is ***part*** of that successive series. Since the series is infinite, so the last existent member of the series must be ***part of its infinity***. That infinity, which comprises the entire past of this

present world, has been gone through, completed, traversed. Therefore it must be actual.

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A Critique of Henry Veatch's *Human Rights: Fact or Fancy?*

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In his recent book ***Human Rights: Fact or Fancy?***, Henry Veatch presents an eloquent defense of a naturalist theory of rights based on his reading of Aristotle. In this paper, I will critically analyze Veatch's basic argument in order to show that such a naturalist theory can only be accepted under certain conditions. In order to do this, I must first summarize Veatch's argument as I understand it.

I

Veatch begins by considering and rejecting traditional teleological and deontological theories of ethics. Veatch rejects teleological positions such as those espoused by Utilitarians, Libertarians, or Ethical Egoists (all of whom follow what Veatch calls a "desire-ethic") because he believes that no moral imperatives can ever be derived solely from the unjustifiable pursuit of pleasure.

A deontological or an "ought-ethic" such as that of Kant fares no better in Veatch's view because it also tries "to construct an ethics without basing it on fact." (V, p. 216) While deontologists argue very effectively against the desire-ethic by pointing out than the mere fact that one desires X in no way implies that one ought to have X (indeed for the deontologist it is often the case that desires and duty clash), they are themselves unable to give any reasons or underpinnings for their rational intuitions of our moral duty.

Thus, Veatch rejects the two most common approaches for grounding ethical theory because neither theory can satisfactorily answer the fundamental epistemological question. Veatch believes that the solution to this grave situation lies in a return to an Aristotelian theory of naturalism, an ethics which can ground its claims in the very nature of reality. Only by recognizing that there exists a natural end or ***telos*** which is the reference

point for moral duties and obligations can we overcome this epistemological problem according to Veatch.

On the basis of his acceptance of such a teleological, naturalist ethics, Veatch develops a theory of natural rights. From this perspective, our natural rights are grounded solely upon our moral obligation to fulfill our rational capacity as human beings:

> In other words, is it not in this sense that our natural human right to freedom and liberty is strictly derivable from our natural human duty to become and be truly human? Our individual rights, in other words, can be derived from the duties that are incumbent upon us as individuals. And, of course, once my right or your right or the other person's right to liberty of action is established, then the principle of universalizability takes over: given that I have a right to freedom, based on the duty and obligation that I have to myself, then so also does every other person have a similar right based on the like duties that he has to himself; and likewise, given that I really do have a right to freedom and liberty, or whatever else, then necessarily everyone else has an answering duty or obligation to respect those rights of mine as thus demonstrated and established. (V, p. 168)

This argument is sufficient for Veatch to generate a ground for the traditional natural rights of life, liberty, and property, as the inalienable possession of these are necessary prerequisites for the possibility of fulfilling one's rational capacity for virtue. In this sense, Veatch accepts the claim that "ought implies can" in that by virtue of our natural human *telos* we are morally obliged to fulfill our inherent rational capacities which we can only

do if we have the life, freedom, and material circumstances without which no such fulfillment could take place. This does not mean, however, that Veatch accepts the existence of any so-called "positive" or "substantive" rights on the part of society to provide either wealth or services to each individual. Indeed, Veatch argues that there exist only "negative" or "procedural" rights.

What Veatch calls "negative" rights (and I will also refer to as "procedural" rights) are loosely defined as those needs an individual has to be able to engage in activities without the interference of other individuals or the community as a whole. In the United States Constitution, the Bill of Rights guarantees many of these procedural rights, including freedom of speech, freedom of the press, and freedom of assembly. Procedural rights formulate the basic structures of procedures in which the individual may engage. They also delineate the procedures which must be followed by the society if it wishes to interfere with the activity of individual citizens.

"Positive" rights for Veatch (which I will also refer to as "substantive" rights) confer ***specific*** societal benefits to citizens as opposed to merely delineating general procedural schemas. For example, despite the current upheaval in the Soviet Union, the claim is still made that every citizen has a substantive right to certain benefits such as housing, employment, medical care, and education, which the society has a corresponding duty to provide.

Veatch entirely rejects such a notion of positive rights. He says:

> My answer must take the form of a simple denial that individuals have any positive rights. There are no such things. Nor do I believe that of all the varied claims that individuals make to their having a right to food, clothing, and shelter, education, old-age benefits, and so on, there are any such claims that are said to be proper right-claims... (V, p.180)

> No, we are not initially entitled to these things because we are obligated to work for and to provide ourselves with them. And, indeed, if we fail to provide ourselves with such things, working both individually and collectively, then clearly we will have failed to make of ourselves as human beings what we need to make and ought to make of ourselves, and as a result, our lives may well turn out to be little more than "poor, nasty, brutish, and short." (V, p. 182)

