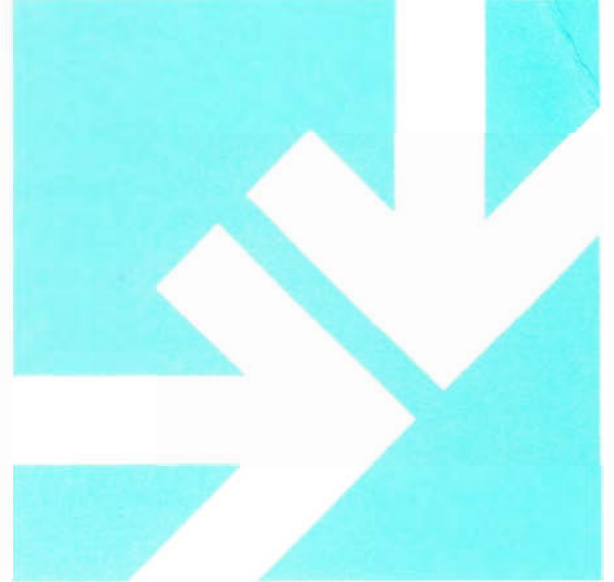


# JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION



*An evangelical perspective on science and the Christian faith*

**POPULATION**  
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*"The fear of the Lord is the beginning of Wisdom."*

Psalms 111:10

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# JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

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## A SIX-LETTER OBSCENITY

LARRY WARD

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*"He who shuts his ears to the cries of the poor will be ignored in  
his own time of need" (Proverbs 21:13).*

It's an ugly, six-letter word.

It is, in fact, *a six-letter obscenity*.

Let me give you the background of that statement.

Lenny Bruce, the "sick" comedian, once ventured this acid indictment: "I know in my heart, by pure logic, that any man who claims to be a leader of the Church is a hustler if he has two suits in a world in which most people have none."

In his very remarkable book, *Include Me Out*, Colin Morris reacts to Bruce's statement with these words: "Anyone in the house care to argue? We can comfort ourselves, if we will, with the knowledge that Bruce was banned from every public place of entertainment in the United States for obscenity and died virtually penniless. Does that reinforce our sense of virtue," asks Morris, "or can we see that what he was describing is a far greater obscenity than all the filth that poured from his mouth?"

And British missionary Morris, whose book grew out of one single transforming experience—when a Zambian dropped dead of hunger just outside his front door—adds these words:

Obscenity is a strong word, but I know no other so apt. Obscenity is the jewelled ring on a bishop's finger. It is the flash of my gold wristwatch from under the sleeve of my cassock as I throw dirt on the coffin

of a man who died from starvation, murmuring, the while, the most asinine words in the English language —'Since it has pleased almighty God to take to himself our brother.'

We'll take a long look at that book by Colin Morris a little later. For the moment let's just examine the kind of obscenity he is talking about.

We have already noted this one tremendous basic: that whereas it has taken all the years of time past to bring us to our present world population total—all the centuries which have rolled by—in a few short years this world will double.

Somewhere around 2004, this already hungry planet of ours will have twice as many people on it as we have right now.

Dr. Albert Sabin, developer of the polio vaccine which bears his name, made this statement as quoted in the *Toronto Star-News*:

If changes are not made now, by the year 2,000 there is doubt as to whether we will survive. By that time there will be 700,000 million peoples in the world and 500,000 of them will be starving, uneducated and totally desperate.

What Dr. Sabin is remembering is that most of the population increase in this burgeoning world of ours is

going to come in the underdeveloped (or as we are supposed to put it somewhat more euphemistically, the "developing") areas of our world, where hunger is already a present-tense reality. As Colin Morris puts it, again in *Include Me Out*: "In the next twenty-five years, the population of the world will double, and for every bonny, healthy child born on our side of the barricade, ninety-nine skinny ones will pop up on the other side."

True, there are indications that the United States is approaching a birthrate which would *eventually* sustain ZPG (zero population growth). The 1972 birth totals were the lowest since 1945. But the U.S. Census Bureau reminds that this rate would have to be sustained *well into the next century* before ZPG would be sustained.

And this again is not the problem. The tragic fact is that the parts of the world which can least afford it—the already underfed and malnourished developing nations—are the ones which continue to show meteoric rise in population.

It is against this background that the brothers Paddock insist: "There is neither a new agricultural method nor is there a birth-control technique on the horizon which can avert the inevitable famines."

Rear Admiral Lewis L. Strauss, former advisor to five American presidents and previously the chairman of the Atomic Energy Commission, has stated that his greatest concern for the future is that worldwide population growth will be so steep that the number of mouths to feed will outstrip the food production.

"Then you have starvation," Admiral Straus told the Associated Press service. "This is what is staring us in the face."

Quotes like these can be multiplied, of course, and they will be found in abundance as we hurtle through history to that showdown moment when the world goes to its cupboard and finds it bare.

But what about the present? Admittedly, the quotations above have to do with a period of destiny still ahead of us in point of time. That crisis period grows closer every moment, but perhaps you still find some measure of comfort in the fact that it is still future?

Friend, I have news for you. Startling news. Bad news. The *times of the famines* are here. Now.

I doubt that this will surprise you too much. Take a look at our daily paper. (I stopped to do that just now, as I write these words, and one of the first items I saw reported was "one of the worst droughts since biblical times," and affecting more than 30 million people in French-speaking West Africa. The item reports that a million people are short of food and "starvation deaths are being reported.")

For years I have read and clipped reports of the increasing pockets of need around the world, and in recent months my concern has deepened as I have seen how those reports have multiplied.

Here are just a few headlines from newspaper reports I have clipped around the world, all recent as these words are written:

"Afghanistan Uses Camels to Save People from Starvation."

