

Reading Assignments

Lecture 1: Introduction: Selections from *Genesis*.

Lecture 2: Aristotle. Selections from *Physics*.

1. The word *physis* in Greek means *nature*; the title of this book might well be *The Nature of things*. Aristotle believes that understanding anything has to do with identifying the sort of thing it is and that this identification depends upon being able to identify its *inherent* principle of change—change in appearance, in location, in motion. Do we believe that change is inherent in things? Or is it always induced by externalities? Or a combination of both?
2. Understanding the nature of things depends upon asking the right questions about them. The answers, for Aristotle, are *aitaia* - word usually translated as *causes*, but perhaps better translated as *because*s, for they are the answer to a properly formulated question about *why* something is the way it is. Aristotle offers four *aitai*. What are they? Can you give an account of them?
3. We can easily think of kinds of things that have no intellectual significance (Example: all physical objects that are approximately five inches from the nearest wall) or things that might have significance but do not exist (phlogiston, witches); but Aristotle believes that everyday perception and a trained intelligence can see into the nature of things—get at the inherent principle of change in things. Is this a naive assumption? Is it still in operation today?
4. The inherent tendency to change is called *eidos* by Aristotle—usually translated as *form*, but it is also the ancient Greek word for *idea* and also for *species*. Do you see any connection between these things? He has a quarrel with the philosopher Antiphon about whether *eidos* is inherent or external in chapter one of Book II. What is the nature of the quarrel?
5. Aristotle believes that there are two features of the world that do not submit to understanding the nature of things - luck or chance (*tyche*) and spontaneity or coincidence (*automaton*). What is his understanding of these features and how does it differ from our own?
6. Inherent principles of change each make for change in a particular way. This way is called its *telos*, its end, its aim, its goal. Things in the world all possess a *telos*, and the purposeful activities of human beings constitute only one sort of

teleological activity. Do we still employ teleological descriptions of the nature and activity of things? If things are properly described teleologically, does it follow that they have purposes?

7. In chapter eight, Aristotle considers the idea that things happen, not "for the sake of something", that is, in accordance with an end, an aim, or a goal, but rather of necessity, "just as rain falls, not to make crops grow but of necessity." What is his argument against this view?

Lecture 3: Carroll, Lewis. *Alice's Adventures in Wonderland*.

1. The story of the temptation in the Garden of Eden raises questions about the value of knowledge and of the state of innocence, which is without knowledge of a particular kind. Pre-pubescent children are often considered to be innocent in this way. How innocent is Alice? How would you describe her general character?
2. The text says that Alice is always eager to learn a new sort of rule. Is this generally true of children? What sort of rules is Alice eager to learn? Are these sorts of rule akin to the rules of a game? How do they differ?
3. The text begins with *Alice* looking over the shoulder of her sister and finding the book she is reading dull because it has no pictures or conversations in it, "and what is the use of a book without pictures or conversations?" Well, what *is* the use of such books? What sort of book do you imagine her sister is reading? Does the childish view that such books are useless carry any weight in your view?
4. Many of the jokes in *Alice* depend upon word-play and might be thought beyond the range of a child's appreciation, both because of the sophistication of word-play and because of the seriousness of the underlying topic—for example, the jokes about death. There is a joke about death in the first chapter, when Alice thinks about the length of her fall down the rabbit-hole and speculates that she very likely "wouldn't say anything about it, even if I fell off the top of the house!", to which the narrative immediately adds (in parenthesis), "which was very likely true." It is tedious to explain a joke but understanding the *Alice* books depends upon such explanations. How does the word-play enable the joke here? How many other jokes about death can you find in the book? Granted that children cannot understand them, how would you describe the reader to whom Carroll is addressing his book?

5. After a fall, the main character discovers a lovely garden but cannot enter it. Is this an allusion to *Genesis*? (T.S. Eliot thought that it was.) When Alice eventually gets into the garden, does it meet her expectations?
6. Alice has moments when she wonders whether "she is herself" - a phrase that also works as a pun, as in "I am not quite myself today" or more particularly, the Victorian rebuke to children who have just committed a breach in good manners: "Take care, young lady. Remember who you are." Examine the ways in which Alice tries to decide whether she herself or not in Chapter Two. Is it reasonable to determine who you are by showing yourself what you know?
7. Much of the book's nonsense turns out to be sensible under a different set of rules. In reciting her multiplication table, Alice seems wildly astray and remarks, "Oh, dear! I shall never get to twenty at that rate." Is there a system of multiplication in which the remark would be mathematically true?
8. By the same token, the remarks of the creatures in Wonderland do not seem to make any sense, but sometimes turn out to be sensible, once you grant the odd circumstances in which the creatures live. At the Mad Tea-Party, for instance, Alice thinks of one of the Hatter's remarks that it "seemed to have no sort of meaning in it, and yet it was certainly English." Although Alice does not notice the fact, the rest of the conversation makes the Hatter's remark clear. What is the meaning of it? Find other events and circumstances in the story that can be described in sentences that might seem to have no sort of meaning to them and yet are certainly English. How easy is it to describe everyday realities in ways that seem to have no sort of meaning to them and yet are certainly English? Does it tell us anything about the ways in which we live that we can describe them as riddles?
9. A good deal of the book has to do with changing size. How would Aristotle's causes fit the changes endured by Alice in the book?

Lecture 4: Voltaire. *Candide*.

1. Explanatory note: *Candide* was published in 1759, more than a half century after Newton's *Principia*, during that period of European intellectual history known as the Enlightenment. At the time Newton was held to have decisively shown that the universe to be not a heterogeneous assemblage but a vast system, every part of which affected every other part according to universal laws. Aristotle's notion of physical reality left room for chance or merely random events in the material universe—things that just occur or happen to be the case, without being part of

some larger order built into the structure of physical nature. Newton's notion of physical reality did not leave such room; in the Newtonian system, whatever occurs or is the case may look random but rightly understood it is capable of explanation in terms that apply to everything else, as part of the universal system of things. Newton's continental rival in philosophy, Leibniz, articulated this idea as "the principle of sufficient reason", according to which everything that occurs in the physical universe can be explained by adducing conditions sufficient to guarantee that it will occur as it does and not otherwise, down to the last detail.

This is this principle that apparently lies behind the arguments of Dr Pangloss, when he says, for example: "There is a concatenation of all events in the best of possible worlds; for, in short, had you not been kicked out of a fine castle for the love of Miss Cunégonde; had you not been put into the Inquisition; had you not traveled over America on foot; had you not run the Baron through the body; and had you not lost all your sheep, which you brought from the good country of El Dorado, you would not have been here to eat marmalade and pistachio nuts." Sufficient conditions *guarantee* that something will happen as it happens and not another way, and everything that happens or ever will happen has such conditions, which have their own conditions in turn. The universe, then, is an ongoing "concatenation of events" from which alternative possibilities are banished. If room is to be found for possibilities, they must lie in alternative worlds, each of which, if it existed, would realize events other than those realized in the actual universe. The events that constitute such alternative worlds are possible according to the physical laws that govern the actual world, but they are not possible in the actual world, because the determinate sufficiency of all actual events to guarantee the actuality of all other events rules them out.

