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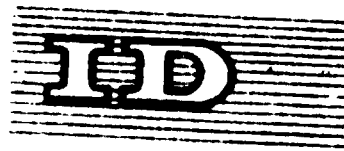
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ACCELERATING CHANGE AND ITS IMPACT ON  
FUTURE PLANNING IN THE RUBBER INDUSTRY 1/

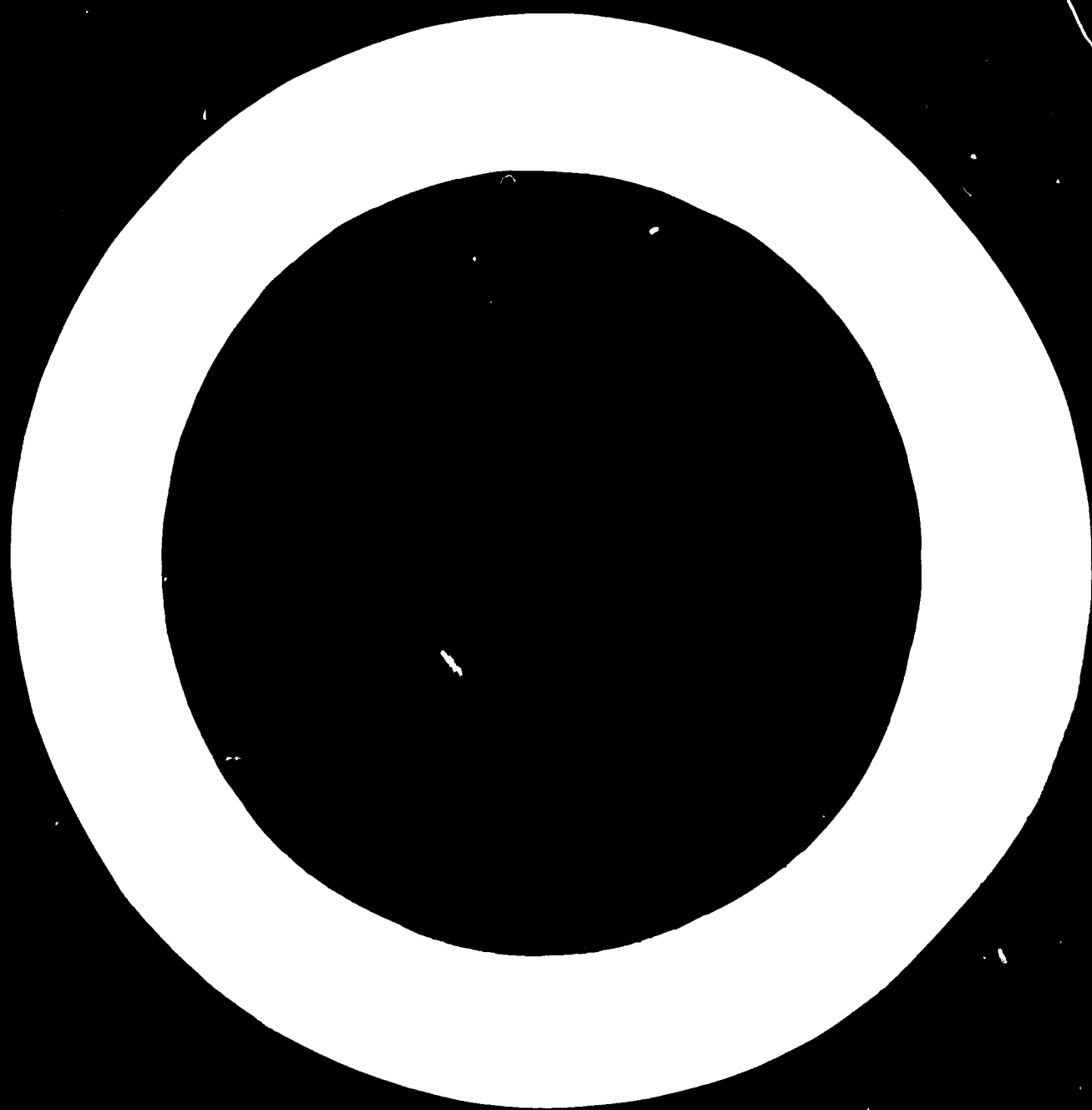
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ACCELERATING CHANGE AND ITS IMPACT ON  
FUTURE PLANNING IN THE RUBBER INDUSTRY