"Crisis Threat in Indonesia Rice Shortage" (AP dispatch from Djakarta).

"Food Output to Fall in Developing Nations" (from Rome, quoting a release from the UN's Food and Agricultural Organization, FAO).

"Starving Brazilians Loot Shops for Food" (A Reuters report from Brasilia, which I happened to clip a half-world away in Bangkok, Thailand).

But all those are just words. Translate them into people—flesh and blood people like that woman I saw in the streets of Managua. It was only a few days after the dreadful earthquake had leveled that once great city. The food lines had been set up; supplies were being distributed. But there were just too many people, too many outstretched eager hands.

This woman had come expectantly, holding in her hands a big tin basin she had salvaged from the wreckage of her home. She had stood for a long time in the hot sun, but now the trucks had come and gone and—perhaps two-thirds of those in line—she was left to stand there with her still-empty basin.

She didn't know who I was, but she saw me watching her, and perhaps my face reflected the deep hurt I felt as I shared her despair. "Please, sir," she cried out in a rapid torrent of Spanish, "tell me—what shall I say to my children? They wait for me at home. They are so hungry. They pray that their mother will come home with food for their empty stomachs. *Please—What shall I tell them?*"

A moment later another man confronted me. He was one of the fortunate ones who had received some food, but he held it in his hand and waved it for me to see: a can of beans, a can of corn, a tiny portion of rice. And he held out something else: a snapshot of his thirteen children. "Senor, I am grateful for this food, but what can I do? There is not enough for all. How can I decide who can eat and who cannot?"

And five minutes later, on that same hot morning in Managua, my associates and I bent anxiously over the prostrate form of a young mother. I tried to question her distraught husband, but he just pointed at his mouth and shook his head negatively. Someone else just translated it for me: "His wife has fainted. She is just hungry, so hungry."

A man said, "I have a dream."

I see in it the people I have described above, and I also see that little boy in Haiti. He rubs his distended stomach, and he says it over and over, "Please, Papa. I am so hungry."

I see that woman on an unnamed battlefield in Laos. Over the next hill is the famed "Plain of the Jars," and in the distance the big guns boom. Laos, next door neighbor to Vietnam, has its own "forgotten war"; I am there because I have heard that there are people in the area who have been trapped for long months in the fighting and who have no food. We have just landed in a helicopter, and are wondering what to do. Now over the little hill stumbles the reeling figure of a Laotian woman. She is moaning and crying as she staggers along and then falls to her knees before us.

I cannot understand her, so I turn to the interpreter beside me. "She is—demented. She is not right in the head," he says.

"But what is she saying?"

"Oh, she is saying that she is hungry. She has no food, she has been a long time without food."

Somewhere on a tape cassette I have the moaning cry of that woman. But I don't need the tape to remember it. It is recorded forever on the ears of my heart.

That's what it is all about.  
People—*people*—like these.

And like that little boy in Cambodia. He has been brought to the refugee camp from an area where there has been heavy fighting. For many weeks his area has had no real food. His little arms and legs are pathetically thin. You may not believe this. I do not blame you if you don't. Your world and mine are very different. But I take thumb and forefinger and gently circle that pencil-thin ankle. I move my hand up that skin-and-bones little leg and—still circling it just with thumb and forefinger—I can move my hand freely over his little knee and far up his thigh.

"Doctor," I say to the Cambodian official with me (and I know my voice shakes as I ask the question), "how old is this boy?"

"He is nine. Nine years old."

So I circle a little boy's leg which is really a little baby's leg in my trembling hand—and I ask God to please, please, *please* somehow let me help.

That's what it is all about.

I can't remember who said or wrote the words. But I agree with them: "*Hunger—anywhere—is a disgrace to humanity.*"

Hunger. It's a six-letter word. An ugly, six-letter obscenity.

## RESEARCH ON COMPLEX SOCIETAL PROBLEMS



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### Some Views about the Future of Society

From an overall perspective, it is obvious that there is no general agreement on what the shape of the future will be. It is less obvious, but more important, that there is no adequate understanding of the assumptions that various groups of people make about the shape of the future.

Dr. Philip M. Hauser of the Club of Rome is quoted as saying,

Given the present outlook, only the faithful who believe in miracles from heaven, the optimistic who anticipate superpowers from science, the parochial fortunate who think they can continue to exist on islands of affluence in a sea of world poverty and the naive who anticipate nothing, can look to the future with equanimity.<sup>1</sup>

Dr. Robert Theobald, editor of *Futures Conditional*, says,

One group expects the future to be like the past. Another group spends its time proving that the future will be disastrous. A third group announces that a new future is automatically coming into existence and that it will be far more attractive than our existing local, national and international patterns.

His stance accepts as fully proven that, "fundamental changes in trends are required if this planet is to survive, . . . man's power has made it possible to create a favorable world. . . ." It also assumes that "the creation of this new world is going to require

significantly more imagination and perseverance from man than he has yet shown himself to possess."<sup>2</sup>

Dr. Willis Harman, Director of the Center for the Study of Social Policy at Stanford Research Institute, having made a number of systematic and historical analyses of conditions in the United States, argues that,

Among the future alternatives to be considered is one that comprises a rapid and drastic break with trends of the recent past, characterized essentially by a change in that basic vision of man-in-the-universe in which the operative values of the society have their origins. . . . In this view, contemporary political, military, economic, ecological, and social crises are reflections of an underlying moral and spiritual crisis of civilization, and their resolution depends on the resolution of that deeper crisis.<sup>3</sup>

The first set of views on the global level leaves one uncertain as to whether it is a complete set. If one decides it is, one is left with the question, "Where do I belong?" If one decides it is not, what view seems to be missing? The second categorization asks one to make a similar selection. Neither categorization is adequate for me although elements of both have merit.

