I. Instrumental (common sense)Theory of Technology

A. Thesis: Technological development is an on-going process that makes a better society..

B. Assumptions:

1. Technological development is an expression of human creativity.

2. Technological development is autonomous.

3. Technological progress is inevitable.

4. Technology gives humans power over nature

5. Technological development is synonymous with progress

GE: “Progress is are most important product.”

6. Social problems can be solved with technological means.

C. Argument

1. Technology is a tool or instrument

a. Greek word “techne” or “how to”

b. Defined by function: its use

c. Fulfills a need

d. Example: house, cabinet, hammer, car, television, gun,

Fordism, computer, cell phone

2. Humans control it

a. Lords of the Earth

b. Develop it and decide how it is used.

c. Guns don’t kill people, people kill people.

3. Has made a better society

a. health: anti-biotics-genetic discoveries-cloning

b. hunger: pesticides- genetically modified crops

c. energy: steam-electric-atomic-hydrogen

d. information/communication: computers, cell phones

e. comfort: homes

4. technology will benefit less developed societies through

“technology transfer.”

5. unintended consequences- nuclear waste- but can be

overcome with new technological developments

6. technology =progress=better society

II. Critical Theory of Technology

A. Thesis: Technological development is controlled by those in power and its development is determined by their goals, interests, and needs.

B. Assumptions:

1. Not autonomous, reflects power arrangements.

2. Not necessarily progress.

3. Not inevitable

4. Unanticipated problems arise with new technologies.

C. Argument

1. Technological development within large institutions

a. specific interests and goals

i. profit

ii. power (market and worker)

b. government, universities, corporations

2. Above institutions have power to define problem and therefore

determine solution (a technical one)

a. entertainment: more channels, better picture =HDTV

b. disease: drug therapy, hi-tec diagnostic equipment

c. energy: oil, new nuclear power, and coal

d. terrorists: new weapons

e. hunger: GMOs

3. Technological development and power over the worker

a. Fordism as deskilling

b. automation

4. Intended consequences

a. mapping the human genome/owning the human genome

b. genetically modified organisms/own living things

5. Unintended consequences

a. health care: disease resistant strains

b. pesticides: resistant pests, non-resistant predators

c. nuclear power: nuclear waste

d. nuclear weapons: nuclear proliferation

e. television/computers: children and obesity

f. factory farming: disease

g. the terminator gene

h. e-waste

i. chemical waste

j. hunger

6. Three ideas

a. democratize technological development

i. social needs

ii. human needs

b. market place

i. precautionary principle

ii. product responsibility principle

A dominant characteristic of the Enlightenment world view has been faith in scientific discovery and technological development. This faith was reaffirmed in industrial America when science and technology merged with the productive forces of capitalism. Despite the on-going Depression, the theme of the 1939 World’s Fair was the “World of Tomorrow,” a world that was to be created by this merger of science, technology, and capitalism. Neither the Enlightenment thinkers, nor the imaginings of the “world of tomorrow” could have anticipated the scientific discoveries and technological innovations that today are taken for granted: cell phones, palm pilots, digital electronics, internet, health technology, and genetic science.

One of the most interesting areas of scientific and technological development is the area of genetic science. Scientists have completed the mapping of the human genome thus opening new possibilities for discovering the cause and cures for diseases. The computer and our knowledge of genetic science has allowed us to discover unique genetic traits and develop cell lines from them for possible therapeutic use. Genetic technology has also been applied in the area of agriculture. Genetically modified crops have been developed. The genetically modified crops are said to produce a greater yield and in some cases a more nutritious crop species. In fact, some genetically engineered crops can grow pharmaceuticals. Eventually, there is hope that this will lower the cost of drugs and make them affordable for everyone. The application of technological advances in the meat processing and dairy industry have allowed animals to grow faster, bigger, and produce more. With these scientific discoveries and technological developments, humanity might imagine itself at the threshold of a society without disease and hunger.

Such imaginings might be premature, when we consider that coinciding with the mapping of the human genome was the patenting of the human genome. As each gene was identified, a life science corporations would patent it. The patent gives the holder property rights over the gene and any use to which it is put. And the property right allows the holder to be compensated for that use, despite the fact that the holder did nothing to develop it. Likewise, genetically modified organisms are owned by the same life science corporations. In this case owning means that a farmer must buy the seed stock for the GMO from the life science corporation and cannot use the seeds which are produced during its growth cycle. Also the modification of the corn and soybean stock guarantee the need for more pesticides and more fertilizer. This could be called a “genetically modified subsidy” to chemical companies. In fact, Monsanto genetically engineers its brand pesticide, Roundup, into its soybeans. Monsanto has also been trying to develop a “terminator” gene it could splice into its crops, so that they would not produce seeds.

One of the problems is that there was no public discussion about the

introduction of GMOs into the environment. And the reason for not allowing public discussion was that there were no studies concerning the long term effects of GMOs on humans, or the consequences of GMOs on the environment. Already GMOs have contaminated non-GMO crops in both the U.S., Mexico, and Canada. In one case, the life science corporation sued the farmer whose crops had been contaminated for patent violations. Also, the idea of a terminator gene escaping into the environment should raise some question about the unregulated release of GMOs.

The question might be raised: in a class society are the benefits of scientific discoveries and technological developments evenly distributed? And are the risks equal to the benefits? Reason, another characteristic of the Enlightenment world view, suggests that we might look into the claims made by corporations regarding their discoveries and innovations and that precaution about introducing GMOs into the environment might be wise. The European Union has introduced the idea of the precautionary principle into the market place. Corporations must prove that what they are introducing will not harm people or the environment. Until they can do that the product cannot be marketed. U.S. life science corporations feel that precaution would put constraints on innovation, the laws of the market place should prevail.