BY

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When asked to present this paper, my staff and I prepared an abstract titled, "An assessment of factors which can upset the present balance in the rubber production industry." Some of you already may have seen it. Today, I am not going to discuss subjects in the order set forth in my abstract. However, I will cover most of the points and I hope that my comments will prove useful.

The rubber production industry, synthetic and natural, exists in a somewhat imperfect balance. This means there are times when there is more productive capacity than there is demand. This situation is common. Probably, the industry balance never will be perfect. Ideally, however, planned expansion should not be undertaken if it can or will put the demand supply situation out of balance for more than several years in the future.

When synthetic rubber producers analyze future market, and forecast demand, they may construct new capacity on the basis of

their forecast. If so, they build in extra capacity to take care of future demands. When natural rubber producers replant or clear new land for the planting, they do not plan just to meet the demand for natural rubber at the time trees begin production. They have a more difficult task in their long-range planning because they must look ahead 7 to 10 years at a minimum. They, too, build in extra capacity for future requirements.

Both sectors always plan for the future. Usually, if they pray, it is that technological developments will increase the demand over their forecasts. Also, they anticipate squeezing more rubber out of their investment than is forecast at the time construction or planting began. There are many reasons why few industries make perfect forecasts of supply and demand. One of the most important is that during planning, no one really knows his competitors' plans nor does he know when economic slow-downs are going to cause several years of no growth. Building of a half dozen plants or plantations could be undertaken, each without the knowledge of the other. Their total capacity, when they come on-stream, could exceed the incremental demand at that time. Worse, the natural tendency to lower prices to move that incremental demand does not increase the consumption but only drains funds from the industry as a whole which could be better spent on developing new uses. There may be nothing normally wrong with this as of 1972. The problem is the future. Worldwide, we need better planning if the industry is to survive and the world is

to survive. While currently, it is criminal in some nations to plan development of an industry on a worldwide basis, undoubtedly, the time will come when to not do so will be looked upon as the ultimate crime.

Mind you, I am not advocating the violation of anti-trust laws. I do believe that within the framework of existing laws, we're going to have to do more planning in the future than in the past.

Many factors can significantly change the supply and demand balance. However, my purpose today is not to forecast supply or demand or construction, but really to raise a word of caution about factors which may have a major impact on our future.

Today, we all should have one concern in common -- the future. The greatest contribution we can make will be to let our examination provide the benchmarks or framework for future planning and decisions in both sectors of the rubber industry.

#### A NEED FOR REAPPRAISAL OF FUTURE PLANNING

Usually, when research experts study our industry's future, they examine factors common to any good feasibility study.

For purposes of our discussion, I am not as concerned with normal research considerations as I am with others that may have a more profound impact on our industry's future than many of us would like to contemplate.

To this end, I suggest that each of you study carefully two publications which recently have caught the attention of many of

the world's leading economists and scientists. The first is "Blueprint for Survival" which appeared in The Ecologist, a British publication in January of this year. The other is a 500 page book by Alvin Toffler entitled Future Shock.

Both point up the need for drastic reappraisals in all our future planning. "Blueprint for Survival" stresses our need to achieve population stability. Future Shock is a formidably organized intellectual effort which marries the insights of artists, poets and novelists to demography, economics, statistical analysis and operations research. I feel it is an indispensable handbook for anyone who will play a part in planning our industry's future since it brings into focus the social and psychological implications of the technological revolution and the population explosion which is the major concern of "Blueprint for Survival."