Contemporary science-fiction makes use of the notion of physically possible "alternative worlds" as if they could somehow exist side-by-side with the one that we inhabit, but this use flies in the face of Leibniz's conception, which was that such worlds cannot exist, even though they are physically possible.

2. The idea that all events cannot be otherwise than what they are, down to the last detail raises a problem in trying to account for the reality of human choice. Is it just an illusion? The issue is raised explicitly at the end of chapter five, when Pangloss is arrested by the Inquisition for denying the existence of free will. Pangloss sees no contradiction of free will in his views, but the arresting officers take no notice and arrest him anyway. What do you think Voltaire had in mind when he wrote this scene into his book?
3. The essential phrase for Pangloss is that this is "the best of all possible world's" the phrase derives from Leibniz but is not original with him. The idea behind it is that, just as Pangloss maintained, everything that happens, even the outcome of human choice, happens as it does because God, in creating the universe, chose to

create one possible world out of an infinite number equally possible from the standpoint of universal physical laws, and the Creator's nature is such that the best is bound to be chosen. Leibniz did not simply announce his view of the Creator's nature or the validity of accepting a Creator's existence, but his arguments supporting his view do not concern us here. Rather, our interest lies in the fact that the view afoot in Voltaire's day about possible worlds was directed to the point of explaining that what looks like evil is really good and appears evil only because we do not know enough about the complexity of things—much as one might suppose that Aristotle's allegedly random events are not actually random but only seem random because we do not know enough about the circumstances sufficient to cause them.

As an example, here is a passage in which Leibniz (in his *Metaphysical Discourses*) discusses the betrayal of Jesus by Judas, a prime example of evil to the eye of faith at the time:

" . . . in general one can say that . . . it must be that *this* evil will be repaid with interest somewhere else in the universe, that God will derive a greater good from it, and in short it will be found that the sequence of events which include the existence of this sinner [Judas] is the most perfect of all those which were possible. But to explain in every instance the admirable economy of the particular choice, that cannot be done while we inhabit this transitory sphere; it suffices to know it [as a general principle] without understanding it [in its application to every particular case]."

What does it mean to say that God created "the most perfect" world rather than "a perfect world"? Does it show that God cannot create anything absolutely perfect? Does it make evil something less than evil to say that "on the whole" it produces good?

4. Consider the generality of the idea that "this is the best of all possible worlds." Is it a message of optimism, as the subtitle of *Candide* implies or is it, perhaps, a message of pessimism—as if one were to shrug in the face of suffering and say, yes, this is as good as it gets, and it is foolish to expect any better? The glass of happiness can be as much as half-full only on condition that it is half-empty. Recall Candide's question after his flogging at the auto-da-fé: "If this is the best of all possible worlds, what must the others be like?" In this connection, consider Pangloss and Martin as each devised by Voltaire to represent opposite views of the glass of happiness.

5. Consider the subtitle of the book: "Optimism". Is it well-chosen? Why not call the book *Candide; or Innocence*? In this connection, compare the innocence of Candide in the world that he inhabits with the innocence of Alice in Wonderland.
6. Any account that takes the existence of evil in the world as a problem that confronts belief in an omnipotent and benevolent deity is called a *Theodicy*. (Leibniz wrote a book with that title in 1710.) A theodicy proposes to justify or vindicate the ways of God to man. There are generally two kinds of theodical argument—one which traces the existence of evil to humanity's imperfect angle of vision and one which traces it to necessities in the plan of Creation. In what ways are the two kinds of argument complementary? In what ways are they mutually exclusive? How would Voltaire conceive the relation between them?
7. Theodicies usually concern evils of the sort represented in the book by the Lisbon earthquake—that is to say, natural evils. We might instance the brevity of human life or the natural struggle for existence or the vulnerability of animate life to painful afflictions, like cancer. But the Lisbon earthquake and two storms at sea are all that *Candide* affords by way of natural evil. Most of the evils in the book are human in origin. How seriously is the notion of evil taken up in the book? Again, consider that the leading figures in the story are comic in physical character—that is to say, like creatures in animated cartoons, they can be mauled, mashed, flayed to the bone and run through with swords, but they are never irrevocably damaged by such injuries; left for dead, they are resurrected and reappear in the story. How does this affect the depiction of human evil? Is it an advantage to a text ostensibly bent on mocking optimism or an imperfection?
8. At midpoint in the book, Candide visits a utopian commonwealth, an ideal sort of human society called El Dorado. What are its social arrangements? What are its religious institutions? Why does Candide choose to leave this place? Are his reasons good ones? Are they appropriate to a character who is otherwise innocent and trusting about the world? Is Candide better or worse for having experienced it? How does El Dorado function as an episode at the central point of a book that is largely concerned with the shortcomings of human existence?
9. Where, in all this scornful rejection of the notion that all is for the best, do we find Voltaire's own position? In the remarks of the Dervish? In the attitude of the ruler of El Dorado? In Martin's embrace of Manicheanism? In Pococurante's disdain for human vanities? Do those who speak in the book against the idea of "the best of worlds" all speak with the same voice?

10. Elucidate the meaning of what appears to be the book's final lesson—that we should cultivate our own garden. How well does the phrase sum up the meaning of the book as a whole?

Lecture 5: Hume. *Dialogues Concerning Natural Religion*. (Through Book V in the excerpts.)

1. At the outset of the dialogues (not reprinted here), one of the listeners refers to the "accurate philosophical turn of Cleanthes", "the careless skepticism of Philo," and "the rigid, inflexible orthodoxy of Demea." The first paragraph in our excerpt gives the basis of Demea's position. What about it makes for "rigid, inflexible orthodoxy"?
2. How good is Cleanthes's case that the whole universe is one vast machine, composed in turn of lesser machines? How does it differ from the case advanced by Balbus in Cicero's dialogue?
3. How close is Cleanthes's argument both here and later in the text to Aristotle's view of *telos*?
4. In Part II, Philo argues that ideas have an inherent principle of organization and that without experience, one might well suppose that material parts might have a principle of organization in themselves, too. But experience convinces us otherwise, and this, he says, is the heart of Cleanthes's view that the organized character of the universe implies a Divine Creator. What would Aristotle say of the distinction that Philo suggests between matter and mind?
5. Expound Cleanthes's argument about the "vegetable library". Why is it invoked? How valid is the analogy to the case that he is making?
6. What is the force or validity of Cleanthes claim that without anthropomorphism, the worship of deity is atheism?
7. Cleanthes argues (in Part IV) that you have sufficiently accounted for a machine by pointing to the mind that invented it. Philo insists that this is like accounting for the movement of the earth by arguing that it is carried on the back of a celestial elephant. What is at issue in this quarrel and who has the better of it?

