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"April Fools"
A Presentation to the SPHEX Club

Michael A. Gillette, Ph.D. April 1, 2004

'Time', as I am sure all members of this esteemed group surely know, is a philosophically complex and definitionally recalcitrant subject. Attempting to clearly outline the nature and properties of time itself is an intellectual exercise of daunting magnitude that, this group will gladly hear, the present speaker is loathe to assume. While earning my doctorate in philosophy I spent many an hour and many more a tablet of Anacin on this topic. For an entire semester, I labored in a graduate level metaphysics seminar where the Professor's sole goal was to develop a defensible definition for the term "moment".

Change, it seems, takes place over time. An object changes when it manifests one set of characteristics at moment A, and a different set of characteristics at moment B, where moment B is subsequent and contiguous to A. This simple observation creates great consternation, however, in the minds of all thinking beings, because it requires both the notion of contiguous moments, and the concept of transition from one moment to the next.

If change is possible, on this way of thinking, transition must be possible. But transition is a form of change, and it must take place in moments. How then do we actually get from moment A to moment B without undergoing some change. That change would, by necessity, have to take place in a moment (call it C) which falls somewhere in between moments A and B. If there is a moment between A and B, then A and B are not contiguous, so transition could not take place between them. But if transition cannot take place, then change cannot take place. Surely, however, change does take place. Thus the rub.

Fortunately for me, my recollections of this particular graduate seminar are vague. There is no question that I have failed properly to communicate the issues that consumed us for that entire semester, because what I have described to you now is an overly simplified version of Zeno's paradoxes of motion. No reputable philosopher would spend more than thirty minutes resolving these ancient problems that have long-since been solved by Aristotle, however, so I readily assume that my unconscious mind, in a singular act of psychological self-defense, has blotted out the most perplexing issues that we discussed in graduate school.[1]

Happily, I have no desire to discuss time itself with you this evening, but I feel that I must briefly discuss a related but far more tractable issue- the measurement of time. Over the centuries, many cultures and many sciences have labored to develop a reliable and useful measurement of time. The best of such efforts would rely on Sidereal time. This sort of time measurement is based on stipulating a day as that period of time in which an extra solar celestial object traverses the sky and returns to the same visible location.

Although there may be wonderful advantages to measuring time in Sidereal days, the bulk of the world's human population found it far more compelling to measure time on the basis of more vivid markers. Lunar calendars and lunar-solar hybrid calendars have been developed, but the majority of the Western world quickly converged on the use of a solar calendar. This calendar marks a day as the length of time it takes for the sun to make one full revolution through the sky and return to its apex. The solar year would be defined as the period of time it takes for the earth to make one full revolution around the sun and return to a specified point in its orbit. This notion of a year could exist in the pre-heliocentric cosmologies, because the earth's orbit correlates to the apparent location of the sun in the sky relative to the horizon at local noon. It is possible to measure a year as the length of time it takes for the sun to pass through one entire analemma. Although

[1] Zeno proposed a series of logical paradoxes regarding change and motion that are well presented in chapter IX of Kirk, G.S. et. al. The Presocratic Philosophers, 2nd ed. (New York, NY: Cambridge University Press, 1983) pp. 263-279.

the solar disc is not a point source of light, the discrepancies between apparent sunrise, actual sunrise and standard time sunrise were all too small to worry about.[2] Other discrepancies were not, however, so easy to ignore.

As it turns out, the length of a solar year is not evenly divisible by the length of a solar day. It takes approximately 365.25 solar days for the earth to complete one solar year. If a year is rounded down to the closest whole day, the calendar will lose one-quarter of a day per year. This error will add up until the seasons begin to slip relative to the months of the year. Fortunately, our ancestors realized the limitations of the simple solar calendar. In the year 46 B.C.E., the astronomer Sisogenes made a brilliant recommendation to Julius Caesar. He suggested that the calendar be amended to add one leap day every four years in order to make up for the gradual loss of time. This calendar, the Julian calendar, was significantly more accurate than other alternatives.

As intelligent as Sisogenes was, he hadn't gotten things quite right. The solar year is actually made up of 365.2422 solar days, not 365.25 solar days. That seemingly small error in the calendar added up again, and by the year 1582 C.E. the calendar was ten days off schedule. Pope Gregory XIII fixed this problem by adopting a new Gregorian calendar, skipping the ten lost days and removing leap days that fell in century years not divisible by 400 (1800 and 1900 were not leap years, 2000 was).[3,4]

The Gregorian calendar was a clear improvement over the Julian calendar. It made a variety of changes, however, including a relocation of the New Years celebration from around the time of the vernal equinox to January first. Previously, New Years celebrations commenced with the equinox on or about March 21, and continued until the

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[2] Apparent sunrise is defined as the time when the top of the solar disc first appears to inch up over the horizon. Actual sunrise is defined as the time when the top of the solar disc actually rises above the horizon, which, due to the atmospheric bending of light takes place some minutes after apparent sunrise. Standard time sunrise is defined as the time when the center of the solar disc clears the horizon.