Today, our world population is about 3.5 billion. The "Blueprint" says this number is probably the most that can be fed equitably without forced agricultural fertilizing and/or growing methods that will drain productivity.

In fact, the "Blueprint" says, "even if the developed world stabilizes its population by the year 2000 and other countries by 2030, the world population will then be more than 13 billion." That is 60 years from now and some of you well may be alive at that time so let's try to visualize a little more clearly what this means. In newly created Bangladesh, the population density



will be about four and a half to five thousand persons per square kilometer. Divided equally, this would amount to a piece of land measuring about 10 meters by 20 meters for each person. On that 200 square meters, we must find room for shelter, for growing food, for making clothing and presumably for all the things that will mean a life as good if not better than these people know today. This leaves little room for highways upon which automobiles, buses and trucks can move -- and without automobiles, trucks and buses, an appreciable segment of today's market for rubber will vanish.

The "Blueprint" is NOT fiction. It is frightening fact. In commenting on it, 13 leading British scientists said, and I quote, "If current trends are allowed to persist, the breakdown of society and the irreversible disruption of the life-support systems on this planet -- possibly by the end of the century, certainly within the lifetimes of our children -- are inevitable."

Their joint statement stresses that society's and world objectives should not be growth. Rather, man's aim should be a "stable society" characterized by a steady or declining population, decentralized living and strict limits on the use of world resources.

"Blueprint for Survival" stresses the folly of thinking of time in a linear fashion as if the growth rates in the last quarter of the century will parallel those in the first, second or third.

According to Edgar de Vries and J. P. Thyse of the Institute of Social Science at The Hague, world urban population today is increasing at a rate of 6.5 per cent per year. This statistic becomes more frightening when we accept that it means the earth's urban population will double by 1983 or, in eleven years.

Pre-occupied with our daily responsibilities most of us fail or refuse to accept that our human and technological growth is exploding exponentially -- multiplying -- with the result that the increases keep getting larger and larger at shorter and shorter intervals.

If we look at the process of innovation, it is clear that technology feeds itself. Technology makes more technology possible.

Technological innovation consists of three stages, linked together into a self-reinforcing cycle. First comes the creative, feasible idea. Second, the practical application of the idea. Third, its diffusion through society.

Thus, 90 per cent of all the scientists who ever lived are now alive -- New scientific discoveries are being made daily -- Their practical applications are being diffused through society every minute of every hour.

#### A REALISTIC LOOK INTO THE FUTURE

If you are wondering what these references and statistics have to do with this Conference, let me say that my preamble was

purposefully chosen. I am convinced, unequivocally, that the greatest contribution UNIDO and this distinguished group of rubber experts can make is to look realistically into the future. We must be guided by what we see. A clear and hard look brings out two central facts:

1. Our population is exploding. The world soon will enter on a food crisis -- if it has not done so already.
2. Technology is the major force behind the accelerative thrust of the world in which we live. Technology will play a major role in the future of our industry. We can sustain constructive acceleration only if we make the effort necessary to understand the impact on the whole picture that will result from changing the trend of one or several of the elements that control our future destiny.

Like it or not, technology is going to shape the world of the future. In our lifetimes, economists utilizing the accelerative thrust of technology, probably will determine what kind of rubber is used, where, and in what quantities.

But right now, I don't believe we are directing our research efforts (using our expanding technology as defined by Toffler) in a manner which will or can result in optimum use of our resources or to develop new major uses for our rubber!

In the long run, world population needs will determine how we use the arable land of the world as well as the available feed-

stocks. By 1990, every inch of land and sea that can be made to produce food will be used to do so -- or should be. And, from a planning point of view, it may be that the wisest use of land will be to produce foodstuffs because of the greater value it will have in meeting mankind's future needs.

#### OTHER FACTORS INFLUENCING FUTURE TRENDS

Unfortunately, sometimes economic gain and other pressures influence decisions affecting world survival.

