

continued from page 6

stability

Studies like this are invaluable in evaluating proposed solutions. From our greater understanding of the world system's behavior we can be selective in proposing measures that will ensure stability.

Proposed Solutions

The optimistic viewpoint maintains that there is no population crisis and no logical reason to curtail economic growth. It says there are no such problems.

The population can increase because there are vast areas that are essentially underpopulated. Modern technology can make possible the production of enough food to nourish a continuously increasing population. There are no limits to resources due to the supply of limitless energy from breeder fission reactors, making it possible to extract any resource man requires. Pollution of man's environment is merely a temporary problem soon to be eliminated by the development of sophisticated technological solutions and limitless energy.

There are economic arguments that imply that increasing population and growth rates are both desirable and necessary. Things have never looked better they say, and will continue to improve in the future.

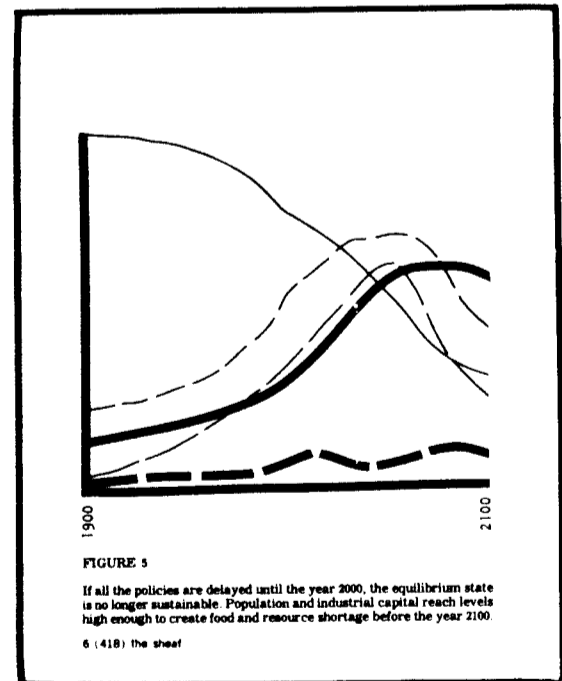
In evaluating this optimistic viewpoint, consider its premises. It appears to be based on hope rather than fact.

It seems they are relying on technologies that are not yet developed to cope with any problems. This implies that we are guaranteed that these technologies will be developed.

Are they taking the laws of ecology into consideration or are non-existent technologies going to change these too? This is like setting out for Paris in a leaky rowboat hoping that you will think of something before you drown. (It would be more sensible to use our knowledge of ecological principles to identify and solve the causes of a problem).

This optimistic attitude ignores the implications of exponential increase. It fails to consider what will happen to our environment while we wait for these technological advances.

There are arguments for optimism but they all seem to make the same four assumptions:



- 1) Man is incapable of destroying his civilizations,
- 2) Resources and energy have essentially no limits and therefore need not be conserved,
- 3) Man's ability to create new technologies is limitless and therefore guarantee the survival of the species,
- 4) Human population and growth rates can, therefore increase for as far ahead as we are able to foresee.

These assumptions do not apply the ecological principle of stability. Instability leads to a disruption of the environment and a rapid decline in population. This behavior occurs because of time lags which are inherent within the system, allowing a population to overshoot its available resources (carrying capacity) before its feedback mechanisms can alert it to the fact that it is overutilizing its supply of resources.

continued from page 7

activism

PRODUCTION

Ecological nay sayers contend that economic growth must be stopped because there is a linear relationship between the amount of useful goods and useless garbage produced, the more goods, the more garbage.

The analysis is technically incorrect and politically naive.

There is no linear relationship between the production of goods and garbage. The UK has come to produce more goods over the last ten years while reducing industrial smoke considerably. The richest country in Europe is also the cleanest. The poorest country is one of the dirtiest. Sweden produces and consumes more goods than Italy and yet has less garbage.

At the micro-level the association of goods and garbage varies enormously. There are tremendous gains to be made by legislating all production up to proven environmental best-practice. The amount of water potentially polluted in the production of a ton of steel in existing plants varies 30 times. The pollution to production ratio in paper and pulp mills has a variance of 20 times. In Sweden mercury pollution has been designed out of paper production and the waste generated has been reduced by a factor of 600.

Unfortunately, in North America research budgets substitute for legislation. The research has yet to show conclusive results. Research is not a substitute for energetic political action to enforce existing legislation, some of which concerning navigable waterways like the Great Lakes goes back to the 19th Century. The ecologists are content to cry doom. The governments are content to cry research. Each is diverted from the available solution, politics.

It is possible to achieve higher levels of production with lower levels of pollution if the economic incentives and political pressures to do so exist. The ecology freak would better serve the nature which he/she cherishes by working in politics, not by contemplating nature in the Sturgeon Valley.