[3] There are many excellent discussions of calendars, but a very brief overview is available in Pasachoff, Jay Stars and Planets, 4th ed. (New York, NY: Houghton Mifflin Company, 2000) pp.499-502.

[4] For reference, April 1st, 2004 Gregorian corresponds to the 23rd of Baramhat, 1720 Egyptian (Coptic), the 10th of Nissan, 5764 Hebrew, the 11th of Safar, 1425 Islamic, the 19th of March, 2004 Julian and the 10th of Germinal, 212 Republican (French).

official start of the New Year on April 1. This celebration of New Years Day dates back as far as 2000 B.C.E. when the ancient Babylonians pegged the start of the new year to the time when the first visible crescent of the moon was observable after the vernal equinox. The Roman Senate changed New Years to January 1st in 153 B.C.E. for purely civic reasons. January 1 was the date on which newly elected officials took office in Rome. When Julius Caesar changed the calendar, he retained the January 1st New Years date, but had to extend the year to 455 days in order to make up for lost time. In 567 C.E., the Council of Tours reestablished the first day of spring as the official start of the new year, and there it stood for just over 1,000 years.

When Pope Gregory revised the calendar, he changed New Years Day back to January 1. It is possible that there were religious reasons behind the move this time, as many Catholics continue to celebrate New Years Day as the celebration of Jesus' circumcision.[5]

Now all of these calendrical machinations may have been long since forgotten if it weren't for the steadfast stubbornness and international haughtiness of the French. When the Pope changed the calendar, the French would have none of it, and continued to celebrate New Years Day on April 1. While many attributed this unwillingness to adopt the new calendar to pure bull-headedness, others quickly found that those too ignorant to read or understand Papal edicts simply missed the news and celebrated the April 1st holiday in outright error. Such individuals became known in France as "Poisson d'Avril", or April Fish. This epithet may have been the result of the fact that these ignorant persons were often invited to non-existent celebrations, or sent on impossible errands (Fool's Errands) on April 1st. As the pranks became more prevalent, and the foolhardiness of those who fell for such pranks was reinforced, it became quite common to identify the gullible as "April Fools".[6]

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[5] An excellent website that discusses the basis for the New Years' date is http://wilstar.com/holidays/newyear.htm. See also http://www.holidayorigins.com/html/new_years_day.html

[6] Three websites that offer background information on April Fools Day are: http://teacherlink.ed.usu.edu/tlresources/units/Byrnes-celebrations/april.html, http://www.infoplease.com/spot/aprilfools1.html, and http://www3.kumc.edu/diversity/other/aprlfool.html

What a shock it was to find that after two years of membership in this organization, I was slated to present on April 1. I was forced to wonder, as I prepared for the delivery of my first paper to a SPHEX club gathering, whether I was to be the subject of an April Fools joke? Why else would so many people spend so much time preparing papers to deliver to each other. This must be an elaborate hoax! The SPHEX club doesn't really exist, I thought. I have been invited to sit with an impressive array of individuals, to listen intently to their impressive orations, and to sweat profusely in my own anticipation that I will someday have to try to impress this crowd myself. What a trick it would be to learn that I had been the brunt of the most extensive April Fool's joke in history! Checked only by the realization that I am far too unimportant to receive this level of attention even for a great joke, I began to believe that I would indeed have to make my presentation, and that you would, in fact, show up to hear it. Therefore, I now spring my own Joke on you… April Fool's, my topic has nothing to do with time or calendars.

On to the actual topic for tonight. Although my profession is quite serious, and I want to maintain a happy mood throughout tonight's discussion, permit me to spend some time on examples from my own professional experience.

Consider the following case:

Mrs. A is an 86-year-old patient who was admitted to the hospital for treatment of a Nembutal overdose. Mrs. A had been married for 63 years, but her husband had recently become quite ill. Mr. A suffered from CHF and COPD and was clearly at the end stage of his disease when he was discharged to home. Arrangements had been made for follow-up with home health and hospice, but since Mr. A was stable, it was felt that he could go home one more time without experiencing unreasonable risk. Mr. and Mrs. A had a long standing agreement that when the time was right, they would exit the world together in a dignified manner. Mrs. A gathered up a supply of Nembutal from her own prescription and prepared to help her husband commit suicide. The As dressed in their best clothes and lay down together in the living room. Mr. A took a handful of Nembutal tablets and quickly succumbed to their effect. Mrs. A took a handful, but she knew that a

higher dose than that able to kill her fragile husband would be necessary. She remembered at that moment, however, that the kitchen door was locked. Not wanting to rot on the living room floor, and not wanting the Police to be forced to damage her property, Mrs. A went to the kitchen to unlock the door. She was on her way back to the living room to lie down next to her husband and take the full measure of her overdose, when she fell unconscious. She was discovered by a neighbor, brought to the hospital and successfully treated for the overdose. She is now discharge ready, but communicates her plan to "finish the job" as soon as she is released. The attending physician wanted to hold Mrs. A in the hospital in order to prevent her suicide. He requested an ethics consult.