It is on this last point that Veatch is willing to concede for the only time in his book that there is a problem which his teleological naturalism cannot solve. For, Veatch admits, there is one clear exception to his rejection of all positive rights. Surely, Veatch states, in the case of infants, small children, and minors generally, there is a positive right to care, nurture, and education from their parents, or if the parents are unable to provide such care, "then will not the responsibility for such services devolve upon the ***polis*** or the community as a whole?" (V, p. 195) This positive right derives for Veatch from the obligation which each child has to fully develop her/his rational capacities to the fullest, a task which can only be achieved in adulthood if sufficient care in the form of nurture and education is given too the individual in childhood and adolescence. As minors can hardly be expected to provide the means necessary to obtain these resources for themselves then they have a substantive right to them in order that they might be able to become the human persons they ought to become. Veatch emphasizes that "these rights-claims are entirely conditional upon children having the regular duties and responsibilities to become the rational and responsible individuals that they ought to be." (V, p. 196)

But, Veatch regretfully concedes, this cannot be said of the "hopeless defective," i.e., a person who is precluded, absolutely and

irrevocably, on the basis of the best medical evidence "from ever being able to live rationally and intelligently-that is, from ever being able to live such a life as a human being ought to live, in contrast, say to that of a mere vegetable?" (V, p. 196) As such a person would not have the potential to live a rational life, then he/she could not be said to have a positive right to any care despite the fact that without such care the person would surely die. Indeed, lacking the potential to be fully human, this person would not ever possess the negative rights to life, liberty, and the pursuit of property. Veatch realizes that the implications of all this is to "throw open the floodgates to abortion, euthanasia, infanticide and the like" and he confesses to be "repelled by such implications." (V, p. 196) Veatch even goes so far as to point out that while his major reason for rejecting all other ethical theories lies in their failure to provide an epistemological grounding for a genuinely and rationally determinable set of moral rules and principles; "nevertheless, in this particular case my justification for proper moral rules would hardly seem to work either." (V, p. 197)

While I fully intend to criticize Veatch's theory vigorously, I will not take advantage of this perceived flaw in his theory as I do not view it as pessimistically as does Veatch himself. For, it seems to me, there is a simple solution to this problem as it would usually occur if Veatch could be willing to alter his theory to accept a limited notion of positive rights. In most cases, even individuals with the most severe forms of medical difficulties could he said to retain some abilities to think and act in some rational fashion. As long as any rational capacity persists, the individual could be said to retain his/her moral obligation to fulfill that capacity as completely as possible and therefore, to the extent that that potential is acknowledged as a probability by medical science, the individual would retain both negative and even positive rights in accordance with this altered version of Veatch's theory. In fact, as an individual with severe medical difficulties would cost likely require much more attention and care than would the normal infant in order to retain his/her potential to fulfill his/her rational

capacity, it follows that such an individual would possess an even greater degree of positive rights to such attention from society no matter how costly such attention might be. This would be particularly true if the individual in question retained a very high degree of rational process despite a debilitating physical condition. A Stephen Hawking leaps to mind as an example of an individual whose claim to a positive right of care would be extremely strong under Veatch's theory.

The difficulties would begin as an individual's mental capacities started to diminish in proportion to the severity of the medical condition and the cost to society to maintain the life of the individual. One would think that even an extremely diminished individual would retain the positive right to care as long as she/he had some capacity for rational activity which he/she attempted to fulfill. For while Aristotle certainly valued most highly individuals capable of the greatest degrees of moral virtue, practical and speculative wisdom, he surely did not deprecate those of lesser capacity who nonetheless make every effort to fulfill that capacity. Even the least capable among us would seem to retain a positive right to care so long as one also retained even a minimal degree of rational potential and a likely willingness to fulfill that potential, if not at present then as soon as medical conditions would permit. The sole problem for Veatch here, as I see it, lies with the individual without any rational capacity or any realistic medical hope for achieving such a capacity. Such an individual, Veatch's "mere vegetable," could in fact not be said properly to have either positive or negative rights under Veatch's theory. While there might be other reasons to care for the physical needs of such an individual, e.g., the compassion that we feel either for the individuals themselves or for the feelings of the individual's relatives, loved ones, or friends; it is true that such a human being would have no rights to care or even to life. It is doubtful that Aristotle would have considered such an organically human being to be a person at all in the moral sense. While this position does open the door to abortion, euthanasia,

and infanticide for the undisputed Karen Ann Quinlans of the world, I do not find this implication as repelling as does Veatch.

In this discussion the role of a potentiality for future rational activity would become essential. For example, it would be necessary to examine and evaluate arguments such as those presented by Joel Feinberg against the use of a potentiality criterion for the establishment of moral personhood. (See Feinberg's essay "Abortion" in ***Matters of Life and Death***, edited by Tom Regan, Second Edition, Random House, 1986, pp. 256-292.) However, this is not the place for that discussion as it would lead us too far afield from our original endeavor.