As I view the conditions of society and its future, I believe the third scenario which Willis Harman describes. As I see it, Harman's considered view speaks directly to Robert Theobald's stance that "fundamental changes in trends are required if this planet is to survive;" e.g., a most critical trend is the continually increasing gap between the "haves and have-nots,"

both nationally and internationally, to which Hauser alludes. Personally, it is my conviction that what Harman describes as the necessary resolution of "an underlying moral and spiritual crisis of civilization" is a theological issue, one that may even require what might be considered miracles.

My personal conviction notwithstanding, and in the absence of superpowers from science, I recognize that there are significant roles for science and technology to play in helping to cope with present and future complex societal problems. To introduce some vital concepts relevant to such research, I would like to express first some theological beliefs and how they relate to my view of "complexity". First, there are at least two relevant philosophical approaches or cosmic views of the situation. The cosmic view on which the rational-empirical approaches of science are based is one of natural cause and effect of situations in a *closed* system. Another view, which I hold, is one of natural cause and effect of situations in an *open* system with divine interventions. As Francis Schaeffer expresses it:

Putting it into twentieth-century terminology, we can say this: The universe does not display a uniformity of cause and effect in a closed system; God speaks and something changes.<sup>4</sup>

With such a cosmic view, I am neither optimistic nor pessimistic about the future; I remain hopeful because of my Christian faith, not because of the "superpowers of science" or "man's power . . . to create a favorable world." In fact, I am concerned that man's diagnosis of his situation as he seeks to create a favorable world is inadequate. Francis Schaeffer, in speaking of the moral and spiritual crisis of civilization, expresses this mutual concern:

If man attributes a wrong cause to the dilemma and divisions of men, he will never come up with the right answer no matter how good a will he has. Man as he stands since the Fall is not normal, and consequently the solution must be appropriate to what we know to be the cause of his problems and his dilemma. A mere physical solution is inadequate, because man's dilemma is not physical. Nor can it be metaphysical, because the problem of man, as we know it in Genesis 1-11, is not primarily metaphysical. The problem of man is moral, for by choice he stands in rebellion against God. And any appropriate solution must fill this moral need.<sup>5</sup>

For my credo about man's condition and the future of society, I hold the views discussed in this section, recognizing a dependence upon God and the interdependence of man. In such a hopeful spirit, I can be open to the possibilities of human potential and devote my efforts to its growth. Expressed in the words of Paul Gertmenian, I believe that:

If I were forced to choose between these two views [pessimism or affirmation of possibilities] as alternative ways of looking at human potential, I would support a view which affirmed human potential. . . . But it is not necessary to choose between these two views as though they were alternative ways of looking at life. The church's teaching on original sin and the dimension of sin in all human actions is not meant to be a counterbalance to that spirit which affirms human potential. Rather, it is a realistic assessment of the human situation which prevents us from mythologizing life. In terms of human potential, it is not meant to restrict creativity and spontaneity or imagination, but to remind us that with the realization of every new human potential comes also the possibility of subverting what has been realized—to an end which rather than enhancing life,

can destroy or distort it.

This kind of realism prevents us from putting our hope in illusions. For example, the notion that the young will somehow miraculously solve the problems that the older generation has failed to solve is one such illusion. Or the belief that changing structures of institutions or even abolishing institutions will solve the human problem is another. What the doctrine of original sin insists upon is that whatever the human configuration may be, there will be a need to struggle against distortions, that there is no unmixed triumph of good over evil, and that those who believe in an unmixed good are living in a world of self-deception.<sup>6</sup>

Hopefully, the above discussions have presented some comprehension of where I come from. In addition, they seek to add two factors in my cosmic view of the universe—an open system with divine interventions and a statement of man's condition—to my view of the complexity of societal problems.

Realizing well that my personal views cannot and ought not to be imposed on others, I ask what are some views that can be commonly shared? John Gardner, speaking about moral decay and renewal, suggests some:

In a pluralistic society the consensus must necessarily be at what one might call a middle level of values. Obviously it cannot deal with the surface trivialities of manners and daily customs; neither can it sound the depths. It can deal with fairly fundamental values governing man's behavior and with concepts such as freedom and justice. But those values float over still deeper reaches of philosophic and religious beliefs. They gain their strength from man's deepest views concerning his own nature. When we reach these depths, however, we are in the presence of matters which concern the individual so profoundly that he must not be asked to compromise them.

To force consensus in the depths of belief would be intolerable. To remain preoccupied with the whitecaps on the surface would be meaningless. So a pluralistic society wisely seeks to establish its consensus in the middle depths.

At that level, in our own case, one finds the ideals of freedom, equality of opportunity, the conception of the worth and dignity of the individual, the idea of justice, the dream of brotherhood. The fact that we are not always faithful to these shared values does not indicate confusion nor a failure of the consensus. *We know the values to which we are being unfaithful.* One might ask, "What difference does it make that we agree on our values if we aren't faithful to them?" The answer is that if one is concerned about therapy, it always makes a difference what the patient is suffering from. This society is suffering not from confusion but from infidelity.<sup>7</sup>

### Some Vital Concepts Relevant to Scientific Research on Complex Societal Problems

1. Problems are not problems until perceived as such by experts or populace, and perceptions change with time. The "Issue-Attention Cycle"<sup>8</sup> of many social problems moves through five stages.
  - (a) Pre-problem stage—experts alarmed.
  - (b) Alarmed discovery and euphoric enthusiasm—public jolted.
  - (c) Realization of the cost of significant progress—"Most pressing social problems involve either deliberate or unconscious exploitation of one group by another, or the prevention of one group from enjoying something that others want to keep for themselves . . . . The increasing recognition that a sacrifice is required in order to solve the problem