8. How convincing is Cleanthes's argument about the eye, in Part III? How would you refute it?
9. Compare Philo's example (in Part V) of the ship and the carpenters who made it with Cleanthes's view that design is a mark of an intelligent and knowledgeable designer. Is it an effective refutation?
10. At one point (in Part VII), Philo resorts to the alleged plausibility of the view that the universe is not a machine but a vegetable. Is the move valid? What issue does it address? Does it suggest a fallibility in Cleanthes's position?
11. When Philo (in Part VIII) introduces the notion that, given an infinity of time the chance movements of atoms alone must sooner or later create an ordered universe, Cleanthes counters with the thought that the universe is not merely ordered but is *benevolently* ordered. Rightly or wrongly, the difference between organized ideas and disorderly or random matter is presented as intuitively apparent by Philo; is it intuitively apparent that the arrangement of things in the world is benevolently intended? Suppose it looks like a benevolent arrangement: why cannot the random motions of atoms create it, given an infinity of time? In any case, is this turn in the argument a novelty or is there an ethical idea lurking in the very notion that the various parts of the world are well fitted to each other?
12. In Part X, Philo succinctly poses "the problem of evil". What is your sense of this problem? Is it a real one? Cleanthes believes that the problem affords the clearest evidence of the advantage of his view of God. Is he right?
13. At the end of the dialogue, the transcriber of them offers the judgment that Cleanthes argued best in the discussion. Most scholars believe that Hume wrote this view into the end of his text in order to pacify the majority of his readers, who were possibly not ready for outright skepticism with regard to religious matter; these scholars hold that Philo gets the best of the argument. What is your view?

Lecture 6: Hume. *Dialogues*. (remainder)

Lecture 7: Paley. *Natural Theology*.

1. Near the outset of Hume's *Dialogues*, Cleanthes and Philo argue about the closeness of the analogy between machines or human artifacts and things in nature. Consider the difference between the manner in which Paley discusses the mechanical aspects of what we would call organisms and Cleanthes's assertion that just as stairs were made for climbing, so the human foot is made for walking. Does Paley argue for a close analogy or does he claim an identity between artifacts and organs? What difference does this make to his argument?
2. At one point in the *Dialogues* (Part VIII), Philo concocts the notion that the mechanical aspects of organisms, which show an adjustment of parts to each other that sustains the whole, resulted simply by accident, as the material parts of the universe blindly rearranged themselves over the infinite course of time during which the universe existed. As self-sustaining entities arose, there would be nothing to stop their increase; as soon as any disintegrated, their parts would be incorporated into other self-sustaining entities. **"It is in vain," Philo concludes, "therefore, to insist upon the uses of the parts in animals or vegetables, and their curious adjustment to each other. I would fain know, how an animal could subsist, unless its parts were so adjusted? Do we not find, that it immediately perishes whenever this adjustment ceases, and that its matter corrupting tries some new form?"** This explanation is sometimes taken to offer a decisive answer to Paley. How good a rebuttal is Philo's conjecture to the point that Paley is making? Paley deals with this argument in Ch. V, sec iv of his book. How convincing is he in dismissing it?
3. Again, Cleanthes's view is that the universe is "one great machine, subdivided into an infinite number of lesser machines, which again admit of subdivision to a degree beyond what human senses and faculties can trace and explain." Consider Paley's remarks upon astronomy and explain why he considers Cleanthes's view a good reason not to try fetching proofs of God's existence from hypotheses concerning the nature of the universe as a whole.
4. Paley draws a good deal of his argument from the example of the watch found lying in an unpopulated area. How good is the example to make his point? He enumerates some of the suppositions that underlie his claim for an immediate perception that the watch is an artifact, and not a random arrangement of material parts. How good are these suppositions?
5. Paley says that the eye alone is enough to prove the existence of a Creator, just as a single hydraulic machine would be sufficient to convince us that it was designed by a workman, provided we understood its workings and its use, and never saw another machine in our lifetimes. Is there anything wrong with this argument?

6. In chapter III, Paley concludes his argument about the eye by asking why the Deity resorts to contrivances or mechanisms rather than supplying creatures with vision as an immediate quality. Deity can work miraculously and is not bound by obedience to the physical laws of Creation; we might add (as Paley does not) that even today many philosophers suppose that reason and human consciousness are just such immediate, unmechanical qualities. "Why resort to contrivance, where power is omnipotent? Contrivance, by its very definition and nature, is the refuge of imperfection." Two questions arise in this connection. (a) How sensible is the idea that sight might simply exist as a quality without any mechanism? Consider in this connection that Paley is at pains to argue that the eye is not "a perceiving organ" but a mechanism—as he puts it, an instrument of sight, like the telescope. If the eye is a contrivance for seeing, like the telescope, then what does the seeing? (b) How does Paley account for God's resort to contrivance? Does it, in fact, manifest God's imperfection?

7. Paley offers a chapter on "compensatory structures", in which "the defects of one part, or of one organ, are supplied [i.e., made up for] by the structure of another part or of another organ." How close does the argument come at this point to echo the Leibnizian claim that on the whole, all is for the best? "If there are defects without compensation," says Paley, "I suspect that they have been misobserved." Do you suppose that he is right or wrong in this supposition?

8. Some efforts at theodicy tried to justify the ways of God to man by pointing out how much of the world seemed created to suit human necessities. In this sense, the "best" in "the best of all possible worlds" meant "best for us humans." Thus Cleanthes, at the end of Part VIII of Hume's *Dialogues*, offers the camel as something created to serve mankind as a beast of burden in desert areas. How much of this suiting of the world to mankind is present in Paley? Consider his remarks (in chapter XVII) about the adaptation of night to the requirements of human sleep. In his private notebooks in 1838, Darwin chastised the philosopher Whewell, who thought that the length of the terrestrial day had been adapted to the duration of human sleep. Darwin called it "insufferable arrogance" to suppose that the solar system was adapted to mankind and not the other way around. Is Paley guilty of this kind of arrogance?

Lecture 8: Smith, Adam. *Wealth of Nations*. (selections)

1. What does Adam Smith mean by "wealth"? When the stock-market fell dramatically in March of 2000, economists estimated that the world had lost a significant proportion of its wealth. Some people were puzzled: if the sum of wealth in the world was lost, where did it go? Could Adam Smith help explain

their puzzlement?