II

In Veatch's view, the greatest obstacle to an outright acceptance of his rights theory based on an acceptance of a natural ***telos*** lies in its apparent opposition to the approach to nature taken by contemporary natural scientists. In his final chapter, "Law and Ethics in search of a Physics or Metaphysics," Veatch attempts to overcome this apparent difficulty in an unusual manner. Veatch himself states his problem in the following way:

> First, though, let us clarify the deficiency that needs to be covered. From the very start of this book I have insisted that law must be based on ethics, and ethics, in turn, must be grounded in fact and have a basis in nature. And yet how is it possible to show that moral laws are true laws of nature? For certainly in this day and age no one doubts that the only access that anyone can leave to nature or to reality or to the physical world generally must be through science--that is, through modern natural science. And yet who is there among us who does not know that science, so far from ever disclosing to us a moral universe, discloses

> only a world totally devoid of values, devoid of distinctions between right and wrong, of either moral "oughts" or "ought nots," and indeed of anything and everything that could be of any moral relevance? (V, p.213)

Veatch begins to solve this dilemma by demonstrating that contemporary philosophers of science cannot claim that they have proven that the natural world is a world devoid of values because they themselves concede that contemporary science does not give us an accurate picture of the world at all. Beginning with what he views as the Cartesian attempt to reduce the natural world to a mathematical model, Veatch shows us a progression of theories by which science has recognized its own inability to uncover the objective nature of reality. In the twentieth century, the theories of Karl Popper and others have shown us, according to Veatch, that the hypotheses of science have their origins not in empirical data but in the creative subjective activities of scientists themselves who weave scientific theories out of the whole cloth based on no more than the kind of inspiration that might be said to have affected a Picasso or a Joyce. Furthermore, science can never verify such theories, the most it can do it falsify theories whose predictions are disproven by empirical data.

Yet, Veatch points out, even this somewhat pessimistic view of science's ability to accurately describe the nature of reality has been dissolved by the arguments presented more recently by such theorists as Thomas Kuhn who claims "that the great overarching scientific hypotheses and theories that we are talking about are not just explanations of data, they are actually ways of seeing data, in the sense that, so far from the theories having to conform to the data, it is rather the data that comes to take on the color of, and thus to be found to conform to, and therefore to confirm, the theories." (V, p. 232) This leads Veatch to conclude that, for contemporary philosophers of science, "it is hard to see how any one scientific theory or

hypothesis can be any better as an account of nature than any other. True, one theory might enable us to gain a better control over nature in terms of technology." But this fact does not in any way either verify or deny the legitimacy of that hypothesis as an objective picture of the nature of reality.

Veatch explicates this interpretation of the contemporary attitude by referring to W. V. Quine's approach in ***From a Logical Point of View*** in which Quine presents the famous argument that "in point of epistemological footing the physical objects and the gods differ only in degree and not in kind. Both sorts of entities enter our conception only as cultural posits. The myth of physical objects is epistemologically superior to most in that it has proven more efficacious than other myths as a device for working a manageable structure into the flux of experience." (V, p. 233)

Veatch stops here confident that he has demonstrated the willingness of contemporary science itself to concede that it is now incapable both empirically and even theoretically of describing physical reality in anything like an objective sense. Given this ongoing failure of science, Veatch points out that he is now in the position of at least being able to coherently claim that the Aristotelian view of nature "has just as much going for it as has the non-teleology of modern science." (V, p. 233) But this first step back to plausibility is by no means sufficient for Veatch, "[f]or what profit comes from knowing that my view is in no worse evidential straits than any other view, no matter how prestigious that other view may be, if by the same token it becomes equally apparent that my view is no better off than any other, no matter how farfetched that other view may be." (V, p. 235) This leads Veatch to argue that while the hypothetico-deductive method may be the best method contemporary science can use because of the pragmatic technological consequences which do clearly derive from its use, it is not appropriate in the field of philosophy where no technological consequences are sought and where the aim must be "to know the truth about nature and reality as they are in themselves" because "our human

obligations and responsibilities demand verification in terms of the realities of nature and our characteristic human situation within nature." (V, p. 241)

As Veatch is not willing to accept either the methods of science or its conclusions (no matter how hypothetical and pragmatic its methods, contemporary physics does make some striking claims which would appear to directly contradict the possibility of a knowable natural *telos*, a topic I will not discuss here for the sake of brevity), he must now give some *reasons* for accepting a naturalistic theory over all others. In the last six pages of his book, Veatch attempts to do this and it is here, in my view, that he fails in his entire enterprise. In a brief section titled, "An Illustration of How Natural Philosophy Might Yield a Partial Knowledge of Nature," Veatch gives us the example of Aristotle's claims in the *Physics* concerning the existence and nature of change and the essential role of natural potentially in this process. These claims, according to Veatch, are put forth without the use of the hypothetico-deductive method and the baggage of uncertainty which the use of this method implies. "Rather," Veatch tells us, Aristotle "is simply describing or reporting what does take place and what the factors--the principles and the causes--are in the changes in the natural world." (V, p. 245)