- constitutes a key part of the third stage."
- (d) Gradual decline of intense public interest—public discouraged.
  - (e) The post-problem stage—prolonged limbo, new problem.
2. Major social problems that pass through the "Issue-Attention Cycle" demonstrate three conditions present.<sup>8</sup>
    - (a) The majority of people are not suffering from the problem as much as some minority (usually less than 15% of the entire population).
    - (b) The sufferings caused by the problem are a result of social arrangements that provide significant benefits to a majority or a powerful minority of the population.
    - (c) The problem has no intrinsically exciting qualities which remain.
  3. Mass media play a major role in problem perceptions and subsequent impact, frequently without depth of consideration. Potentially, mass media can be an inherent part of ameliorations of societal problems, appropriately informed and utilized.
  4. Social theories abound, differing on various perceptions and value systems. Value-free applied social science research is not possible. There is a need to develop and apply the discipline of "social humanities."<sup>9</sup>
  5. "Solutions" to societal problems, if they ever exist, do not remain long. The processes of both research and change are important.
  6. "Solutions" to societal problems are not necessarily transferable. Even at one location robust, not optimum, "solutions" are necessary to accommodate various interest groups.
  7. Public participation (at least representative if not popular) is vital for real acceptance of societal problem ameliorative programs or experiments. Adequate means for public participation do not now exist; future use of Cable TV is one opportunity which needs to be addressed by the research community. (Implicit in this view is that we assume a free society.)
  8. Development of methods (e.g., simulation gaming) for recognizing and minimizing conflicts—cognitive differences as well as ideological differences—between individuals and groups is worthy of scientific effort, even if complete resolution may be out of reach. Rappoport and Summers address this issue (albeit over-confidently, I believe) as follows:

Heretofore, it has been customary to attribute the generally dismal state of international relations to ineradicable defects in the character of man—his malicious greed, his thirst for power, all clearly found in the character of the Other and equally clearly disavowed by the Self. This view, which has led to one disaster after another, can be replaced by a more scientific one. Instead of the denigration of one man by another, or the endless pleading and wringing of hands, it is now possible for science to develop a technology that can remove the ambiguities of traditional discourse and clarify cognition in ways never before open to us.<sup>10</sup>

Final resolution comes through the political process, hopefully with altruistic and enlightened leaders having adequate information supplied, in part, through use of scientific research methods by knowledgeable people.

9. Capable and sensitive leadership of research teams is necessary for successful research on societal problems. A relevant insight was expressed by Keith Miller, a former industrial executive, a psychologist and theologian, as he wrote about Maslow's hierarchy of man's needs:

Any prophet who hopes to be effective in dealing with the social structures of our time has got to be aware of the personal sense of isolation and the needs for love and esteem which motivate the people in those structures . . . including himself.<sup>11</sup>

This insight is valid for relationships within the research teams, too.

10. Complexity is evident in all of a class of problems (e.g., societal problems, technology assessment, planning and forecasting) and is increased by the considerations presented in the initial discussion section. In order to supplement intuitive judgments with understanding from scientific research, many simplifying assumptions must be made. Even so, our abilities are limited in applying logical reasoning to complex issues, and communicating this reasoning fully to others.

## Conclusions

As I have studied and thought about research on complex societal problems, I have realized that almost any view of the causes and solutions of societal problems can be found discussed in the literature, duly cited with references to other erudite literature. The views one accepts are dependent significantly on one's perceptions of oneself, others and society, holistically, in the light of a personal philosophy of life. In stating my *personal* credo above, I have elected to include selected quotations from statements made by numerous writers; this was done not to try to "prove" my credo but to illuminate it through interesting articulations of others.

Consistent with these personal beliefs, and some implied values, expressed in the above discussions, I also believe that amelioration of many societal problems can and should be aided through use of scientific approaches and knowledge and resources, and that worthwhile changes can be accomplished through people working cooperatively and openly together even though some of their fundamental beliefs and values differ, but that resolution of an underlying moral and spiritual crisis of civilization is not amenable to scientific (or educational) treatment.

The challenge before scientists, who are also committed Christians, is to apply ourselves wholeheartedly to the tasks to which we are called with intelligence and integrity. As we do so, we need to recognize the potential of scientific research for making significant and worthwhile contributions to the amelioration of some of humankind's critical problems. However, we also need to consider thoughtfully the internal consistency of the presuppositions on which our colleagues and we base our research efforts and acknowledge the limitations of science.

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## Sociobiology and Population Problems: Perspectives\*



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### A Time of Crisis

We are living in a time of population crisis. The human population is growing too rapidly for the well being of mankind. The pressures of population increase are basic to the problems of pollution and deterioration of the natural environment and in my opinion any program to correct the latter while ignoring the former is doomed to failure. The present growth of the world's human population is 2% per annum. This may not seem like much, but it is clearly alarming when one considers that such a growth rate from the time of Christ would have resulted in a current population of over 20 million individuals in place of each person now living and 100 individuals for each square foot of earth's surface.<sup>1</sup>

Every species of animal has an inherent maximum ability to increase in numbers referred to as its *biotic potential*. Increase at a rate equal to or even less than the biotic potential can reach fantastic proportions. For example, it has been calculated that bacteria reproducing every 20 minutes, with 100% survival, would in 36 hours produce a layer one foot deep over the entire earth. Within the next hour of such continued growth, we would be literally "over our heads" in bacteria. Given a few thousand years, any species of plant or animal growing exponentially, or at the compound interest rate, would weigh as much as the visible universe and be expanding outward at the speed of light<sup>2, 3</sup>.