2. Smith begins his ground-breaking exposition by talking about the production of pins in a pin-factory. Why does he introduce his subject in this way? What features of the manufacture of pins are important to his general theory about the nature of wealth? What is the most important?
3. Smith notes that despite his example of the pin-factory, production of individual manufactured goods—say, items of clothing or furniture—seldom took place at one location, as in a modern industrial plant, but was generally carried out in stages distributed over distinct locations. How does this feature affect his characterization of the nature of mankind's economic life?
4. Smith lays emphasis upon self-interest as the vital factor in economic life—the engine that drives the system. Is self-interest a good thing, a bad thing, a neutral thing? Is it, in Smith's view, to be distinguished from selfishness? "It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages." The economic life of mankind is founded upon a regard that looks no further than one's own needs and desires in every individual case. How can such a limited view be responsible for the maintenance of a system that benefits everyone?
5. Our excerpts close with Smith's famous statement about an "invisible hand". Explain what he means by this phrase and develop some of its implications.
6. Smith's account of the economic system has frequent implications for theories about the nature of political life, as when he says that differences in intelligence and character between people is not the cause but the effect of the division of labor. What are some of the other political implications of his theory? Admittedly, economic theory today has strategic implications for political practice. Does it have direct implications about the norms that ought to govern political life?
7. Smith makes a distinction between the value in use of a good or a product and its value in exchange. He also distinguishes between the real price of something and the actual price. Explain the two distinctions and the relation between them.

8. Along with his views on the division of labor, Smith regarded the distinction between the real and the actual price as a major feature of his theory. It derives from the idea that the medium of exchange—or currency—which serves a measure of the value of goods in exchange is not the real measure of value; rather, according to Smith, the real measure of something's value is the amount of labor that goes into producing it. What does Smith mean by *labor*? Why is labor best suited to the job of measuring the value of things? What notions are involved in estimating the amount of something that is used to measure the amount of other things? What difficulties attend determining the amount of labor required to produce anything and how does the economic system overcome them? Is Smith account of labor entirely consistent?

9. The real (or natural) price of things is distinct from the actual (or artificial) price of things by factors not essential to the economic system—"accidental" fluctuations in supply and demand of one sort or another. The actual price itself is further distinguished into the market price and the natural price. The language used by Smith in describing this distinction is worth recalling: "The natural price," he writes, "therefore is, as it were, the central price, to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it." The phrases not only allude to the Newtonian theory of the system of the material universe, they also describe the hovering about a value characteristic of negative feedback mechanisms, like thermostats and steam-engine governors. How is the idea of negative feedback—a term not yet coined in the language—essential to Smith's theory?

10. Smith says that the value of the labor which goes into producing anything is divided into three portions or shared out three ways after exchange—a portion in wages, a portion in profit, and a portion in rent. Is it essential to Smith's theory that these portions are actually distributed among different people, each belonging to different economic classes? Or are their recipients theoretical postulates such that a single person might belong to any one, two or even three, depending upon circumstance? What issues hinge upon the answers to these questions?

11. How does Smith account for the fact that the wealth of a nation can increase—that whatever the value of the materials and goods that go *into* a cycle of production, it is possible that a greater value of goods and materials comes *out* of it? Is the increase identical with profit?

Lecture 9: Malthus. *Principles of Population*.

1. Adam Smith's *Wealth of Nations* is an argument about the possibilities of a certain kind of progress, namely, the material improvement of the condition of human life. Malthus's argument builds on Smith (not directly, but by implication) but Malthus reaches an opposite conclusion—that the mechanism of economic life condemns mankind to be perpetually at the same point of material progress. (It was as a result of Malthus's work that economics in the nineteenth-century came to be known as "the dismal science".) How much of Smith is there in Malthus?
2. Smith seems in one passage of our readings virtually to state Malthus's point, as part of his argument that the production of human beings, like the production of commodities, is something regulated by market forces. He writes: "Every species of animals naturally multiplies in proportion to the means of their subsistence, and no species can ever multiply beyond it. But in civilized society, it is only among the inferior ranks of people that the scantiness of subsistence can set limits to the further multiplication of the human species; and it can do so in no other way than by destroying a great part of the children which their fruitful marriages produce." Yet Smith does not reach Malthus's conclusion—quite the reverse. How do you account for the difference between them?
3. There is an old puzzle that is posed about Malthus. If human being multiply "geometrically" (we would say "exponentially", why cannot the species upon which humanity is nourished multiply geometrically as well? Does this question show an insufficiency in Malthus's argument or is it based on a misunderstanding of it?
4. Malthus is not heartless in respect of the sufferings of the poor or their exploitation at the hands of the wealthy. Consider the long passage about the real and the nominal price of labor at the end of Chapter II and his remarks about those who employ laborers and complain about the fact that wages do not fall when food becomes cheap. He quickly reaches the conclusion, however, that doing away with a wealthy class will only spread poverty not wealth. Given this conclusion, he finds a value in the existence of a wealthy class and condemns the ideal of an egalitarian society. What is the function of the wealthy class, in his view, in terms of promoting the general welfare? Why not share poverty and increase, if only by a limited amount, the number of those who do not want for subsistence in society?
5. Malthus regards charity for the unemployed poor not only as something ill-advised but also as a crime against society. How does he support this surprising (and dismal) conclusion?

6. At the outset of Chapter XVII, Malthus argues, against Adam Smith, that it is not labor in general but only agricultural labor that increases the material wealth of mankind. How good are his arguments?
7. Darwin claimed to get his inspiration for the decisive idea behind his theory of natural selection while reading Malthus one day for intellectual recreation. To be sure, some of the elements important to Darwin's thinking are in the text—the notion that more members of any species are born than can possibly survive, the harshness of competition for sustenance—Malthus even used the phrase "struggle for existence" at one point, though without Darwinian reference. Yet just as Smith did not anticipate Malthus, so Malthus fails to anticipate Darwin. Indeed, in Chapter 9 he even invokes the idea of a limit in the change that selective breeding can impose upon sheep (with the implication that species are fixed, not changeable) as an illustration of the fact that the conditions of human life cannot be much altered by the ingenuity of mankind. What notion or notions does he lack which Darwin might have found elsewhere in order to bolster the idea that the conditions of life in the natural world are constantly changing, even though they are the effect of events that take place according to fixed natural laws?
8. The great impediments to even modest improvement in the human condition overall are misery—the inability of those economically distressed to care for their children—and vice, the failure of human beings to abstain from the pleasures of sexuality. Malthus considers neither the immense improvements that might be made in food-production through technology nor the practices of various forms of contraception, which modern science has made increasingly effective. Is his argument outdated on either of these scores?
9. With regard to the latter point, there are still some who consider contraception an evil to be discouraged and still more who consider it an inalienable right (so enshrined in the Charter of the United Nations) for human beings to have as many children as they wish. Would violating this alleged right make Malthus's argument irrelevant? Or (making allowances for the fact that Malthus does not address the issue directly) can Malthus's argument be adapted to deal adequately with this objection?
10. Since Aristotle, there has been a distinction habitually drawn between nature (*physis*) and human civilization (*nomos*). Arguments for supporting a belief in the progressive improvement of the human condition have usually drawn upon this distinction. How much does Malthus draw civilization into the orbit of nature? A number of environmentalists have applauded Malthus for the way in which his argument sets determined limits to the alleged "conquest of nature" by human civilization. Are they right to do so?

11. Malthus concludes his text with a theodicy. What is its character? How acceptable do you find it?

Lecture 10: Malthus. (continued)

Lecture 11: Darwin. *On the Origin of Species*. (Excerpts from Signet edition.)