But how do we know that Aristotle's descriptions are correct? Veatch is careful to explain that Aristotle's claims "are not put forth as if they were so many explanatory hypotheses, which so far from being evident directly in the facts, have to be first invented or fabricated, and then imported into them from the outside. And no more can there be any attempt to verify or falsify hypotheses for which originally there was no direct evidence. Instead, the empiricism of Aristotelian physics and metaphysics is of a kind that cannot be fitted into the scheme or framework of any hypothetico-deductive theory." (V, p. 245)

Here is a very strange claim indeed! Aristotle's physics and metaphysics are not open to empirical verification but instead are claimed to

serve as a direct report on the nature of things. But how do we know that this report is true if it cannot be verified or denied by empirical data because there can be no attempt "to verify or falsify hypotheses ***for which originally there was no direct evidence!***" (italics mine) Yet if Veatch admits that there is no direct evidence for Aristotle's views then why should we accept them? It cannot be on the basis of a universal rational intuition that they are true because Veatch has already made it abundantly clear that such deontological claims are in his view entirely unsupportable. By the same token, we also cannot accept Aristotle's views simply because we want to, as Veatch has also shown us that such a desire-ethic is equally unsupportable.

For ethics to exist, in Veatch's view, it must be grounded in a knowledge of the very essence of things, in the reality of our common human nature. Now Veatch is willing to admit that a philosophical knowledge of nature can never be "even a particularly detailed knowledge, much less an exhaustive one." "No," Veatch concedes:

> in all of these ways, philosophy must be said to offer but a comparatively slight knowledge of nature, involving little more than the most basic and general principles and causes. Nor do I propose here to try to explain why such a philosophical knowledge of nature is thus both limited and restricted. And yet that it is a realistic knowledge in the sense that it discloses the way that the world of nature really is or the way the things of nature really behave; and finally, that it is a knowledge that owes nothing to modern natural science or to the hypothetico-deductive method--these contentions I would reiterate, and with some confidence that I have cited convincing evidence in their support. (V, pp. 246-7)

Unfortunately, this claim seems unsupported in terms of the evidence and arguments which are presented. Given Veatch's unqualified rejection of all ethical theories which cannot solve the fundamental epistemological problem, it is simply not enough for him to assert the truth of value-laden statements about nature, no matter how limited or restricted, and then pretend that their truth has been demonstrated. Like Aristotle, Veatch refers to his method as one of "common sense realism and empiricism" (V, p. 249) as though the assertion of such a methodology is the equivalent of an explication and justification. Veatch concludes his book by stating that the natural sciences may continue their unsubstantiated wanderings without contradicting the truths of an Aristotelian naturalism:

> For what possible conflict need there be between knowing things on one level as they are in themselves and as our common sense experience reveals them to be, and knowing them on another level only as they are made to appear to be, as a result of our imposing upon the data our own classifications and ordering schemes, not for the purpose of knowing the truth about things but only of knowing how best to manipulate them to our own ends and to our own advantage? (V, p. 248)

There are two ways to respond to these conclusions other than simply pointing out, as I have, that they are based on no evidence whatsoever. The first manner of response would be to return to the discussion of the contemporary natural sciences in order to further investigate Veatch's claim that such scientists themselves acknowledge that they are only describing the mere appearances of things for the purpose of yielding pragmatic results which may be used in the development of technologies whose workings in principle can never be truly understood.

The second line of response would involve the presentation of my own approach to the formulation and justification of the assertion of moral values and rights. For the sake of brevity, in this discussion, I will pass over my discussion of developments in contemporary physics and quantum mechanics and their implications for Veatch's claims in order to concentrate briefly on the second approach.

It is my own position, which I have argued elsewhere, that in fact there appear to be no means by which we can know with either certainty or even the pragmatically empirical probability of science that there exist objectively a universal set of moral values which entail rights and duties. Indeed, I would agree wholeheartedly with Veatch's criticisms of teleological and deontological theories for their inescapable failure to resolve the epistemological problem, and, as I have indicated, I would argue that Veatch similarly fails to solve this same problem.

This does not mean, however, that I am unwilling to utilize ethical theories which discuss rights and duties. In fact, I take a position more like the one which Veatch characterizes in the book under discussion and others as "the way of Nietzsche," following Alasdair MacIntyre's approach in his ***After Virtue***. I prefer to call my position an "existential" approach as I tend to identify my theories more closely with those of the early Sartre or perhaps the early R.M. Hare, although I am arrogant enough to believe that my approach is sufficiently original that both Sartre and Hare would disavow it, a wish which has already been granted in the case of the latter philosopher.

In my paper, "The Central Role of Universalization in Sartrean Ethics" (***Philosophy and Phenomenological Research***, Vol. XLVI, No. 1, September 1985) and in other writings, I have attempted to clarify the workings of such an ethics by concentrating on the fundamentally important role of a principle universalization in its development. In that work, I argued that a notion of universalization, which is usually associated with formalistic ethical theories such as Kant's, is necessary for any

understanding of how a Sartrean ethics would operate. Indeed, I claim that a Sartrean ethics must explicate a kind of "non-cognitivist" notion of universalization if it is to succeed.