When one realizes the tremendous power of popu-

lation increase and the fearsome consequences of continued unchecked growth, the need for basic information on the dynamics of populations becomes evident. The desire to understand what makes populations "tick" motivated the research of many workers in the field of *Animal Ecology* long before the popular realization of this population "information gap". Interest centered on the Norway Lemming, the Varying Hare, the Arctic Fox, the Snowy Owl, and voles of various species because of the great fluctuations known to occur in their population numbers. The Norway Lemming, for example, is not only firmly established in the folklore of the region, but has also gained worldwide notoriety because every 3 to 4 years its populations increase to tremendous numbers following which they may move over the countryside like a tidal wave in a mass emigration consuming the crops in their path and being followed and preyed upon by hawks, cats, dogs and other predators. The survivors of these marches upon reaching the sea, plunge into the water and swim until they become exhausted and drown. Charles Elton<sup>4</sup> in his book "Voles, Mice and Lemmings" presents documentary evidence that in November, 1868, a steamer traveling up the Trondheim Fjord, took fifteen minutes to pass through a shoal of swimming lemmings.

Evidence of the concern these wildly growing populations brought to the human inhabitants of the area is shown by the following prayer the clergy pronounced against them:

I exercise you, pestiferous worms, mice, birds, or locusts, or other animals, by God the father, that you depart immediately from these fields or vineyards, or

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waters and dwell in them no longer, but go away to those places in which you can harm no person; and on the part of Almighty God, cursing you withersoever you shall go, daily wasting away and decreasing, till no remains of you are found in any place; which may he vouchsafe to do, who shall come to judge the living and the dead, and the world by fire. Amen.<sup>4</sup>

The notorious fluctuators mentioned above draw attention to themselves and as such misrepresent the facts with respect to population phenomena. Generally speaking, species of animals do not increase to abundances which are excessive for their habitats, and consequently reflect controlling influences. The populations of most species are regulated prior to levels which would be suicidal for them and at which mass starvation or mass mortality from other causes may occur. The mechanisms of regulation vary but three basic forces have been shown to influence population size. These forces are (1) natality (births) the force for increase, (2) mortality (deaths) the force for decrease and (3) movements (immigration—in, or emigration—out). While it is clearly evident that these three major forces influence populations, factors governing their actions are not so evident. For example, predation, disease, and starvation obviously result in removal of individuals from populations. Data are accumulating, however, implicating influences developed intrinsically in each population which may change the vulnerability of individuals to mortality factors or may act to control growth via other means.

#### Experimental Studies of Population Dynamics

For the past several years, we have been studying the characteristics of growth and control in laboratory populations of Prairie Deermice (*Peromyscus maniculatus bairdii*). This is a small brown mouse, many species of which occur across North America. The data

*In research on mice, control of growth in all populations was achieved either by cessation of reproduction or by failure of the young to survive.*

available from natural population studies of this mouse indicate that outbreaks rarely occur and that populations are regulated within a rather narrow range of variability. Deermice thus appear to be sensitive to factors regulating population growth and, as such, seem an appropriate species for studies of population regulation.

After selection of the species, we approached the problem first by attempting to record the characteristics of deermouse population growth *per se* in the laboratory. We placed four pairs of mice in each of several circular pens, enclosing 20 square feet of floor space, covered with a layer of wood shavings. Eight nest boxes were arranged in a circular pattern in each pen and food and water were available *in excess* at all times (Figure 1). Alternating 12 hours periods of bright and dim light were programmed for each enclosure. Each population was inspected at regular intervals and birth, pregnancies, and the spatial distribution of individuals were recorded.

Under the conditions mentioned above, one might expect an "explosion" of population growth, particularly since pairs of deermice housed in individual cages can produce a litter of from five to eight young every 25 days and protection from predation, disease and environmental fluctuation was provided. Such uncontrolled population growth did not occur, however. Rather, while it took each population a variable period of time to control its growth, such control was clearly



Figure 1, A population enclosure showing nest and part of a food hoard (lower right). Food was added in the hopper under the water bottle.

and distinctly achieved.

Not only was growth control distinct, but once achieved, it was of long duration. We do not know how long such a complete shut down of population growth would continue since we have not routinely maintained any populations more than 300 days following cessation of growth. However, our present information indicates that it is extremely rare for young to be born or to survive in a population during this time period.

Another very interesting finding from these studies is that although the populations were maintained under identical conditions, the number of animals present in each when growth was curtailed varied widely. Some populations stopped growing at less than 10 animals while others grew to more than 60! Clearly, those factors determining population control were not influenced directly by numbers *per se*.

In spite of the wide variations in numerical levels when population growth was controlled, certain measurements revealed similarities between populations.

*Control of growth in all populations was achieved by either cessation of reproduction (most frequent) or by failure of the young to survive.* Mortality of young was typically due to either abandonment by their mothers or to excess "care". Reproductive females frequently interfered with each other in the care of young and occasionally, two or more females would attempt to retrieve or carry young in their mouths to different nest boxes. This resulted in continual moving of young and during the process more than one female might grasp the *same* young and attempt to carry it to different nest boxes! Such handling eventually resulted in the death of the young following which they were usually consumed.

The reproductive attributes of the animals were also similar between populations. For instance, an average of only two females produced young even though each population averaged 6 or more times that many. Even more interesting, only 5–15% of the females born into the populations and living longer than 100 days produced young. This phenomenon is particularly intriguing since mice maintained as mated pairs in single cages may have young prior to 60 days of age. Thus, something about living in a population which is controlling its growth inhibited reproductive function in 85–95% of the females and did so irrespective of the number of mice present when each population stopped growing! Such inhibitory influences were also evidenced by the reproductive organs of both males and females. Table 1 gives the average weights of the reproductive organs of mice born into populations and reaching at least 100 days of age compared to mice of similar age reared in pairs from weaning in a cage

separated from the populations. None of the females used in this analysis had ever had young. The reproductive organs (ovaries, uteri, testes and vesicular glands) of mice reared in bisexual pairs averaged 3 or four times as large as those of population animals.