This case was an interesting lesson for me regarding the limits of autonomy and the force of professional integrity. The attending physician in this case had a strong feeling that it would be unethical to discharge Mrs. A into a setting that he believed would be dangerous. Since Mrs. A was actively suicidal, he did not want to release her from the hospital at all. Mrs. A, on the other hand, was adamant that her choice to end her own life was not anyone's business but her own. She insisted that we had no role in questioning her motives. She appreciated our concern, but indicated that it was out of place.

It is not my intention this evening to discuss the intricacies of civil commitment law, but it should be noted that the Code of Virginia allows for commitment of patients who present an imminent threat of harm to self or others secondary to a mental illness, or who are so seriously mentally ill as to manifestly unfit to care for themselves.[7] Simple self-injurious behavior is not grounds for civil commitment. At the time that this case took place, Virginia had no assisted suicide law, and it is doubtful that the local police would be interested in pursuing charges against a patient like Mrs. A even now that such a law exists.[8] The key issue, as far as the ethics committee was concerned, was whether or not Mrs. A had the capacity to understand the alternatives, risks and benefits of the treatment

[7] Code of Virginia Section 37.1-67-01 et. seq.
[8] Code of Virginia Section 8.01-622.1

options available to her, and whether she suffered from a mental illness or cognitive impairment that would justify forcible intervention to protect her from self-injurious behavior. It should be noted that there was some concern about short term memory loss. On one particular rant, Mrs. A indicated that she didn't understand what all the fuss was about. She didn't think that anyone even really cared about her, especially her doctor who had not visited with her in two days. In reality, the attending physician had rounded on the patient that very morning.

Given the possible influence of depression after losing her husband of 63 years, combined with possible memory impairment, we argued that holding Mrs. A temporarily in order to generate a careful psychiatric evaluation would be reasonable. We argued that sufficient evidence existed to justify the evaluation, and that if Mrs. A would not agree to such diagnostics, the hospital would act appropriately by seeking to secure a temporary detention order to allow mental health evaluation.

When presented with the alternative of being forced to stay in the hospital for 48 hours or voluntarily submitting to the examination, Mrs. A grudgingly relented. She only consented to the exam because we promised to honestly accept the results of the evaluation.

The exam revealed no evidence of mental illness, with only the appropriate level of depression secondary to the loss of her husband. The exam also dispelled concerns regarding cognitive impairment. Mrs. A was legally blind. The attending physician had checked the chart that morning, but never interacted with the patient. She didn't forget that he had visited, she never knew that he had visited.

As a result of the psychiatric evaluation, we recommended that Mrs. A could not be held in the hospital against her will. If there had been a law against suicide or assisted suicide, this would have become a legal matter with which law enforcement must deal. The hospital, however, had an ethical obligation to allow this patient to leave.

As a side note, we also indicated that although the patient had a right to leave the hospital, the physician had no duty to discharge her. He could refuse to write a discharge plan that he believed was not in the patient's best interest, and she could leave the hospital Against Medical Advice. This she did, without a refill of her Nembutal prescription.

So what is my topic for tonight? Am I concerned with autonomy, suicide, physician assisted suicide or euthanasia? April Fools… it's none of the above. I want you to remember only one conclusion from the case just described. Even if Mrs. A does harm herself after discharge, hospital staff will not be responsible for that harm. Staff took all reasonable precautions and Mrs. A asserted her autonomy to take responsibility for her own actions. Conclusion: We are not responsible for indirect harms that result from our actions when we take due care concerning occurrent responsibilities.

Consider a second case:

Mr. B is a 16-year-old patient who presented through the emergency department in complete respiratory arrest secondary to an acute asthma attack. Mr. B experienced difficulty breathing during track practice. EMTs were unable to establish an airway, and Mr. B was transported to the local hospital. After 30 minutes without oxygen, Mr. B was finally placed on a ventilator. The patient had already experienced severe anoxic brain injury, however, and this caused his brain to swell. Subsequent testing showed that intracranial pressure caused Mr. B's brain stem to herniate through the base of his skull, and restricted all blood flow to the brain. There was no doubt that Mr. B was brain dead. Mr. B's parents, however, were unwilling to discontinue therapy. They requested that Mr. B continue to receive care in the MICU and that he remain a full code.

Although this case is emotionally stressful, and therefore perhaps too serious for our discussion tonight, it is a clear real-world reminder of one fact. No matter what the emotional attachment, facts of life cannot be ignored and factual propositions cannot be altered. According to the Code of Virginia, Mr. B is dead. His death has been established by neurological criteria, but his death is certain. We certainly worked with

Mr. B's family to offer emotional support and we even allowed Mr. B to stay on the ventilator until the full facts of the case could be explained. Mr. B, however, was dead. The machinery was removed from his body. No parental consent was necessary, since time of death had been established. We were sensitive and kind, but ethically we felt we needed to be firm. A dead body had no right to ventilator assistance, and could not be harmed by its removal.