Two years ago in Baku, U.S.S.R., I cautioned delegates to the UNIDO Conference on the Development of Petrochemical Industries in Developing Nations. I said, "Hard economic facts must govern decision-making on new plant investment." I warned of the Lorelei-like lure of steel, petrochemicals, atomic energy or synthetic rubber plants and pointed out that however romantic a rubber plant may sound, it is an extremely difficult venture to justify economically.

Within the decade, several emerging nations have collapsed because they were blinded by the lure of heavy or capital intensive industries when they should have been concerned about educating their people, and raising their standard of living. One nation a decade should be an adequate warning - let alone a tragic loss to the world.

However, there are other points of view which may prevail for a decade or so in spite of the economic facts of life.

Carlos E. Dietl, President of PASA Petroquimica Argentina, stated the situation succinctly when he addressed our Institute's Twelfth Annual Meeting in Sydney, Australia, last year. He said, "It is almost political treason in any country to give up the future of the synthetic rubber industry -- even when it is admitted that the price paid for such a privilege results in a disproportionately low return on the investment and, therefore, higher costs."

Mr. Dietl's conclusion is something we should all hear with an open mind:

" . . . under certain conditions, nationalism can be a positive factor for the smaller economies that are looking for independence, self-sustenance and rapid growth. In these countries, decisions for investments will be made not only by businessmen but, in many cases, by Government and Government entities. Many of them seek other goals, and classic world trade patterns will suffer the consequences."

Mr. Dietl predicted that 10 new synthetic rubber plants would be built in developing countries between now and 1980, and that their total production would exceed demand by 25 to 50 percent of the total international trade in synthetic rubber."

The presence of an additional quarter of a million tons of government subsidized synthetic rubber and an addition 2 billion people needing food is something to keep in mind when investing land today towards an economic return which will not be realized

until seven years in the future, as usually is the case in a rubber plantation.

### POLITICAL DECISIONS -- THE BASIS FOR ABNORMAL SITUATIONS

Political decisions often affect competitive situations or the pattern of rubber consumption. Many countries protect their domestic industry with tariffs. For example, Brazil, a producer of natural rubber, has a high protective tariff on natural rubber imports. Ironically, domestic production only accounts for a fraction of Brazil's needs. Thus, with the tariff high, there is a natural tendency for Brazil to use more synthetic than natural rubber and the tariff created to protect locally produced natural rubber actually fosters use of locally produced synthetic.

Argentina is a reverse situation. Tires were made there before synthetic rubber plants were established. The tire manufacturers early established a climate wherein imported natural rubber is virtually duty free.

The results of these two logical governmental decisions is something of an anomaly. In Brazil which produces natural, the relation of SBR usage to natural is the highest in South America. It approaches the ratio of the United States. In Argentina, the same ratio is one of the lowest.

### NEW POLITICAL ALIGNMENTS CAN AFFECT WORLD TRADE

Closely related to the issue of protective tariffs is the issue of political alignments which can, and do, affect world

trade. Both natural and synthetic rubber are significant products in international trade. Most natural rubber is shipped to its place of usage and a growing percentage of synthetic is exported to another consuming country.

Only 16 of the non-Socialist countries produce synthetic rubber. Every country consumes some rubber. Many large producers ship to their affiliates in other countries as they have excess capacity and are eager to make these export sales. Indeed, rubber salesmen or brokers represent most producers in most of the world's nations.

As European producers came on-stream, they developed concern with the amounts of synthetic rubber exported from the United States to Europe. More recently, the weight of this concern has been with imports from Japan.

By contrast, until recently, very little synthetic rubber was imported by the United States. Today, a substantial amount of rubber is imported from Canada, Europe and Japan and the balance shifts. As could be expected, both the United States and European producers now are concerned with threatened competitors from abroad. The newest producers to enter the export market are the Socialist countries which have begun shipping rubber into the European countries.