A Sartrean ethics would utilize this notion in only one of the three meanings in which, according to Paul Taylor in his book Principles of Ethics it is possible to view it; namely, as a claim of logical universalizability which applies to all evaluative and prescriptive judgments of actions in that such judgments are seen as entailing the universal judgment that all persons and circumstances which are identical in all of their morally relevant aspects ought to follow the same specific course of action. (Paul W. Taylor, ***Principles of Ethics: An Introduction***. Belmont, California: Wadsworth Publishing Co., 1975) This use of the term places its emphasis on the logical consistency with which an individual constitutes his moral judgments. Within this context, there are no claims made as to how the individual ought to make such judgments or whether such judgments could be shown to be reflective of a set of moral principles which are objectively valid in the cognitivist sense.

In order to understand why this is the case and why this notion is important to Sartrean ethics, I should now engage in a very brief outline of how I argued that such an ethics must operate, but to save time, I will simply refer any interested listeners to my lengthier presentation of these arguments in my earlier paper.

III

Veatch himself discusses the possibility of using the principle of universalizability as a basis for a theory of rights in his criticisms of Alan Gewirth's attempts to do so in his book ***Reason and Morality***. Gewirth, like myself, begins with a recognition of (1) the fundamental importance of freedom for the project of rational moral action. But, unlike myself,

Gewirth claims that the necessity of freedom as a prerequisite for moral action logically entails (2) that all moral agents must claim to have a right to exercise that freedom. Furthermore, Gewirth goes on to argue that (3) the recognition that all persons share a similar desire for the free exercise of their autonomy leads to the expansion of this rights-claim to ***all*** persons by means of the principle of universalizability. Veatch correctly attacks this argument in the following manner:

> And with this, the weakness in Gewirth's argument becomes readily apparent: if what in a given instance I happen to like or cherish--say, the freedom and purposiveness of my actions can indeed be shown to be no less what is right for me to have and enjoy, then such a right-claim is universalizable and is therefore a right of mine that everyone else is obligated to recognize and respect. But, clearly, this elevation of my likes and dislikes into rights and wrongs first needs to be shown, and only then can there be any universalizability of my rights (or my wrongs). (V, p. 160)

Thus, according to Veatch, and I agree with him, Gewirth's argument runs into the epistemological problem just as does any other desire-ethic. As Veatch admits in a footnote, this criticism is very similar to that made of Gewirth by Alasdair MacIntyre in his ***After Virtue***. According to MacIntyre, of the three steps of Gewirth's argument, the first and third are logically justified while the second is left unsupported. MacIntyre presents his criticism of Gewirth in this way:

> The key sentence in Gewirth's book is: "Since the agent regards as necessary goods the freedom and well-being that constitute the generic features of his successful action, he

logically must also hold that he has rights to these generic features and he implicitly makes a corresponding rights-claim." (p. 63) Gewirth's argument may be spelled out as follows. Every rational agent has to recognize a certain measure of freedom and well-being as prerequisites for his exercise of rational agency. Therefore, each rational agent must will, if he is to will at all, that he possess a measure of these goods. This is what Gewirth means when he writes in the sentence quoted of "necessary goods." And there is clearly no reason to quarrel with Gewirth's argument so far. It turns out to be the next step that is at once crucial and questionable.

Gewirth argues that anyone who holds that the prerequisites for his exercise of rational agency are necessary goods is logically committed to holding also that he has a right to these goods. But quite clearly the introduction of the concept of right needs justification both because it is at this point a concept quite new to Gewirth's argument ***and*** because of the special character of the concept of a right...

Another way of understanding what has gone wrong with Gewirth's argument is to understand why this step is so essential to his argument. It is of course that if I claim a right in virtue of my possession of certain characteristics, then I am logically committed to holding that anyone else with the same characteristics also possess this right. But it is just this property of necessary universalizability that does not belong to claims about either the possession of or the need or desire for a good, even a universally necessary good... But the objection that

> Gewirth has to meet is precisely that these forms of human behavior which presuppose notions of some ground to entitlement, such as the notion of a right, always have a highly specific and socially local character, and that the existence of particular types of social institution or practice is a necessary condition for the notion of a claim to the possession of a right being an intelligible type of Human performance. (Alasdair MacIntyre, ***After Virtue***, University of Notre Dame Press, 1981, pp. 64-65, hereafter abbreviated as M)

I have extensively quoted from MacIntyre on this point because I believe he sets up the non-cognitivist dilemma in discussing the issue of "rights" in a very clear and precise fashion. Gewirth attempts to resolve this dilemma both in ***Reason and Morality*** and his later ***Human Rights: Essays on Justifications and Applications*** by claiming that his notion of "rights" is a non-normal prudential one based solely on the rational calculation of one's self-interest and the realization in his six-step demonstration using his so-called "dialectically necessary method" that the acceptance of the necessity of our common desire for freedom and well-being must lead to the acceptance of universal human rights to freedom and well-being if one is to avoid self-contradiction. (Alan Gewirth, ***Human Rights: Essays on Justifications and Applications***, The University of Chicago Press, 1982, pp. 67-78) Given my claim that a non-moral personal preference becomes a moral statement precisely because of one's willingness to universalize that preference in a prescriptive manner, I obviously cannot agree with Gewirth on this point. In my view, rights come into existence in the same manner as do any other moral claims, i.e., as a result of an individual's choice to create such a belief, for whatever reason, in a universalizable prescriptive manner. These rights are then societally

recognized through a process of negotiation and discussion with others in the practical arena of political discourse.