Since I do not wish to belabor the details of this distressing story, I will simply conclude that Mr. B could not be harmed by the actions we took after declaring his death.[9] He was dead, and his ethical claim to healthcare ceased with his life. This too, however, is not my topic (April Fools).

Consider case three:

Ms. C is a 24-year-old patient in her fifth pregnancy who is carrying twins at 26 weeks, 6 days approximate gestational age. Twin one is presently 789 grams on ultrasound and has moved closer to the birth canal than twin two, who measures 875 grams on ultrasound. Twin one's membranes ruptured two days ago and Ms. C has not progressed into active labor. Ethical questions have now emerged given the possibility that twin one may go into fetal distress. Were twin one to have gone into distress as little as one week ago, there would be little ethical problem since the mortality and morbidity profile for a C-section at that time would not produce a clinical justification for aggressive intervention. If twin one goes into distress as little as one week from now, a C-section is likely to be indicated since it would provide a significant chance of benefit to twin one without substantially increasing the risks associated with an early term delivery for twin two. However, at the present time, should twin one go into distress, its mortality and morbidity profile is substantially worse if not delivered by C-section. Simultaneously, twin two's chance for survival and health would be substantially lowered if it were delivered by C-section at this time. Clinically, no other options present themselves.

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[9] The claim that dead people no longer have rights can be argued on legal grounds. I claim that although legal rights may survive death, they do so only because of the continuing interest of other, living, persons to have security in their own minds about the disposition of their bodies and estates. I would argue, therefore, that from an ethical perspective, dead persons can only wield rights in an indirect way. They do not, actually, have any rights of their own.

Selective reduction is not possible without opening the uterus and posing risk to twin two. C-section cannot be performed on one fetus and not the other. The only hope for maintaining twin two in utero would be to wait for a vaginal delivery of twin one and then to stop labor with tocolytics. That choice, if twin one is in distress and needs immediate delivery, creates the conflict in interests between these two fetuses and thus the ethical problem.

I am not here to discuss abortion, and I refuse to discuss the status of the fetus. Let me paraphrase, instead, from the ethics consultation that I prepared for this case.

> We recommend that in order to overrule the wishes of a patient who is charged with safeguarding the welfare of another individual, it would be necessary to demonstrate that the choice she makes is either negligent or abusive in nature. In this particular case, it is not necessary to make determinations regarding the moral status of the fetuses involved, since even if we were to assume that the fetal interests have their own independent ethical value that must be respected, there is no clear ethical standard by which a preference to safeguard the interests of one of the fetuses could be construed as abusive or negligent to the other. Although different individuals are likely to disagree about how to proceed in this case, there is no clear ethical argument to be made that one choice is objectively better than the other. Therefore, we recommend that both the choice to maintain the pregnancy at some cost to twin one and the choice to allow an early C-section at some cost to twin two are ethically permissible. Since either choice is ethically permissible, we have no moral reason to restrict Ms. C's choices in this case.[10]

The ethics committee in this case argued that the injury that may accrue to one of these two fetuses could not be considered unethical because the clear motivational structure of the decision maker defines such harm as "accidental". The term accidental can be understood in two distinct ways. In common use, 'accidental' connotes an unforeseen outcome. In this case, there is a clear sense of unpredictability. This common use of the term applies to some degree.

There is little doubt, however, that some harm is likely to accrue to one or the other fetus depending upon which decision is made. This harm is foreseeable, and therefore

[10] This quotation and all other case descriptions in this paper have been modified and stripped of identifiers to allow for appropriate protection of patient confidentiality.

not accidental in the traditional sense. A second use of the term 'accidental' is relevant here. In philosophical discussion, 'accidental' simply means 'not essential'. It is accidental, for instance that I own a silver car. While I purposely bought a silver car, I could easily have purchased a red one without changing anything important about my character. It is essential, however, that I am a man, on the short side, Caucasian and Jewish. These are facts about my character that are constitutive of my identity. Changing any of these features is likely to change my character in a fundamental way. If I weren't these things, I would not be me whereas I could be me and still drive a non-silver car.

In arguing about Ms. C's case, I think it reasonable to maintain that injury done to one fetus or the other is ethically accidental to the choice she makes. In other words, the fact that fetus one will be harmed if she chooses to delay delivery is not constitutive of the moral character of her choice. Neither, by the way, is the fact that fetus two will be harmed if she chooses immediate delivery. Her motives can be ethical even though a fetus is harmed. If she proceeds with due care, and a fetus is harmed, she should not be held ethically culpable.

Conclude from this case one thing only. Conclude that if we do not act negligently, we are not ethically responsible for possible future harms that may come to pass. But, as I'm sure you've guessed, this is not really my topic for tonight either. April Fools!