MORE GROWTH, NOT LESS

More growth is required before the income-consumption level of the majority reaches that of those who are the most vocal advocates of environmental improvement and zero growth economy, and who show few signs of willingness to accept lower levels of, e.g. energy consumption, for themselves. This can be seen in part in Canada when Ontario ecologists leap to urge environmental protection for Quebec in regard to the Baie James Project.

It too often looks like the middle class is trying to pull the ladder up behind itself. Local resistance to highways, airports, factories or power plants not only maintains the environment, it also can uphold property values.

When critics complain of vehicular congestion it often sounds like they are saying, twenty years ago when only I had a car it was much more pleasant for me. A considerable part of our situation is the result, not of a new pattern of consumption, but of the extension throughout society of a pattern once restricted to an elite few.

CONCLUSION

Doomsday prophecies err basically in assuming supply inelasticities and demand elasticities, an unwarranted assumption since in the recent past supply factors such as technological innovation and productivity have increased as rapidly as the components of demand.

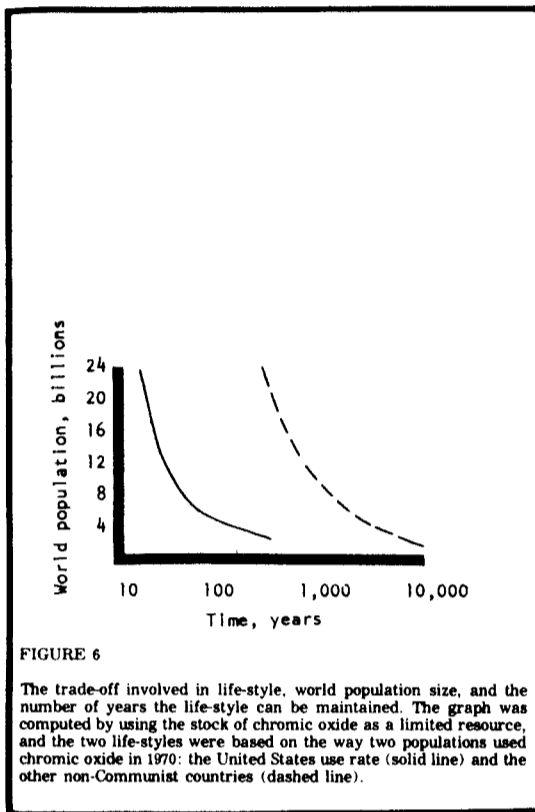
Much of the problem is not a result of too much consumption. It is the result of inefficient consumption. Efficiency can be enforced by law. Why not smaller cars with smaller engines? Why not rapid transit? Why not underground transit to save precious urban surface space?

Could we not choose to emphasize development over defense? A political choice that would divert 8% of world's consumption a year.

Combined in the environmental movement, there is an element of old-fashioned political reaction; well-to-do progressive liberals who are not sure that they like the world which they helped to make, and self-styled radicals. In this, as in so much else, the problem is political.

Limits to Growth teaches that we are heading for a major global crisis that urgently requires effective solutions. We cannot wait for new technology to solve these problems. We cannot rely on hope.

We must develop a global strategy aimed at restoring environmental stability and limit our emphasis on industrial growth, a goal which is entirely feasible and can be accomplished with minimal social disruption.



There is a basic set of goals which will enable men to attain stability with his environment. In broad outline these goals are:

- 1) The maximum population of the world, each country and each region, which will result in the least disruption of our environment and yet maintain the desired lifestyle, should be determined. There should be government incentives to reach this optimum as soon as possible.
- 2) We should make wise efficient use of all our natural resources including food, land, energy, wood, soil, minerals, and human time.
- 3) An economic theory based on equilibrium should be developed and instituted as soon as possible.
- 4) We should continually examine the physical and chemical state of our planet and legislate against any activity that is degrading it.
- 5) We should legislate against all activities which could lead to environmental and social instability.
- 6) We should guarantee and enforce a basic set of environmental rights.

The size of man's population will determine the type of life style that could be maintained. The lower the population, the longer a certain life style can be maintained. Refer to Figure 6. Such calculations do not take into account recycling technologies which may be developed.

There are several available strategies that can be used to minimize the depletion of irreplaceable natural resources. There could be a move toward greater regional and national self-sufficiency to minimize the energy consuming transportation of goods and people. We can increase the efficiency of our usage of minerals by recycling and legislating against planned obsolescence. We can maximize the productivity and longterm stability of agriculture by growing a greater diversity of crops and keeping the best agricultural land for growing crops instead of cities and urban sprawl.

An economic theory based on equilibrium is both desirable and feasible. There is no reason to assume that the Gross National Product must be based only on industrial growth.

A large proportion of the Gross National Product could be shifted into education, libraries, research, culture, communication, entertainment, leisure, health service, medical research and other social services — man's human potential. Such services will essentially lower consumption of irreplaceable resources and in that respect contribute to environmental stability.

ECOLOGY NOW!