The results of these changing production capacities are normal. Many countries which produce synthetic rubber have established tariffs to protect their own industry or to prevent or

seriously curtail such imports.

Three events of the past year may have a noticeable effect on future world trade in synthetic rubber. These were:

(1) ENTRY OF THE U.K. TO THE COMMON MARKET

In theory, this will result in a freer flow of goods and more trade between the U.K. and the Continent. Most producers are anxious for indications of the full impact of this event on the rubber industry.

(2) ENTRY OF THE PEOPLES REPUBLIC OF CHINA TO THE UNITED NATIONS

China represents a vast potential market for many products - including rubber.

With China now in the UN and opening diplomatic relations worldwide, many people believe that there will be a freer flow of goods and information in and out of China. The world cannot keep its eyes closed to the existence of 700 million people. We have no reason to believe China is a major producer of synthetic rubber. As their gates open wider and the technological thrust is felt, new markets should develop - and eventually - unless we follow the guidelines of a "Blueprint for Survival" -- the world market may have to absorb excess rubber production from China.

(3) WORLD RELATIONS WITH ALL SOCIALIST COUNTRIES

There is evidence that relations between the Socialist and Capitalist nations are improving. Should these conditions continue to improve, and we all hope they do, new markets and several major synthetic rubber producers will contribute to the change in world



trade patterns for synthetic rubber.

These three realignments in political relationship probably will require a major re-evaluation of future world trade patterns in both natural and synthetic rubber. The magnitude of change remains to be seen and depends on many factors.

The big question for the near future is whether the world can or will afford wars -- or peace! If peace prevails, we may expect more trade between countries.

While speaking of world relations with Socialist countries, let me comment that it always disturbs me to read a presumably authoritative document on the world rubber situation and suddenly be confronted with a note which says, "Excluding Eastern Europe and China." A lack of production, consumption, import and export rubber data for one-third of the world population makes any economic programming virtually pre-doomed to failure !

Gentlemen, if our industry is to prosper -- if we are to fit into the balance for survival -- the world needs data from all rubber producing and consuming countries -- including the Socialist States.

Such selfishness is difficult to comprehend unless it is embarrassment, and certainly it need not be. I implore UNIDO and each of the countries represented here to use their good offices in persuading our good friends from Socialist countries of the importance of sharing with the rest of the world.

DEVELOPMENT OF NEW USES FOR RUBBER

Another factor which will affect our industry's future is efforts - individually and collectively - to develop new uses for rubber. We all know that an increase in demand would solve a major over-supply situation in both sectors of the industry at this moment. There are many doors open to us in the new use field.

Consider the world's growing concern for environment control -- a factor closely related to our population explosion and the rapid advances in technology. Cleaning up the environment will require enormous ingenuity, a lot of fresh thinking, the abolishment of some traditional solutions, and vast sums of money. On the other hand, this concern opens the vista on new markets for rubber.

Rubber can solve many ecological problems. Today, the total use in environmental protection and related fields is relatively small compared with automobile tires. It could become significant IF world banks, UNIDO and both sectors of the industry worked to develop new uses to benefit mankind rather than looked for means to increase sales to benefit one sector alone or to benefit one producer or one country.

In the related area of Ecology, consider rubber as a means for soil stabilization in construction, irrigation and in the prevention of soil erosion. The know-how has been developed. The results are startling, but generally ignored.

The same soil conservation techniques are effective for dust control in mines, and for controlling dust and erosion on highway shoulders.

The extent of application and consumption in Ecological fields is limited only by the amount of public or political pressures brought to bear to provide protection, prevent pollution and to implement a plan for survival that conserves and utilizes all land for the most constructive purposes.

Rubber could be used in multiple dwellings and high-rise constructions for dampening noise. They will be needed as our population density becomes greater.