1. Darwin begins with the deliberate selection practiced in the breeding of stock-animals and moves to the notion of unconscious selection. What is the point of this strategy? How does unconscious selection work? What do humans consciously select for? What do they unconsciously select for?
2. Darwin was at pains to say that his theory was a theory of Natural Selection and not a theory of evolution. In fact, the word "evolution" does not appear in the book; the last word alone, *evolved*, is the only place where a cognate of "evolution" is used. Why do you suppose this is so?
3. Darwin refers at one point (in chapter 3) to "the delicate balance of nature". What does that phrase imply? To what extent is it appropriate to what Darwin is talking about?
4. Chapter 3 is entitled, "The Struggle for Existence". Where is that struggle most intense, from the standpoint of its relevance to the origin of species?
5. To illustrate the "web of complex relations" that constitute Nature at any moment, Darwin invents an example having to do with the presence of "old maids" in a village area and the prevalence of red clover. What is the moral of the example? What is its relevance to the notion that global cataclysms have been imagined by some theorists to explain the sudden extinction of species that is revealed in the geological record of the planet?
6. Discuss Darwin's personification of Nature near the outset of Chapter 4. Does it help or confuse the argument to make Nature into an agent that does the selecting?
7. To obviate possible confusions on this score, Darwin was eventually persuaded by colleagues to add to or substitute for "Natural Selectio" a phrase borrowed from

the philosopher Herbert Spencer, "the survival of the fittest." Is this phrase a good one for the job that Darwin wanted it to do?

8. In the light of Darwin's over-all conception, how adequate is the idea of a tree—the typical image, which Darwin himself invokes, for representing lines of descent—to serve as an analogy for what Darwin is talking about?
9. Darwin is also at pains to insist that Nature, in exercising selection, acts only "for the good of each being", as if Nature were a beneficent agency. How appropriate is this implication to the theory? Is the history of life in Darwin's view a history of progress and improvement? If so, what is the direction of progress? What is it that gets improved and in what respect is it improved?
10. What is meant by *convergent evolution*? How does Darwin regard the idea and why does he regard it in this way?
11. Darwin says that adaptative traits (he uses the word "characters") are always beneficial to a species. Working with some of his examples, would you say that it therefore must also be beneficial to the individual members of the species, which possess the traits in question?
12. A source of much confusion among Darwin's first readers was the difference between "individual differences" and "single variations". What is the difference and why is it a possible source of confusion if the two ideas are mixed up?
13. In the first edition of the *Origin*, Darwin suggested that the habits and instinctual behavior of a species might be transmitted from generation to generation, just as anatomical features might be, but he omitted the suggestion in subsequent editions. Can you guess at his reasons for withdrawing the suggestion?
14. Like most important notions, the concept of *adaptation* is not straightforward. One might suppose that a sheep capable of browsing both on mountainsides and level plains and therefore adept at the area in between would have a selective advantage over sheep capable of just doing one or the other, but Darwin argues for the reverse conclusion. What is his reasoning and how important is the issue to his theory?

15. The idea of the eye as an "organ of extreme perfection" was already dealt with in Hume's *Dialogue*. It was a well-entrenched idea and the source of much early criticism of Darwin's views. What difficulty does the idea of "organs of extreme perfection" raise for Darwin's theory? How well does he deal with it? What becomes of the notion of *perfection* in his hands?
16. In this connection, an important idea in Darwin's time was the notion that every sort of creature is extremely well-adjusted by reason of its anatomy to its necessities and to the habits that go with satisfying them. This adjustment of habit with anatomy and of both to the creature's habitat was an important point in the theory of special creation. What is the theory of special creation? What are its ramifications in thinking about the biosphere as a whole? What Darwin's view of this theory and why does he take the position that he occupies with respect to it?
17. Darwin distinguished between *analogy* and *homology* in identifying the "characters" or traits of different species. What is this distinction and how important is it to Darwin's conception of the adaptiveness of organisms to their habitats?
18. In connection with our reading of Paley, we have encountered the notion that many natural philosophers took an anthropocentric view of the design-features of organisms, arguing that e.g., the hump of the camel was created for the benefit of nomads, who might have a beast of burden fit for desert places. In this connection, a familiar example was the rattle of the rattlesnake, which many believed was put there by a benevolent Providence to warn reasonable creatures of the danger posed by the rattlesnake. Darwin's term for a generalized version of this notion is *the utilitarian theory*, the idea that creatures have traits whose primary function is to benefit other creatures. How does Darwin deal with the "utilitarian theory"? Darwin poured particular scorn on the theory about the rattlesnake. How would he explain the existence of the rattle in the tail of the rattlesnake?
19. A prime example of the "utilitarian theory" concerned the adaptation of the social insects to the interests of the group, the most familiar instance being the sting of the bee, which is fatal to the insect that uses it. Why does this instance raise a difficulty for Darwin's theory and how does he deal with it?
20. Several times in the book, Darwin cites the maxim: "Nature is prodigal in variety, though niggard in invention." What does this phrase mean? He believes that his theory can explain the truth of the maxim and the theory of "special creation" cannot. Why? In your view, is the truth of the maxim confined to the biological

world or does it apply to civilization as well?

21. Near the end of his book, Darwin repeats Hume's analogy about the savage, looking on a ship as a wondrous contrivance quite beyond human comprehension. Explore the analogy in the context of Darwin's argument. Which side would Darwin have taken, Philo's or Cleanthes's?
22. How would Darwin speak about "the environment", should he have been transported to the present and stumbled across this phrase?

Lecture 12: Darwin. *On the Origin of Species*. (continued)

Lecture 13: Darwin. *On the Origin of Species*. (continued)

Lecture 14: Butler, Samuel. *Erewhon*.

1. "Erewhon" is, of course, nowhere spelled backwards, with a slight concession to pronounceability. It is a utopia, an imaginary society whose ways have some bearing on our own. During the nineteenth-century, imagining a perfect society became a common motive for fiction, but Butler's Erewhon is more on the order of Swift's *Gulliver's Travels*, the kind of imaginary place which has a good deal of absurdity about it. We have already dealt, briefly, with one utopia—the place called El Dorado, in Voltaire's *Candide*. How much similarity is there between the two?
2. The flora and fauna of Erewhon are much like those of Europe and so are the artifacts—they are different, but obviously of the same families. The people, however, are of greater beauty. What accounts for this? Is it worth the price?
3. Social institutions in Erewhon are also of the same genera as European social institutions, but there is an overriding difference in certain cases. Erewhon has a number of institutions which, in the case of their real-life counterparts, may be considered in opposition to some other institution. For example, since Jesus said that one cannot serve both God and Money, we might think that the church was an institution opposed in some respect to banking and finance. Both church and banks exist in Erewhon but here one of the two institutions—in this case, the banks—seems to have acquired some aspects of its opposite. Are there other instances of this blurring of opposition? Describe Erewhonian banking in some detail, pointing out the resemblance to conventional religious practice. What is the point of the two systems of currency? Is the net effect to make religion look absurd or banking or both? If the church can be represented by dealings in currency, is the suggestion that money has spiritual properties?