I have one last serious example before we move to happier topics. Consider case four:
Ms. D is a 24-year-old woman in her third pregnancy at 30 weeks approximate gestational age. She is pregnant with twins and has gone into labor. Her contractions have been successfully controlled with Magnesium but 24 hours after initiation of medical treatment she refuses to take her oral medications. Ms. D indicates that she is tired of being pregnant and "just wants to get it over with".

Although a variety of practical ethical problems developed as a result of this case, I want to avoid discussing any of them tonight. Rather, I would like to use this case as a

jumping-off point to introduce the interesting view of L.M. Purdy. In a landmark paper on the ethics of genetic testing, Ms. Purdy begins by identifying two specific theses that she believes can easily be defended. The second of these theses is that "we do not harm possible children if we prevent them from existing." The first thesis is that "we ought to provide every child with at least a normal opportunity for a good life."[11]

I take the second thesis first, because it is the easiest to defend. The fact that we are all here this evening, engaging in this delightful but far from reproductively active discourse, proves that none of us believes that we have a moral obligation to bring all possible children into actual existence. There are any number of children who could be conceived at this moment who won't be, and none of us feel that they can assert a moral claim against us that generates an ethical obligation to start reproducing immediately. This fact is sufficient to justify Purdy's second thesis.

Purdy's first thesis is a bit more difficult to defend, not because its force is undesirable, but because its terms are ambiguous. It is difficult to define "normal opportunity" and "good life". If I grant the listener any definition that he or she likes for these terms, I hope that the following revision to Purdy will be acceptable. Those of us who choose to have children, voluntarily generate an ethical obligation to advance their welfare. My revision of Purdy will serve now to help us understand the case of Ms. D.

Based on Purdy's claims, I believe that it is safe to say that Ms. D did not have an ethical obligation to become pregnant. We may debate whether or not she had an ethical obligation to continue the pregnancy once she became pregnant, but we should all agree that once she decided either to become pregnant or to remain pregnant, she accepted an ethical obligation to advance the welfare of the living children whom she would create. In short, Ms. D has an ethical obligation to remain on tocolytics, barring an extreme argument to the contrary, simply because she is going to give birth to children who will be seriously harmed if she does not. This argument would also show why pregnant

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[11] L.M. Purdy, "Genetic Diseases: Can Having Children Be Immoral" in Munson, Ronald ed. Intervention and Reflection: Basic Issues in Medical Ethics, 4th Ed., (Belmont, CA: Wadsworth Publishing Company, 1992) pp.429-435

women should not smoke or drink alcohol. I have not argued in favor of any societal enforcement of this ethical claim, but simply that the ethical obligation exists.

Before we get too far off onto the tangent of appropriate governmental intervention into the lives of pregnant women, let me announce, once again -- April Fools. We're on the wrong topic. All I want to conclude is that while we have no obligation to create new life forms, the fact that we created them does not give us free ethical reign to treat them in any way we like. Our children have rights even though they are "ours".

So, what has our series 'fool's errands' proven?

1. We are not ethically responsible for indirect harms that may result from our actions, provided that we carefully discharge our own obligations and act on the best information available to us.
2. We have no ethical obligations to avoid recognizing the fact that certain creatures are not alive and have no rights to protection, even if others may have an emotional attachment to those creatures.
3. We are not ethically responsible for accidental harms, on either definition of accidental, provided that we have not acted negligently in allowing those harms to take place even if they were foreseeable.
4. We have no ethical obligation to create future lives, although we do have an ethical obligation to treat such lives with respect if we choose to create them.

Now on to the actual topic for tonight. With apologies to fellow SPHEX member Dean Peter Marcy for borrowing heavily from material that he was supposed to have read when it was included in my tenure materials submitted for review at R-MWC in 1996, I find that an old topic of interest is now of current concern.[12] President Bush has declared the goal of sending humans to Mars.[13] This goal raises serious ethical issues regarding space

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[12] My comments from this point on are substantially the same as those expressed in Gillette, Michael A. "The Ethical Implications of Implanting Life on Lifeless Planets" in Research in Philosophy and Technology (Volume 13, 1993)pp. 319-325

[13] In February, 2004, President Bush sent his budget to Congress. That budget included a 6% increase in funding to NASA with the express challenge to establish a human presence on the moon by 2015 and to plan for an eventual manned mission to Mars.

exploration and forces a careful discussion of the ethics of human intervention in extraterrestrial affairs. Although our government is just now beginning to ponder our role on other planets, the scientific and philosophical communities have been discussing these issues for years. Over a decade ago, the issue of going to Mars and transforming that planet for possible human colonization was already under discussion.

In the December 1990 issue of Scientific American, Christopher McKay and Robert Haynes discussed the possibility of altering the environment on Mars, and then introducing some life form onto that planet. McKay and Haynes briefly outlined the scientific feasibility of such a project, and went on to present a superficial ethical analysis of the issues involved in this sort of undertaking. Since NASA is presently considering engaging in this program, and since the article by McKay and Haynes was not meant to be more than an introductory treatment of the physical and moral problems involved in creating a living ecosystem on Mars, a more extensive ethical analysis is still required. I would like to take the time to investigate more fully the ethical ramifications of what has been called "ecopoiesis".