Railroad beds will last longer and give a smoother and quieter ride if sprayed with rubber emulsion. In a noise and cost aware world, the door to the marketplace is open and hearty competition between sectors of the industry well could create new processes, a bigger market and a better world for everyone.

We haven't time to enumerate the tried and untried but practical and workable solutions to numerous pollution control problems. The main point I wish to emphasize is that rubber -- synthetic and natural -- can help solve environmental problems in many areas, and each solution becomes another use for our product. This area is worth a much more intensive study than it has been given thus far. For those afraid of competition, I suggest that research funds allocated toward developing environmental-oriented uses for rubber would represent a sound investment in the future

and in the survival of both sectors of our industry.

I have stressed that one of the factors which will affect competition, as well as a production-consumption balance in our industry, is the development of new uses for rubber. All existing forecasts are based upon end-use patterns which currently exist. They could be drastically affected if a major new market for rubber were developed. One such market may develop before too long. It is the addition of rubber to asphalt paving mixes.

Not all of the questions have been answered, but it looks as if a potential new use is close to realization.

Our Institute's research in the area is providing much valuable data. I believe it is an example of the kind of new-use research which can return direct benefits to the industry. Such research should be undertaken widely. It is the kind of investment that creates sales of all rubber and gives a welcome return on investment.

Most publicly disclosed research in natural and synthetic rubber is in the area of product and production improvement. It is research that is oriented to our historic markets - particularly the tire market.

It is high time we take off the tire market blinders and look left, right, up and down, seeking out new markets for rubber. This industry must diversify itself. It should increase its research expenditure and put at least half of its total research and development effort into solving problems that are not automomo-

bile oriented.

### OTHER FACTORS AFFECTING FUTURE

There are those in this room who will live to see a complete technological audit of the world's resources and technologies. I predict that before the turn of the century, the United Nations or a comparable body will have as its great responsibility the orderly cataloguing of our world's resources (in computer banks, of course.) The same computer bank will contain summarizations of our skills, of capital investments, food requirements, population trends and a multitude of other information. The thinkers and planners will play one factor against the other within the computer banks and determine how and when to utilize resources.

The concept may be mind-staggering and frightening, but it may well be the only means by which mankind can determine the impact of a "trade-off" or change in the trend of one or several events or elements among the many which interplay to determine our long-range future. So many elements play one against the other in our today and tomorrow that it is only by the use of vast computers that the impact of altering all or even a major number of elements can be determined in time to make a sound and constructive decision.

When that happens, gentlemen, it will affect us all. The computer may determine that for optimum use of resources, natural rubber should not be shipped 12,000 miles. The fuel to drive the

ship, the steel to make it, the men to sail it -- all can be put to better use elsewhere. The computer may determine that the land on which rubber trees grow should be used for food or palm oil or housing. The computer may determine that the crude oils we have should be used for something other than the manufacture of synthetic rubber.

Any decision is possible and we aren't in a position to scoff today because few of us are capable of the analysis that would be required to challenge this statement even as few of us have the mechanical objectivity to evaluate the long-range impact of the decisions we take today regarding our industry.

#### DECISIONS WILL DECIDE FUTURE

I opened my remarks with references to the "Blueprint for Survival" and Future Shock. I stated that a realistic look into the future should guide our actions and our decisions.