4. The same trick is tried with practices designed to correct evils for which one cannot, in the real world, be held responsible, and practices designed to correct evils for which one can be held responsible—for medicine and criminality, in short. How much truth is there in this reversal of values? Is there any measure of truth in supposing that one should be cured of having a malign will and punished for the bad luck of contracting an illness? Do we, in the real world, ever punish bad luck? (Butler has his narrator offer an instance in which he claims that we do.) How clear is the distinction between responsible agency and external determination in real life?
5. Mixing up opposites in this way creates puzzles about Butler's satiric targets. What is the satiric target in the episode where a wife apologizes for her husband's absence by saying, not that he was ill, but that he had unhappily stolen a pair of socks that morning? What is the point of the joke when we learn that in Erewhon it is considered a nasty insinuation to ask "How do you do?"—a question that inquires into the condition of one's health? How much truth is there in the words of the judge who sentences someone for the crime of ill-health: "You say, in exoneration of your offense, that it is your misfortune to be criminal; I answer that it is your crime to be unfortunate"?
6. In what way do those who treat people for theft resemble doctors? In what ways do they resemble priests? We seem to reach the heights of absurdity when we encounter the judge who says to a defendant convicted of the crime of catching a fatal disease that if the jury had found him innocent, he would have convicted the defendant anyway, because the defendant would then have been guilty of having had the bad luck to be wrongly accused of a crime. Is there anything in the actual world that could be the target of this paradox?
7. A final reversal: the Erewhonians treat birth as if it were a death and life before birth as if it were life after death. Explore the oddities that result from this reversal, especially in connection with attitudes that obtain between parents and offspring.
8. In the last chapter of Darwin's *Descent of Man*, Darwin speaks of mankind as a "dominant" species. The word reflects the idea of "dominion" used in the first chapter of *Genesis* to describe the relation between mankind and other creatures. Is Darwin's use justified?

9. The most Darwinian part of Butler's *Erewhon* is the "Book of the Machines", much of which turns upon the notion of domination. Are machines servants of mankind or is mankind servant to the machines? How Darwinian are the arguments that Butler's imaginary author uses to support the second alternative? Butler's original audience thought that he was mocking Darwinism, and Butler protested (in a preface to the 2nd edition) that he was not: his purpose, he said, was to mock certain texts that used misused analogies in order to argue for the existence of God and for the notion that many aspects of the world had been designed to serve mankind's uses. Would you agree with Butler or with his first readers?

10. Against the author of the "Book of Machines", another Erewhonian author has written that machines are merely extensions of humanity's relation to the world, much as the body is merely an executive agent directed by the seat of human identity, the intelligent brain. How good is this argument as a response to the notion that our dependence upon machinery is a form of domination?

11. The institutions of higher learning in Erewhon take a cautious view of progress in knowledge. What is their view of progress? Do their assumptions about the nature of progress resemble our own in any way? If there are resemblances, how is it that our views of the virtues of progress in knowledge nonetheless differ from theirs? Does it make sense that the venerable Professor of Worldly Wisdom should be President of the Society for the Suppression of Useless Knowledge and for the Completer Obliteration of the Past?

12. At the end of the *Descent*, Darwin seems to offer a paradox worthy of an Erewhonian professor. The more intelligent members of the human species, he says, will refrain from procreating until they can support their children, and the less intelligent will not, and so the less intelligent are bound to swamp the more intelligent in the population in each subsequent generation, leading to the degeneration of mankind. Darwin does not explicitly draw this conclusion, but it would seem that intelligence as a quality is involved in a situation of negative feedback. How Malthusian is this notion? How sensible is Darwin's position on this point? Darwin seems to conclude that it would be a good thing if overpopulation were allowed to thrive at all levels of society. What are his reasons? How good are they?

Lecture 15: Butler, Samuel. *Erewhon*. (continued)

Lecture 16: Butler, Samuel. *Erewhon*. (continued)

Darwin. Excerpt from *The Descent of Man*.

Lecture 17: Stevenson. *Dr Jekyll and Mr Hyde*.

1. Stevenson's story is one of the few literary works—*Don Quixote* and *Frankenstein* are others—which most literate people know by hearsay rather than by direct acquaintance, and they are often surprised when they are confronted with the actual text, which turns out to be quite different from what they expected. Did the story hold any surprises for you and if so, what were they? Of course, Stevenson's original readers encountered the tale as a mystery—the reader is supposed to be surprised to discover at the end of the story that Jekyll and Hyde are the same person. Does knowing the solution to the mystery diminish the tale in your view?
2. One response to the story is to take it as a cautionary tale, a simple affair carrying the force of a Victorian moral: to give in to wicked impulses is to fall slave to the worst side of one's character. How adequate is this view of the story? Is it the right view, an incomplete view but a good start, or does it get off on the wrong foot altogether?
3. The story begins with a puzzling relationship between Mr. Utterson and Mr. Enfield. What is the nature of their individual characters and how do they relate to the theme of the story?
4. Hyde cannot be described by Enfield except by way of contradiction—deformed without malformation—and he inspires disgust and fear, so much so that a doctor at the scene appears to have trouble restraining himself from killing Hyde. Mr. Utterson is presented at the outset also by way of contradiction—he is dour, dreary, coldly withdrawn, "and yet somehow loveable". What is the point of these descriptions of the indescribable?
5. Hyde is not merely disgusting and fearful, he is *degenerate*—apparently a throwback to some primordial form of existence. Can you develop a relation between the nature of Hyde and Darwin's idea of degeneration in the *Origin*? Between the responses of onlookers to Hyde and Darwin's idea of the usual response to the notion of mankind descent from a simian-like creature?
6. A chief point of difference between Stevenson's story and the popular imagination of the Jekyll and Hyde relationship (derived in part from the way that the story has been filmed) is that the popular version presents Jekyll's wish to become Hyde as a piece of scientific *hybris*, a case of science treading into forbidden territories. How does this view square with the way in which Jekyll describe the motives for his experiment in the book? If the result of the experiment does not

divide Jekyll into a good self and an evil self, how does it divide him? Is the way in which it divides him an inevitable result of taking the drug or was another result possible?

7. Describe the character of Jekyll, "a smooth-faced man of about fifty, with something sly about his face". Describe the character of Hyde. Why is he interested (at the outset of the story) in preserving his reputation? Why does he kill himself at the end? What is the attitude that Jekyll and Hyde hold of the other? What characteristics does Hyde possess that makes Jekyll at once loathe and pity him? Is Hyde evil or merely innocent, as an animal might be innocent, in that he possesses no conscience, no sense of guilt? Why does Jekyll describe some of his characteristics as "wonderful"? Can it be said that he envies Hyde?
8. Near the conclusion of the tale, Jekyll describes the moment when he believed that he had to choose between Jekyll and being Hyde. What are the terms of that choice? How is a choice possible, when Jekyll would have to make it and in becoming Hyde would cease to exist? What advantages follow from being Hyde, as Jekyll understands it?
9. Suppose that the story were conceived differently—that the drug altered Jekyll's character when under its influence but did nothing to alter his appearance. What effect would that have on the meaning of the tale, if any?