Veatch and MacIntyre are quite correct, therefore, when they argue that the existentialist cannot justify his/her ultimate moral principles (which are few in number and from which all his/her other moral claims are rationally derived) in any objective fashion. I cannot prove that my ultimate moral claims are correct to those who do not choose to accept them. The claims are created by me in the exercise of my ontological freedom and are indeed, ***in principle***, unjustifiable. The essential difference in my position from that of Veatch is that I am willing to admit that my moral principles are unjustifiable yet still capable of forming the basis of an intelligible and workable system; while he clings to the notion that the very enterprise of ethics is impossible unless there exists a knowable objective ground for such principles although he gives no reasons why this must be so. This notion, in Veatch's hands, leads him to conclude that an epistemological foundation for naturalism exists, for to think that one does not heads us, in his opinion, down "the primrose path to everlasting bonfire."

Thus, when I claim to have a right to life, liberty, and the pursuit of property, and I do make such a claim; I recognize that I cannot ultimately ground that claim in knowledge of my natural ***telos*** or an indubitable rational intuition, or even a linguistic analysis which equates my needs and desires with rights and duties. No, my rights are solely grounded in my free creation of them and my willingness to generalize my choice into a theory of universal human rights. Because I choose to value my own life, liberty, and pursuit of property, I constitute this valuing in a prescriptive manner from which I generate my own respect for the similar rights of others. In doing so, I acknowledge, as Gewirth does not, that my choice to believe in the value of my own rights is ultimately an unjustifiable Kierkegaardian "leap of faith" which is grounded solely in my choice.

But once having made the choice to value my own rights-claim, the principle of universalizability necessitates that I generalize this claim to all other human beings to the extent that I wish to be rational and consistent. Indeed, once this first step is taken, a theory of rights as elaborate as that of the contract theorist's, the Utilitarians', Rawls', Nozick's, or, yes, even Veatch's is possible. On the basis of my approach, in fact, it would be possible for me to choose to adopt any of the theories listed above as well as any other so long as I am willing to concede that the ultimate ground of my theory, Hare's fundamental criteria, are invented and accepted on a faith which is incapable of incontestable demonstration. It is a mystery to me why some naturalists, who might be perfectly willing to accept the premise that their belief in God must be ultimately grounded in religious faith rather than on indisputable proofs, are not able to see their way clear to accepting the same restrictions on their beliefs in the natural origins of our rights and duties.

In my notion of a system of rights and duties, those who choose to believe in their own rights to life and liberty may do so either freestanding, unjustifiable, ultimate moral principles (as I do) or as logically derivable claims from other ultimate moral principles (e.g., the belief that there exists a natural human ***telos*** which imposes duties from which rights may be inferred). However each individual chooses to construct this rights-claim, once accepted by a community of individuals, that community may go on to establish a legal system from which may be derived all manners of legal rights and duties which may be used to govern society.

Moreover, if the individual members of the community also choose to value the mechanism of participatory democracy as a way of further insuring that their views will be given equal weight in political deliberations as well as ensuring that their individual claims to procedural rights will be protected, then a system very much like that currently in existence in the United States and other so-called "western-style democracies" can be explicated and defended. As MacIntyre himself recognizes, such a system

does not require a moral consensus on every issue or even on most issues, indeed a variety of opposed moral stances can operate somewhat successfully in a pluralistic democratic society in which each person's right to hold and act on their own views to the extent that the liberty of others is not infringed upon is respected. MacIntyre obviously takes a dim view of this situation as he yearns for a return to the classical virtues, but, for my part, I am quite satisfied to accept the advantages of the contemporary liberal individualist approach no matter how chaotic and undisciplined it sometimes might seem.

In addition, this way of understanding the role of the notions of rights and duties has the added advantage of allowing diverse international communities, e.g., democratic governments, Marxist governments (to the extent that any such governments continue to exist), Islamic governments, etc., to agree on fundamental legal procedures while allowing them the flexibility to ground their moral claims in accordance with their differing cultural, religious, and ideological preferences. The skeleton of an international legal structure of the sort I am describing already exists. All of the member countries of the United Nations are signatories of the 1948 United Nations Declaration of Universal Human Rights. Many of these same countries have also agreed to abide by various international treaties such as the one banning acts of genocide. If these same countries and others could agree to establish a permanent world court, such as the one located at the Hague in the Netherlands, and if they would agree to abide by the decisions of such a court, then many of the practical legal problems resulting from the world's diversity in moral approaches could be resolved without a sudden and highly unlikely worldwide conversion to a naturalist ethics. One wonders how such a conversion could ever take place when even two naturalists in the English-speaking tradition of interpreting Aristotle such as MacIntyre and Veatch cannot agree on all issues of significance.