According to McKay and Haynes, the Mars ecopoiesis project would proceed in two steps. The first phase would include altering the climate of Mars by thickening its atmosphere and raising its temperature. Once this first phase is complete, which would allow liquid water to be maintained on the planet surface, the second phase of the project would begin. This second phase would include the introduction of microorganisms, either harvested from earth or specially genetically engineered, which could survive and propagate in the newly hospitable Martian climate. We could then sit back and watch evolution take place, or alternatively, continue to engineer the development of life on Mars.[14]

While it is correct to say that the technological impossibility of ecopoiesis would make the ethical issues surrounding it moot, that does not indicate that the ethical issues are not

[14] McKay, Christopher P. and Robert H. Haynes, "Should We Implant Life on Mars?" in "Scientific American" (Vol. 263, Number 6, December 1990) p144.

worth pursuing at this time. Since we do not yet know whether or not ecopoiesis is feasible, we must wonder whether or not to continue research. We must determine whether or not NASA should continue in its efforts. Surely this decision should be affected by the moral status of introducing life on otherwise lifeless planets. I would like to argue here that ecopoiesis is not, in itself, unethical.

The thesis that altering the environment on Mars and introducing life therein would be morally wrong can be defended in a number of ways. The first type of argument might be based on the supposition that by engaging in ecopoiesis we may harm life forms which presently exist on other planets, and that action is wrong. Second, it can be argued that by changing the natural condition of lifeless planets, we somehow harm those planets, and thus do wrong *to them*. A third argument is premised on the fact that we can never be sure that there is absolutely no life already existent on Mars. All we can know is that there is no earth-type life. Therefore, we may unwittingly harm an unperceived or unrecognized life form by tampering with the Martian environment. Fourth, an argument can be made that by engineering the environment we would do immoral harm to the future life forms which would exist on Mars as a result of our activities. Each of these four methods of arguing is untenable.

THE ARGUMENT FROM OFF-WORLD CONSEQUENCES

The first argument would be compelling if it were based on true premises. On the condition that there may be some sort of off-world detrimental ramification of altering Mars, a ramification that would cause significant harm to befall sentient creatures, then that action would constitute a serious moral difficulty.[15] It is often, although not always true, that we bear responsibility for the foreseen consequences of our present actions. When we are capable of predicting the negative outcome of our activities with some high degree of certainty, or when the harm which we knowingly risk is very great, and when

[15] I have intentionally left vague the discussion of the sort of harm alluded to in this sentence. It is possible to fill in this statement with either deontological or utilitarian language without disrupting the argument. The deontologist would restrict concern to harms caused to rights bearing creatures, while the utilitarian would be concerned with the general maximization of utility. Whichever route the reader takes, the conclusion to this first argument will hold; that if any particular ecopoiesis project is morally wrong, it is so contingently and not necessarily

that activity and harm can be avoided without unreasonable sacrifice, then the charge of negligence is not unfounded. If there were good reason to believe that by tampering with the environment on Mars we might run the risk of harming sentient life forms on earth (or any other planet), then it would surely be reasonable to proceed with caution, or not to proceed at all.

Granting this last point does not, however, show that the Mars ecopoiesis project (MEP) should not be launched. It only proves that if the project would run a substantial risk of negative off-world consequences, and if those problems could not be avoided by changing the course of the project, then the experiment should be abandoned. But this argument is conditional. While it does show that the MEP *might* be wrong, it does not show that it definitely *is* wrong. And even if the MEP did turn out to be wrong on these grounds, that would not be based on the claim that there is anything intrinsically immoral about implanting life on lifeless planets. While a Mars project would be unacceptable for moral reasons, a Venus project might not (although a Venus project would seem to be practically impossible). Furthermore, the MEP would only be immoral until a method for avoiding adverse repercussions could be developed. Clearly, then, if the intent is to show that the MEP would be wrong necessarily, this first argument fails.

Recall the case of Ms. A. We knew that Ms. A might have a poor outcome, but we also recognized that we were only responsible to take reasonable precautions and act on the basis of the best information we had available to us. Since Ms. A did not meet commitment criteria, it was necessary to let her leave the hospital. Similarly, we must act based on the best information that we have with regard to the MEP, and recognize that some results will fall outside of our moral responsibility. The first argument against the MEP fails based on conclusions that we easily drew from the case study involving Ms. A.

THE DIRECT HARM ARGUMENT

The second argument takes a slightly different tack, and suggests that the harm that would result from the MEP would not be located away from Mars, but that Mars itself would be harmed by the MEP. This shift in strategy would show that any ecopoiesis

project would be wrong, since any lifeless planet would be harmed immorally when it is intentionally altered. This argument is an improvement over the last, because it relies on supposed evils that are necessarily, not contingently, the result of the MEP.