What is the reason for these severe inhibitory effects related to reproduction? Why do populations stop growing? Is one response the result of the other or are unknown influences responsible for both? We are not sure of the answers to these questions but we do have some information suggesting at least a partial answer. Our logic is as follows: Growth of our experimental populations was controlled at markedly different numerical levels under identical conditions of the physical environment while food and water were available in surplus. Since similar population, reproductive and other physiological characteristics were exhibited between populations, control of growth must be related to behavioral influences developed intrinsically in each population.

At the present time we have no clear information as to what these behavioral factors are which stimulate population regulation. Social behavior would seem to be of importance. A logical assumption might be that aggressive behavior might be directly involved. However, our data indicate that very little overt aggressive behavior takes place in the populations and that which does occur is expressed toward only a few individuals. Other behaviors have been noted, however. Two are most obvious and, perhaps, indicative of changes in the populations related to growth. These are the development of food hoarding behavior and the crowding together of large numbers of animals.

Food hoarding is the removal of food pellets by the mice from the central hopper where they are normally added. These pellets are transferred or "hoarded" to some location within the enclosure. An adult female (usually one of the females used in founding the population) typically initiates hoarding behavior although a few other mice may eventually participate. The hoard is not defended and other members of the population are permitted to eat the food as long as they remain at the site of the hoard. If, however, food is removed from the hoard to be eaten elsewhere, the mouse so doing is immediately chased by one of the hoarders, the food taken away and returned to the hoard. If, during this process, the chased mouse returns to the hoard with the food, there is no further interference from the hoarder-guardian and the food may be consumed at the site of the hoard. Hoarding and maintenance of the hoard appears to be an attempt to structure or organize the physical environment and individuals of the population in accordance with a pattern determined by the hoarders.

TABLE I  
Comparisons of the weights (mg) of the reproductive organs of population and control mice<sup>5</sup>

Organ	Control (Mean $\pm$ SE)	Population (Mean $\pm$ SE)	Comparison P
Ovaries (Paired)	7.01 $\pm$ .62	2.04 $\pm$ .25	< .005
Uterus	25.14 $\pm$ 2.49	6.09 $\pm$ 1.13	< .001
Testes (Paired)	202.24 $\pm$ 6.45	69.98 $\pm$ 20.22	< .001
Vesicular Glands (Paired)	151.89 $\pm$ 10.06	27.59 $\pm$ 14.87	< .001

SE=Standard Error of the Mean

P=Probability of Calculated "t" value

In approximately 95% of the populations, such behavior preceded cessation of growth. We are continuing to study this behavior to see if it is causal or merely symptomatic of those forces bringing about cessation of population growth.

"Huddling" is another of the behaviors observed. As each population grew, the animals began to aggregate in one or two locations within the enclosure. Such behavior began at variable time intervals prior to cessation of growth and in some populations, 95% of the mice combined in one aggregate! Huddling appears to be an attempt on the part of the mice to lose individuality. The animals involved spent most of the time sitting and sleeping and occasionally leave briefly to eat or drink. The "huddlers" are frequently walked over by other "active" members of the population who on occasion have been observed to rake shavings over the huddle! At the moment, we do not know what relationship aggregation behavior has to population regulation. It may be a result of altered physiological or hormonal factors or, indeed, may be involved in the production of such alterations.

The above information has been obtained from studies of populations as they grew from a few founding animals to the time at which growth was controlled. With this background of information on population growth available, we have begun an approach utilizing experimental manipulation to understand more clearly the phenomena described. Two of these experiments have produced exciting results which are pertinent to this discussion.

Given the evidence that inhibition of reproductive maturation and function is related to population growth, a logical consideration is whether or not such inhibition is permanent. Our data indicated that if the animals remained within the populations, they would remain reproductively nonfunctional. We, therefore, removed inhibited males and females from their populations and paired them with fertile mates. Other, nonreproductive inales and females were paired with similar animals from a *different* population.

Twenty-five percent of the population animals paired with fertile mates produced young within 30 days and 75% became parents within approximately 90 days following pairing. None of the males and females paired from different populations reproduced within 30 days and it was not until 180 days subsequent to pairing that 75% reproduced.

This experiment indicated that most mice could become reproductive if removed from the population and paired with fertile mates. A period of physiological and behavioral adjustment following removal from the populations appears to be necessary prior to reproduction and this may be likened to a delayed puberty. Further this reproductive reorganization which occurs following pairing apparently is dependent upon some kind of mutual stimulation among the paired animals. This is shown by the fact that none of the pairs in which *both* the male and female were from populations reproduced within 30 days. Further, the time required for reproduction by 75% of these pairs approximated twice as long as that required by population animals paired with fertile mates. Thus, animals from different populations who were paired with each other lacked the reproductive "mistique" in their relationships as evidenced by population animals paired with fertile mates! The results of this experiment

*If the present growth rate continues, in 30 or 40 years, one out of every 10 persons ever born will be living at that time!*

demonstrated once again the influence of the population in the prevention of reproduction by animals which were capable of reproducing once removed from the population situation. It is also worth remembering that these inhibitory influences were operative in the presence of surplus food and water.