Lecture 18: Stevenson. *Dr Jekyll and Mr Hyde*. (continued)

Lecture 19: Huxley, Thomas. *Prolegomena to Evolution and Ethics*.

1. What is the occasion for Huxley's argument? What view of the implications of Darwinism is he trying to discredit?
2. Huxley opposes the State of Nature and the Human State of Art (that is to say, artifice, the intelligent management of things) and insists that the two are in conflict. What was Aristotle's view of this relationship? How would an intelligent Darwinist argue against Huxley's notion of a conflict?
3. Huxley links the State of Nature with Cosmic Nature and argues that on earth human artifice is the product of cosmic nature. If it seems contradictory, then, to speak of art as resisting cosmic nature, Huxley says, that is just too bad for logic. Is the opposition logically contradictory? What are the grounds of your answer?

4. The emblem of artifice chosen by Huxley is the Garden—an image of nature, by implication, as thoroughly under control of human artifice as might be, "where every plant and every lower animal should be adapted to human wants and would perish if human supervision and protection were withdrawn". How does this garden compare with the garden in Genesis? How does its supervision compare with the idea of breeding domestic animals in the first chapter of Darwin's *Origin*?
5. The Garden is subsequently transformed into a Colony. What are some of the implications of the analogy drawn between a colony (in allegedly "undeveloped" parts of the world) and civilization? Would Huxley accept them?
6. In the colony, the struggle for existence would be completely abolished, among humans as well as among all species under their domestic administration. What is Huxley's opinion of this ideal? What is the serpent in the garden? Is the ideal good but impractical, in Huxley's view, or a false ideal, inherently wrongheaded? Or is it both, a wonderful fantasy but an impossible realization and therefore bad the moment one attempts to use it as a guide, to put it to any degree into practice? In answering, take into account Huxley's view that direct selection of the best humans would be undesirable not just because we lack the knowledge to select the fittest but also because it cannot "be practiced without a serious weakening, it may be the destruction, of the bonds which holds society together."
7. In summing up his view, Huxley speaks of the force antagonist to natural selection "the ethical process," which works "in harmonious contrast with the cosmic process, by promoting the efficiency of a group, "in the struggle for existence with nature, or with other societies", but which also "tends to the suppression of the qualities best fitted for success in that struggle". What does Huxley mean by "harmonious contrast"? Is there any warrant in Darwin's *Origin* for applying the idea of a "natural" selection among combatants in a struggle for existence to groups within a species rather than to individual members of a species? What conclusion does he draw from the "double-bind" that mankind seems to be placed in by the action of natural selection? Is the effort to develop our distinctly human nature bound to destroy itself?
8. Compare Huxley's conclusions with those sketched in the last paragraphs of Darwin's *Descent of Man*. In what sense are Huxley and Darwin addressing the same issue? How different are their conclusions?

Lecture 20: Wells, H. G. *The Time Machine*.

1. Wells wrote in an essay roughly contemporaneous with this story in which he argued that natural selection, having evolved mankind and placed it at the top of the pyramid of life, might not be a pro-human force. "There is...no guarantee in scientific knowledge of man's permanence or permanent ascendancy....The presumption is that before him lies a long future of profound modification, but whether this will be, according to his present ideals, upward or downward, no one can forecast." Was Wells right about natural selection? Are the Eloi and the Morlocks, according to present ideals, degenerations of humanity? Or do they each embody a version, if perhaps only a partial version, of rival ideals?
2. At the end of his *Descent*, Darwin wrote: "Man, like every other animal, has no doubt advanced to his present high condition through a struggle for existence . . . and if he is to advance still higher, it is to be feared that he must remain subject to a severe struggle. Otherwise he would sink into indolence, and the more gifted men would not be more successful in the battle of life than the less gifted." In Wells's story this fear of what indolence might produce applies only to the Eloi, but it can be generalized over the human condition, as it is in Darwin's statement. As enhanced technology reduces the need for effort, there is less differential advantage in strength or intelligence. Arguably, then, by a negative feedback mechanism akin to Malthus's checks on population, these qualities may reach a "natural" balance with their opposites, hovering about, or as Adam Smith would say, "gravitating towards" a median limit. How sensible is this speculation, in your view? How has Wells managed the construction of his story in order to make the Eloi as unintelligent as they are?
3. *The Time Machine* begins with a lecture about "the fourth dimension", borrowed from Wells's contemporary, Simon Newcomb. How necessary is it to the text? Is the way in which the lecture argues for the possibility of time-travel sensible, plausible, or silly? Does the science in science-fiction have to be good science?
4. We have got interested in "possible worlds" (shades of Leibniz!) and recent science-fiction often plays with the notion of the paradoxes that might result if one traveled back and altered our past or if someone (or something) from the past traveled back into our time in order to change the future. Wells's text does not touch upon these paradoxes that might result from time-travel. Indeed, in a sense, the story disavows their existence. Otherwise, the fact that the narrator of the story continues to hope that the Time Traveller will return one day makes no sense, for the Time Traveler ought to be able to return *momentarily*, as he promised to do, if he is able to return at all. Why are paradoxes associated with time-travel stories today (like meeting yourself yesterday at breakfast) incompatible with the purposes of Wells's story?

5. The Time Traveler has three distinct speculations about the nature of humanity in 802,701 AD and how it got that way. What are the speculations? How do they differ from each other?
6. Recall Huxley's description of a colony "within which the cosmic process, the coarse struggle for existence of the state of nature, should be abolished; . . . where every plant and every lower animal should be adapted to human wants . . ." How much of Huxley's *Prolegomena* can you find in Wells's story? It has been suggested that Wells designed the story to illustrate Huxley's argument. How valid is this opinion, in your view?
7. As the remote ancestor of both the Eloi and the Morlocks, is the Time Traveler more primitive in any way than they are? Recall that his only use for the artifacts in the ancient museum of science is as weaponry.
8. Just before the Morlock's Feast of the New Moon, the Time Traveler glances at the stars. "I thought of the great processional cycle that the pole of the earth describes. Only forty times had that silent revolution occurred during all the years that I had traversed." Compare this reflection with the last sentence of Darwin's *Origin*. Do they make the same intellectual point?
9. Before returning to the present, the Time Traveler uses his machine to travel to Planet Earth's furthest future. What is the function of this episode in the story?

Lecture 21: Wells, H. G. *The Island of Dr Moreau*.