Finally, in his earlier book ***For An Ontology of Morals***, Veatch criticizes the existential approach in the following manner, "no sooner is ethics conceived and approached in this way than it turns out to be a purely relative matter, incapable of rational justification, and thus doomed to nihilism." (Henry Babcock Veatch, ***For an Ontology of Morals***. Evanston, Illinois: Northwestern University Press, 1974, p. 85) There are three components to this criticism, the first claims that an existential ethics would fall into some form of relativism, the second asserts that no rational justification could be given within the structure of such an ethics, and the third condemns such an ethics as "doomed to nihilism."

Taking these claims together, I fail to make out any serious criticism of a Sartrean ethics as all Veatch appears to be doing here is asserting repeatedly, and in somewhat pejorative language, the claim that a Sartrean ethics would be non-cognitivist. Yet he gives no arguments to demonstrate that ethics cannot be done from a non-cognitivist perspective in the manner which I describe. On the other hand, I do recognize that there is a serious, though unstated, thrust to this criticism. Veatch obviously believes that the universe would be a more hospitable place in which to operate ethically if we could come to know that there exists one method of ethical reasoning which can be expected in principle to show, whenever there is a conflict of values or ethical principles, that one and only one solution is correct in some important and relevant sense of 'correct'.

For this reason, and this reason alone as far as I can see, Veatch chooses to believe that such a method does exist. Yet, I too would agree that our lack of certain knowledge in the ethical realm renders the universe much more frightening. I also would prefer to believe that rationality can solve all such disputes. Unfortunately, however, I am unable to discover convincing evidence that such a method does exist. For this reason I believe that it would be bad faith to pretend to ourselves that such a method is grounded objectively when, at the same time, we are aware that this fact cannot be established. Sartre's description of the disappointment which results from

an examination of the foundations of ethics and his analysis of the resulting conditions of anguish and responsibility are, in my view, more authentic responses to the failure to date of the human attempt to ground ethics than are the arguments of those who continue, against all evidence, to claim that we have succeeded.

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The Intelligibility of Substantial Change in Aristotle's *Physics*

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Substantial change is a topic of considerable difficulty which Aristotle addresses in Book V of the ***Physics***. Whereas accidental change, such as change of place, occurs over time, substantial change cannot do so, else, there could be no real distinctions among things, no science of physics. In a frog's coming into being, the subject of the change cannot at any time be a little bit of a frog and a little bit of nothingness; the change between the contradictories of qualified non-being and being which is the generation of the frog must be instantaneous. Yet, Aristotle argues to an understanding of substantial change, which is, in principle, unobservable, from an understanding of accidental change, which is observable. The instantaneous nature of substantial change would seem to deny the comparison to accidental change, which admits of a measurable intermediary state between potency and act, called motion. Furthermore, the observable substrata of accidental changes, such as change of place, are not so apparent in substantial changes, yet another possible denial of the comparison of substantial change with accidental change. In order to render intelligible Aristotle's notion of substantial change in Book V, we must proceed, as Aristotle does, from what is more known by us to what is more known by nature. We must begin with Aristotle's preliminary discussions about the nature of change in Book I of the ***Physics***.

In Book I, Aristotle argues to the necessity of three principles of change or motion: two contraries and a substratum. Aristotle posits the necessity of a substratum by arguing that two contraries do not act upon each other, but, rather, must inhere in a common substance. (189b6-20) Near the end of Book I, Aristotle argues for the intelligibility of generation and destruction, against the arguments that what already is cannot come to be, and that nothing can come from nothing. Aristotle dismisses the first argument, that the already existing cannot come to be, by denying that

generation and destruction are examples of such a proposed change. Yet, his affirmation that generation and destruction are changes from non-being to being and vice-versa, seems to leave him faced with the problem of having a change between contradictories without a substratum. Other philosophers had argued that nothing can come from nothing. Aristotle resolves the problem by distinguishing coming into being *per se* from coming into being *per accidens.* (191a23-191b34) He considers the argument for generation, whose principles could be subsequently applied to destruction. Aquinas' commentary on this passage is helpful in elucidating what Aristotle means by distinguishing becoming *per se* from becoming *per accidens.*

> ...a thing comes to be *per se* from being in potency; but a thing comes to be *per accidens* from being in act or from non-being. (***Commentary on the Physics***. I. lecture 14. no. 127)

That generation could come about from being in potency is not a position which Aristotle's opponents had considered. Generation and destruction, according to Aristotle, are not changes to and from unqualified non-being, but changes to and from qualified non-being, i.e., being in potency. Aristotle argues that prime matter subsists the change from qualified non-being to being; in this way, generation and destruction do have a substratum. (192a26-34) Aristotle's distinction between being in potency and being in act is, in part, what allows him to argue for the intelligibility of generation and destruction as changes.