A second group of very interesting results was obtained from an experiment designed to inquire into the mechanisms of communication which must be occurring in the populations. Communication by olfactory cues seemed a logical mechanism to examine because many animals depend to a great extent on the sense of smell to sample the environment and many release chemical messengers called "pheromones". I decided to test the possibility that pheromones released by animals in our experimental populations might be responsible for the inhibition of reproductive maturation and function observed. In order to do this, we paired 21-day-old male and female mice and kept them until they were 100 days of age on each of the following types of bedding: (a) shavings soiled by populations at asymptote, (b) shavings soiled by reproducing bisexual pairs, and (c) shavings unsoiled by mice. The shavings were changed once per week. Records were kept of the numbers of pairs in each treatment which reproduced and, following sacrifice, the reproductive organs were weighed and compared. The results were startling! Deermice reared on shavings soiled by populations had a higher reproductive rate and generally *larger* reproductive organs than those maintained on shavings soiled by isolated bisexual pairs or on clean shavings. For example, 70% of the pairs maintained on population shavings produced young by 100 days of age. Only 30% of the pairs reared on clean shavings reproduced by the same age. These results demonstrated that although females and males in the populations were inhibited reproductively, there were materials on the shavings of these same populations which stimulated such development and function in animals using those shavings as bedding outside of the population. These data further emphasize the inhibiting influence of the population environment even in the presence of such materials since less than 15% of the females and males *in* the populations reach sexual maturity.

What does all this mean? Does it fit together and if so—how? A summary of the "state" of the science may help to point the way to the answers to some of these questions.

The information obtained thus far from experimental laboratory studies of several species is that populations do not continue to increase indefinitely even though provided with excess food and water. Populations of small mammals as well as of most other forms characteristically grow in a manner described by the logistic curve with growth beginning slowly, rapidly increasing and eventually slowing markedly or completely ceasing (Figure 2). This leveling off of the population growth curve is referred to as the population asymptote. An understanding of the mech-

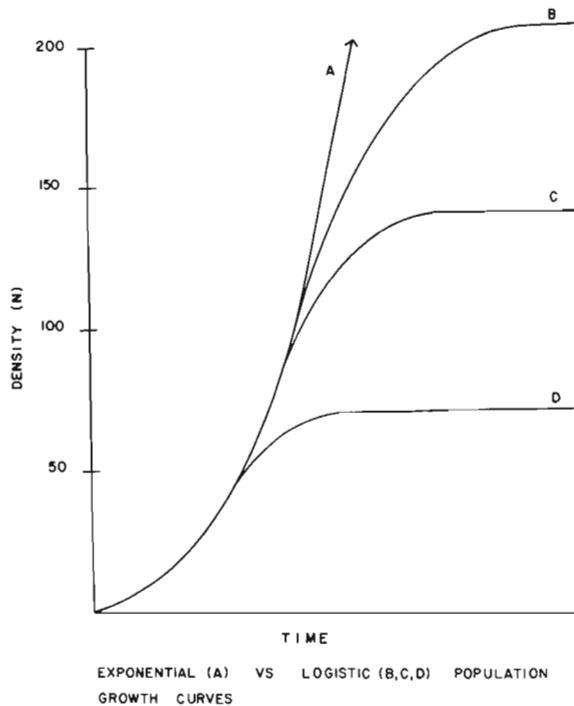


Figure 2. Theoretical curves of population growth. Modified from Milne<sup>6</sup>.

animals by which population growth is controlled is far from complete. There are, however, certain additional characteristics of populations at asymptote which are noteworthy in this respect. The first such characteristic is that the numbers of animals present when growth is controlled varies widely between populations even though conditions of the physical environment are maintained as nearly identical as possible. A second characteristic related to the first is that in spite of the marked differences in numerical levels when growth is controlled, the physiological alterations appear to be similar between populations. For example, the weights of the adrenal glands and spleens of animals from asymptotic populations tend to be larger and the eosinophil numbers and weight and activity of reproductive organs are less than for isolated pair controls. These data, therefore, suggest that those factors which control the growth of populations may produce physiological effects directly related to the approach of a population to asymptote and *not* to the numbers of animals present *per se*. Thus, density is relative to social factors and we must think of the numbers of animals in a population in a qualitative as well as in a quantitative sense. Mechanisms of control thus appear to be related to a kind of "social pressure" developing intrinsically in each population which may be communicated through one or more of the senses of touch, smell, sight, hearing and taste. These stimuli are received in the brain and interpreted in some way by the ventral part of the brain (the hypothalamus). The hypothalamus is involved in controlling the pituitary gland, the master gland of the endocrine system, which influences the development of reproductive capacity. Normal release of hormones concerned with the maturation of the reproductive organs may be prevented. These are merely theoretical ideas as yet. We are continuing to explore the complete system involved including the behavioral patterns triggering the re-

sponse and the neural and endocrinological mechanisms producing population control.

### Human Population Problems

With this background of what is known about experimental laboratory populations, let us now consider briefly the problems of the human population. Assuming that the first "man" appeared between 1,600,000 and 600,000 years ago, the world population is now in the logarithmic phase of a typical growth curve after a long period of slow increase,—similar in many respects to the theoretical curves of growth of experimental populations (Figure 2). This rapid increase in the human population is largely the result of advances in medical knowledge which have centered attention upon decreasing mortality while doing very little to regulate natality<sup>3</sup>.

To illustrate the rapidity with which the world's population has grown—it took from the beginning of man until 1850 to reach a population of one billion people. By 1930 (80 years later) a population of 2 billion was attained. Thirty years after that (1960) the world's population was 3 billion. By 1975 (15 additional years), four billion people will inhabit this earth. In 1968 we passed the 3.5 billion mark. Some predictions are that shortly after the year 2000 we will have twice as many people on earth as in 1968!

Population growth tends to gain momentum. The time required for the population to double is rapidly decreasing. Once the population reached 1 billion in 1850, doubling to 2 billion took place in 80 years. The next doubling to 4 billion is estimated by 1975, requiring 45 years. At our present rate of growth (2%), doubling is achieved at a 35-37 year rate. From the time of "Adam and Eve" until now, man's population has doubled 31 times. If it doubles 16 more times, there will be 1 square yard for each man, woman, and child on earth<sup>7</sup>.