Although the second argument is aimed at the proper target, it fails based on conclusions developed by the Mr. B case study. Mr. B's parents did not recognize the fact that their son was dead. They wanted the healthcare team to continue to provide treatment because they believed that their son would be harmed if ventilator support were removed. Similarly with Mars, many might argue that Mars itself has a right to be left in its natural state. In order to say that it would be wrong to alter the status of Mars for the sake of Mars itself, however, it seems that we need to be able to show that Mars is capable of being harmed by our actions. We need to show that our actions would infringe on some right of Mars in a way that is not morally justified. But the most basic premise of this entire concept is that Mars is a dead planet. It has no life forms, and it is itself not alive. In order to support this second argument, it is necessary to show how inanimate objects can be harmed in immoral ways independent from any emotional attachment that individuals might have to the status quo.

When I hit a rock with a sledge hammer and break it into many pieces, it is difficult to see how I have done anything wrong to the rock itself. The rock has no desires, and it cannot therefore be frustrated in any of its desires. Even if I destroy the rock for some trivial reason, for instance to provide myself with minor enjoyment, my action just does not seem wrong. As long as no other sentient being is hurt by my destructive blows, and as long as the rock is not already someone else's property, I can see no wrong in treating the rock in any way which I desire.

Since Mars is a dead planet, possessing no life and not being alive itself, it can be likened to a giant rock. Provided that I do not cause harm to any sentient beings by destroying or altering Mars (which would lead us back to the first argument), then no harm can be done to Mars itself by any of my actions. Or at least we can claim that no harm of moral significance can be done to Mars. For these reasons, the second argument

also seems doomed to failure.[16] No matter how emotionally attached individuals may be to the current configuration of Mars, the planet itself cannot be harmed by being altered.

THE UNKNOWN LIFE-FORM ARGUMENT

The third argument mentioned above seems to be an extension of the second argument. The third argument suggests that one of the premises maintained in the refutation of argument two is unverified. The fact that Mars really does contain no sort of life form already is an assumption on our part that is not known to be true. It is possible, one might argue, that there is life on Mars. We simply have not seen it yet. It is equally possible that we have come into contact with living organisms on Mars, but have failed to recognize them as living. Perhaps, it could be claimed, there are life forms so unlike our own that we do not recognize these beings as alive. It is these life forms who will be treated unethically by the MEP.[17] This argument is based on the view that we would be ethically responsible for the accidental harms that result from the MEP. Ms. C's case shows, however, that the fact that such harms are accidental reduces our ethical responsibility for them.

As with the first argument, this third move only states a possible contingent problem with the MEP. It is true that there may be life forms that differ so extensively from our own that we fail to recognize them when we see them. If we wish to avoid a speciest ethics, we must consider these life forms in our moral reasoning. Nevertheless, if such lives exist on Mars, they may also exist on earth. By recognizing the rights of such beings, we might be forced not only to abandon the MEP, but also a myriad of practices on earth.

The supporter of universal rights for all life forms might agree with this last point, and accept the difficult ramifications for familiar activities. Two wrongs do not make a right,

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[16] For an interesting discussion of the sorts of entities that are capable of having rights, see Feinberg, Joel "Abortion" in Matters of Life and Death ed. by Tom Regan (New York, NY: Random House, 1986) also see Tooley, Michael Abortion and Infanticide (New York, NY: Oxford University Press, 1985).

[17] Once again it is possible to read this argument in either a deontological or a utilitarian manner without losing the point. Although I continue the discussion in "rights language", this is not necessary. Whether the unethical treatment is understood to mean the infringement of rights or the failure to maximize utility is irrelevant to this argument.

after all, and we must be open to the possibility of radically different forms of life. When such animals are encountered, we must afford them a certain amount of respect.

All this is true, but only relevant when those new forms of life are encountered and when their moral claims are essential aspects of our ethical reasoning. It is correct that we must be open to all sorts of possibilities concerning the rights of extra-terrestrials. It is also correct that we should be careful to look for such life forms. But the case study of Ms. C clearly demonstrates that we cannot be paralyzed for fear of harming possible life forms. After doing our best to locate such creatures and consider their moral standing, if none are found or if their needs are ethically indecisive, we would not be acting negligently by proceeding with our plans. If this would constitute negligence, after sincere open-minded investigation, then much of what we do today would also be immoral. For much of what we do today *may* presently harm unknown forms of life.

THE FUTURE LIFE-FORM ARGUMENT

The final argument meant to prove that the MEP would be immoral is based on regard for the future creatures which would develop on Mars as a result of our activities, and can be formulated in three distinct ways. It can be argued that whatever might develop as a result of the MEP would be "unnatural", and thus wrong. Similarly, it could be argued that the MEP would alter the course of nature so that some possible species that would have developed without our interference will not develop. This would be unethical because it would frustrate the course of evolution. Alternatively, it could be argued that we may end up creating a species of life which would exist in a miserable state. The members of this species might have lives so bad that it would have been better had they never been created. These three versions of this argument concerning the future fruits of our labor also seem mistaken.