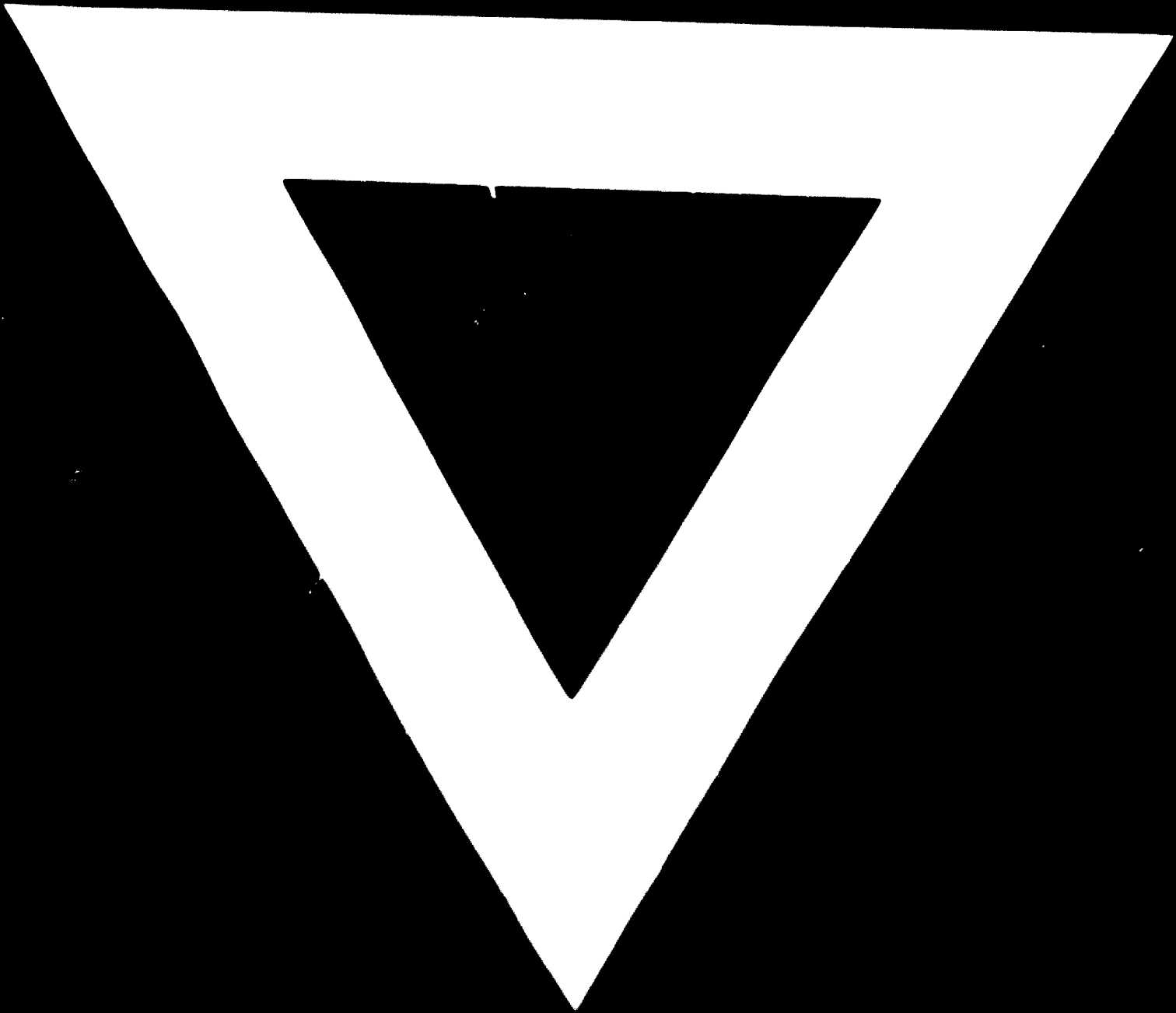
We cannot ignore the population explosion if we and our children are to survive. We cannot afford to bury our heads, ostrich-like, and ignore the role technology will play in providing momentum.

If the answers and decisions we develop to utilize our planet effectively happen to be in opposition to political positions, in opposition to the human desire for economic gain or self-aggrandizement, in opposition to horse and buggy thinking, then we face the central issue of all. Either we effect real

change now -- we reappraise our thinking -- or we admit that any thinking or planning for the future -- any examination of factors which will affect the future -- is a farce because the overwhelming odds are that there will be no 21st Century -- either for our industry -- or for mankind as we know it today.

I hope there are enough who are sufficiently strong to make the right decisions and take the right actions so we may have a future.





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