The problem of formulating an intelligible notion of substantial change from a consideration of the nature of accidental change remains. Aristotle describes generation and destruction in Book V, within the context of his prior discussion and definition of motion in Book III. By proceeding from arguments about motion to arguments about the larger category

change, Aristotle is, again, proceeding from what is better known by us to what is better known by nature.

Aristotle defines motion in Book III of the ***Physics*** as: "the actuality of the potentially existing qua existing potentially." (201a11-12) His definition of motion designates a mode between potency and act, which is the full actuality of the potential as potential. In accidental changes, these three modes of being are analytically and temporally distinct from one another. Potency is followed by the full actuality of the potency as potency, which is followed by actuality. Not only are these modes temporally and analytically distinct, but observably distinct from one another as well. On the basis of these distinctions, Aristotle eventually argues analogically to a description of substantial change in Book V of the ***Physics***.

In Book V, Aristotle describes motion and change with more precision than he does in Book I. All motions fall into the category of change, but not all changes are motions. Aristotle distinguishes three types of changes: the change from non-subject to subject, from subject to non-subject, and from subject to subject. (225a8-12) He calls these, respectively, generation, destruction, and motion. By making that distinction, Aristotle classifies generation and destruction not as motions, but as changes with respect to contradiction. (225a35-225b2) Even though substantial changes are not, themselves, motions, they do necessarily involve motions which precede the generation or destruction, which generation or destruction has the following three characteristics:

> There is always, however, a motion in the strict sense that precedes the instantaneous generation of a substance and terminates at the moment of generation. And in every substantial change there is involved not only the absolute generation of a substance that did not exist before, but also the absolute corruption of a substance that did exist before. The change of quality of this preceding composite of subject and substantial form, called alteration, terminates

> (1) at an ultimate qualitative disposition incompatible with the preceding substance, (2) at the corruption of this substance, and (3) at the production of the substance that now comes to be absolutely--and terminates at all three in the same instant.[1]

The three characteristics of substantial change correspond to the three distinct modes of being throughout a substantial change: (1) the potential to be X, (2) the full actuality of the potential to be X, as potential, and (3) the act of being X. In cases of accidental change, such as change of place, these modes are distinguishable temporally. In some sense, they are also distinguishable temporally in a substantial change, since every substantial change necessarily has a motion which precedes it, and the states of potency and act are distinguishable, temporally, from each other. But what about the state of the actuality of the potential to be X, as potential? When, or how, does it exist? Aristotle's argument is that it exists as limit of the potency to be X and the act of being X. Andrew Robinson succinctly describes the nature of the existence of the actuality of the potential as potential in substantial changes in his article for the *New Catholic Encyclopedia* on substantial change:

> Substantial change (*generatio simpliciter*) or absolute becoming (*fieri absolute, fieri simpliciter*) is the passage in a subject from absolute non-being to being that is a substance. This passage is necessarily produced in the indivisible instant in which a substance both comes to be and exists in itself.... "Absolute becoming" can mean...the becoming of a substance, such as Socrates, where the term

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[1] Robinson, A. "Substantial Change," *New Catholic Encyclopedia*, vol. 13, 1967, p. 771.

> signifies both the alteration that precedes Socrates and his instantaneous becoming.

As a limit in a continuum which separates potency from act, the instant after which X exists is the instant at which the potential to be X is fully actual as potential. The instant at which the potential is fully actual as potential is in the period of time which leads up to the change, as limit. Aristotle makes an analogous argument:

> Moreover, if the thing is at rest in all of the time AB (for let it be posited as being at rest [in AB]), it is also at rest in B. So if BC is without parts, the thing will be at rest in B and has changed in C. (236a17-20)

Aristotle must finally make the argument that the nature of substantial change can be understood only analogically by an understanding of accidental change. Although a substratum and an intermediate state of becoming are observable in accidental changes such as change of place, in substantial changes, they are not. Yet, one can determine that something must be the case without understanding completely how it can be so. It is this knowledge for which we must finally settle in our understanding of substantial change. Change is predicated of substance only analogously to change predicated of accident, and should not be understood univocally in its application to generation, destruction, and motion. We know that, given the natures of contradictories, such as being and non-being, no interval of time can exist in a transition from one to the other; else, there would be a time in which both contradictories would be affirmed: a logical impossibility. We also know that, given the nature of change, there must be more than simply a potency's being prior to an act, or vice-versa; there must also be the full actuality of the potential as potential. Since we know that, however this intermediate mode exists, it cannot exist over an interval of

time, we must affirm that it exists at the instant which divides potency from act. Furthermore, we must affirm that these three modes of being are analytically and ontologically distinct.

As one can see, the apparent problem of rendering intelligible the notion of substantial change is resolved by predicating change of generation and destruction analogously to the manner in which it is predicated of motion. By recognizing the limits of analogous predication, one can thus avoid errors of univocation in rendering with further precision what reason determines to be true about substantial change.

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