The first two versions of this final argument are easier to refute than the third. The claim that it is wrong to create "unnatural" life forms, and the claim that it is wrong to frustrate the goals of evolution, are both based on an erroneous premise. They both

presume that nature has some goal toward which it strives. They both tacitly rely on a teleological understanding of evolution which is illicit. Evolution is not an end-directed process.[18] It has no targets, and it is not frustrated when one particular species goes extinct, or when some possible species never comes into existence. Evolution is a process of response to what came before. Whatever environmental pressures direct the course of evolution, whether they be man-made or not, are part of the "nature" within which evolution works. There is little sense in distinguishing between the evolutionary pressures which issue from human beings and those that issue from lions, Japanese beetles, or the weather. In this sense, what we do is as much a part of nature as what occurs without human activity.

It may be true that by acting in certain ways we preclude the possibility of evolution moving in a particular direction, but why is this a problem? It seems absurd that the members of some possible species could complain that because of our "unnatural" actions they never existed. The fact that they never existed in any way whatsoever makes it impossible for them to complain. As Purdy has convinced us, in case study four, non-existent creatures simply cannot have rights to be brought into existence. As previously noted, if this were possible then there would be a large number of possible children whose rights are being infringed by our choosing to limit the number of offspring whom we create. This conclusion is obviously absurd.

Furthermore, even if there were some sense to distinguishing between "man-made" and "natural" with regard to the MEP, such a distinction seems to carry little moral weight. We often prefer the man-made over the natural. To put the point bluntly, why settle for nature when we can have something which we like more? If we do decide that we want to engage in the MEP, the fact that this is in some way "unnatural" should not dissuade us any more than the fact that humans flying is unnatural dissuades us from building jets.

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[18] It should be noted that my references to evolution clearly indicate a Darwinian understanding of the process. Other evolutionists prior to Darwin did develop teleological versions of the theory.

The third formulation of this last argument is more difficult to refute. This last view forces us to consider the fact that we might be responsible for beginning a cycle of evolution which will result in the creation of a sentient life-form, complete with all of the desires and capacities requisite for having rights, and those creatures will be miserable. They may be so miserable, in fact, that it could plausibly be claimed that they would be better off not existing.

This argument is compelling, but no more compelling for the MEP than for any choice to bring into existence new creatures which can feel pain and have desires. Our application of Purdy's argument to Mr. D's case highlights the fact that every time a family decides to procreate, it faces this very same dilemma concerning the welfare of possible future persons that is posed by the MEP. It has been argued that when parents irresponsibly create new children who suffer greatly, that some wrong has been done.[19] And so too we may do wrong if we intentionally create suffering on Mars. But if we act from high expectations, with due care, our choice to alter Mars would be no different in moral status than our choice to reproduce.[20]

In the case of our own children, the fact that we are responsible for their existence does not allow us to mistreat them. Once our children have rights, those rights have force against us, even though those rights would not have existed without our efforts. If sentient life-forms evolve on Mars as a result of the MEP, the same would be true. If animals capable of wielding rights do come into existence, then we, as moral persons, would be required to give those rights high regard. If we fail to do so, then we would be

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[19] An interesting thesis which states that we do have a moral responsibility to be sure that any child whom we bring into existence has at least a normal opportunity at a good life is defended by L.M. Purdy. Ms. Purdy's article is reprinted in a number of collections. See L.M. Purdy, "Genetic Diseases: Can Having Children Be Immoral?" in Biomedical Ethics 2nd ed., ed. by Thomas Mappes and Jane Zembaty (New York, NY: McGraw-Hill, 1986) pp.513-520.

[20] This entire argument might be irrelevant since McKay and Haynes suggest that the environment which we could create would only have a life span of approximately 100 million years. This is not enough time for sentient life to evolve from microorganisms. Unless we actively introduce sentient life, we might not face the problem of creating miserable lives. If we do inject sentient life on Mars, then we have a different problem concerning the rights of the already existing beings who would be sent to Mars. That, however, is a distinct issue.

unethical on that count. While mistreating a new species would be wrong, the creation of a new species which we would then be in a position to mistreat is not wrong in itself.

I have presented tonight, a series of arguments that could be used to defend a thesis in the field of environmental ethics that tampering with environments for our own benefit is intrinsically wrong. One practical application of this thesis would be a prohibition on the MEP and prevention of human control or colonization of the Martian environment. After presenting each argument, I proceeded to refute them all. Nothing I have argued to this point gives us any good reason to proceed with the Mars Ecopoiesis Project. But it has not been my purpose here to argue that we should go ahead with the project. My only purpose has been to show that if we do decide to proceed, we will not be doing anything intrinsically wrong. That thesis, I believe, has been successfully defended.

And now, having exhausted all possible red herrings and discharging all April Fools responsibilities, I am finally able to present the actual topic for tonight's discussion. When is New Years on Mars, and will the French ever get with the program? Unfortunately, time constraints prevent us from answering these fundamental questions on this date (whatever date that might be).