1. Many readers have often found this text dissatisfying because it does not seem to contain a clear point of view upon its materials. In this connection, many have claimed that it is an argument against vivisection, a tract against cruel forms of experimentation upon animals. What can be said against this view?
2. In the light of your reading of the book, what is the point of the first episode, where the men in the life raft consider resorting to cannibalism?
3. What oppresses Prendick about the island at the end of the book—when he suffers, so to speak, from a spiritual hangover—is the aimlessness of things there. Is this aimlessness in line with a Darwinian view of life on planet Earth?

4. Prendick's first guess at what Moreau is doing leads him to suspect that he is trying to turn men into beasts; he learns that the truth is rather the reverse. Is the one occupation worse than the other or are they equally horrifying? Why do you think Well wrote this error into the thoughts of his main character?
5. Moreau, of course, sees nothing wrong in what he is doing and argues about the meaninglessness of pain? In the view of Prendick, is the extent of the animal's sufferings what is wrong with Moreau's experiments or does his sense of horror have another source?
6. Prendick says at one point that he might have "understood" Moreau if all this pain was administered for some humanitarian purpose. Would that be a valid justification for it?
7. Prendick muses about the life of the animals on the island: *Before they had been beasts, their instincts fitly adapted to their surroundings, and happy as living things may be. Now they stumbled in the shackles of humanity, lived in a fear that never died, fretted by a law they could not understand; their mock-human existence began in agony, was on long internal struggle, one long dread of Moreau--and for what? It was the wantonness that stirred me.* (p. 98, Signet edition.) What would Darwin have made of the notion of "fitness" expressed in this passage. What are the implications of the thought that the animals, having become human beings, are now "unfit"—unadapted to their surroundings?
8. Consider the following passage by Jacques Monod, the Nobel-laureate biologist, on the development of language and intelligence, in his book *Chance and Necessity*: "...recent experiments with a young chimpanzee seem to show that while apes are incapable of learning spoken language, they can assimilate and utilize some elements of the sign language deaf-mutes employ. Hence there are grounds for supposing that the acquisition of the power of articulate symbolization might have followed upon some not necessarily very elaborate neurophysiological modifications in an animal which at this stage was no more intelligent than a present-day chimpanzee. . . . It is evident that, once having made its appearance, language, however primitive, could not help but greatly increase the survival value of intelligence, and thus create, in favor of the development of the brain, a formidable and oriented selective pressure, the likes of which no speechless species could ever experience. . . . We see . . . that the selective pressure engendered by speech was bound to steer the evolution of the central nervous system in the direction of a special kind of intelligence: the kind most apt to exploit this particular, specific performance, rich in immense possibilities."

How does Monod's argument bear upon those offered by Moreau in Chapter 14 of the book? If there is something arguably horrifying about Moreau's view of things, is there anything horrifying about Monod's remarks?

9. Moreau complains that somehow he cannot get at the seat of emotions, which, he says, "harm humanity", that he wants to create a creature which is truly rational but the emotions thwart him. Does Moreau himself possess the sorts of emotions that he is complaining about? Is he striving to create a rational creature "in his own image"? Would this make the creature more or less human? Alternatively, is the liability to emotion a "mark of the beast", as Moreau claims?

10. At the end of the text, Prendick seems to have adapted Moreau's view about humans, "who lack the calm authority of a reasonable soul." In the end, he takes solace from astronomy and the contemplation of cosmic rather than planetary nature. Compare this with the last sentence in Darwin's *Origin*. What solace can cosmic nature afford? How would you describe Prendick's attitude? Is it an attitude endorsed by the book?

Lecture 22: Wells, H. G. *The Island of Dr Moreau*.

Lecture 23: Forster, E. M. *The Machine Stops*.

1. *The Machine Stops* depends upon a difference in the relation between people where body-language and nuances of expression carry important weight and relations—such as conference-calls like the one that preceded the Challenger disaster—that are managed via the operations of machinery. The former is referred to as "direct experience" and the inhabitants of the Machine have a horror of it. How valid is this opposition? Do we ever encounter each other *directly*? Our social identities have many aspects, and these aspects, more often than not, are tied to the considerable variety in kinds of social situations; explicit and inexplicit codes and conventions find expression in speech and behavior and mediate our experience of one another. Why should talking down a telephone, say, be any less immediate than the ritual gestures and speech of a conversation in a board room or during a presentation at presidential mansion?

2. Hackers and nerds who frequent internet "chat-rooms" experience a novel freedom from their everyday social identities and often claim to have developed a series of new ones, to which they give mysterious, misleading, or comic names. Can media be a vehicle for the expression of an alternate social identity? Consider the difference between tools and machines. Tools, we know,

- can become extensions of one's body. (The blind often claim that they feel what their canes are touching, not the cane that their fingers are touching.) Is a bicycle a tool or a machine? Can automobiles become an extension of your body? How about the hacker and his computer?
3. What does it mean to live inside a machine? Is the machinery simply a metaphor, a stand-in for features of human relationships that Forster judged adversely? Or is the story actually about machinery and what happens to human relationships when human relationships become dependent upon machines, particularly in the way of communication? Or can these questions both be answered affirmatively—by raising the possibility that the story is about something in human nature (of which Forster does not approve) which does not depend upon the existence of machinery but which is encouraged by an increasing reliance of human beings to manage their relationships with one another by means of machines?
 4. Can people be part of a machine (or a machine-like process)? Would you regard the workers on an assembly-line as *servicing* the conveyor belt, which embodies an idea of consecutive assembly that the workers do not have to grasp to perform their function? Can one regard the factory itself as a machine in which the workers are functioning parts?
 5. Workers might be elements of a machine-system but how about staff and management? Any corporate entity (e.g., a government or a business) with a table of organization regards each element as performing a distinct function within the system of the whole, as the system turns input into output. Is it necessary to understand how the system works at every stage to operate efficiently as a subordinate element within it?
 6. Some specific questions, among others about *The Machine Stops*: Vashti agrees to "isolate" herself to talk to Kuno. Is she in the presence of "several thousand people" when she hasn't "isolated" herself? Why does she feel that she is "wasting time" when she agrees to talk to only one person? What does Kuno mean when he says that mankind is the measure of all things? The Book of the Machine is a set of instructions for operating the cell inhabited by each of the people of the Machine plus a set of timetables for various public facilities. Vashti holds it "reverently", kisses it, and feels "the delirium of acquiescence." What is she "acquiescing" to? Regard for the Machine is presented in the text as a kind of misplaced form of religious worship, and yet there is much talk that the present age has successfully banished superstition. Is this a contradiction? How about the notion that each year (p. 263.) the machine is served more efficiently and less intelligently? Looking at the stars or the Himalayas, Vashti thinks, "No ideas here." What sort of ideas could one discover simply by looking at such things?

Lecture 24: Turing, Alan, John Searle, and Daniel Dennett. Essays on computers.

Lecture 25: Gould, Stephen Jay, Richard Dawkins, and Daniel Dennett. Essays on Natural Selection.

Lecture 26: Review and Summation