The following clarifies our present situation and is even more alarming. If there have been almost 77 billion births since the Stone Age, then almost 1 out of every 22 persons born since then is alive today, and if the present growth rate continues, in 30 or 40 years, one out of every 10 person ever born will be living at that time!<sup>8</sup>

The present growth rate will not continue indefinitely and must not continue any longer if we are to avoid disaster from many quarters. The three forces, natality, mortality and movement I mentioned previously as influencing the populations of other organisms, likewise influence the human population. If we hurry, however, we may still have time to regulate the action of these forces as they control our population.

Obviously, movement offers no solution to our population problems. We are all confined together on our "Space Ship Earth" and no practical means of escape are available to us.

This leaves only the forces of natality and mortality to determine our population future.

Factors which may produce sufficient mortality to at least temporarily curb the population growth have been suggested as follows:

1. The possibility of release upon us of some lethal agent in time of war which could kill a high proportion of the population.
2. An outbreak of disease capable of decimating the population.

3. The rapid deterioration of our environment and accumulation of toxic products.
4. Exhaustion of the food supply.

I will not discuss the first 3 of these factors producing population control through increased mortality. They are all effective producers of mortality and the probability of their action increases as population growth continues unchecked.

I wish to discuss briefly the mortality factor which has already begun to take its awful toll and will increase its effective action as time goes on. I speak of the problem of starvation. Present estimates are that at least one-half billion people are undernourished (deficient in calories or slowly starving)<sup>9</sup>. Estimates of the number actually perishing annually from starvation begin at 4 million and go up dependent upon the official definitions of starvation which may conceal the true magnitude of hunger's contribution to the death rate.

Some feel that the battle to feed the world population is now lost and that by 1985 we *will* have world wide famines in which hundreds of millions of people will starve. Merely to maintain the presently inadequate nutrition levels, the food requirements of Asia, Africa and Latin America will conservatively increase by 26% in the 10 year period measured from 1965 to 1975<sup>10</sup>. World food production must double in the period 1965-2000 to stay even. It must triple if nutrition is to be brought up to minimal levels. It is evident that we *must* place top priority on development of dietary supplements, development of high yield, high nutrient content food crops, maximum food production in this country and rapid and effective training in the know how of food production in food-stress areas of the world.

Unfortunately, even with increased attention given to increasing food production in the world, many authorities agree that it is doubtful that sufficient changes can be made fast enough to prevent mass starvation. Further, the need for additional food resources will continue to expand unless something is done about *natality*.

In a report published in 1969 summarizing the findings of the President's Science Advisory Committee on the World Food Supply, the following statement was made:

It was decided that the time period of two decades, namely 1965-1985, would likely be the most critical period of the problem to be experienced. One of two conditions will probably become apparent by the end of this 20 year span in the developing nations with which we are generally concerned. (1) Either the population growth will have been brought under control and a balance will have been developed between the population and the food supply, or (2) some nations, possibly many, will have passed the crest and will be accelerating on a declining grade of malnutrition, economic deterioration, and political instability to the point where no reasonable solution to the problem can be found.<sup>11</sup>

Thus, it is evident that the birth rate must be curbed. This may be achieved voluntarily or involuntarily.

At the present time we have little data suggesting that intrinsic mechanisms of population control may produce sterility in human populations similar to that found in the experimental populations of deer mice. In a sense, the question of whether the human popula-

*We must reach the point through legislative means when the financial and social rewards will cause each couple to limit its family.*

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tion possesses the capability of developing such intrinsic mechanisms of control is only academic because if our experimental data tell us anything with respect to the human population, it is that we *must* regulate before such mechanisms of control operate. The simple reason is that most of us would not wish to live under the conditions which would exist at that time.

The human population should, therefore, be regulated at some level commensurate with the quality of life desired. While each culture may vary as to what is considered the quality of life, all peoples desire freedom from hunger, disease and the opportunity to work out a rewarding future for each individual and his family.

How can we achieve such a regulation of the human population while maintaining as little interference with the freedom of individuals as possible? Of course, this is the area where the scientist speaks only as any other citizen, but possibly with a greater sense of urgency.

The importance of birth control education with emphasis on the principles of population biology at the high school, college and adult education levels, as well as in the home, cannot be exaggerated. A recent study at Cornell University revealed an alarming lack of personal responsibility for the future population situation and a level of ignorance of the biology of sex unexpected on the part of the "educated"<sup>12</sup>. Sixty-five percent of those responding to a questionnaire indicated that they wanted 3 or more children in their families (26% wanted more than 3 children). A re-orientation of social values and attitudes regarding births is urgently needed. We need an individual awareness of the tragedies associated with too many babies and rising social pressure against more than 2 or 3 per family.

We must make available to all, irrespective of marital status, the information and techniques with adequate medical advice to prevent unwanted conception. Recent information supplied by the "Commission of Population Growth and America's Future" indicated that approximately 19% of all births during 1960-65 were unwanted. True, many of these "unwanted" babies became wanted. In my opinion we as Christians and "moral" people do not have the right to withhold birth control information and techniques, which have largely been obtained by public funds, under the assumption that to release such information would encourage immorality or promiscuity. Pregnancy should not be regarded as a punishment. We must think of the post-natal life of the unwanted child—not punishment for the unmarried mother.

Unfortunately, availability of such information and techniques of birth control on a world-wide basis is not enough. Planned parenthood is not population control for the simple reason that too many parents may desire too many children for the good of the population.

We must reach the point through legislative means

(tax rewards, etc.) when the financial and social rewards will cause each couple to limit its family.

To young people, I can only apologize that we of my generation have allowed the population and the abuse of our environment to reach such a sorry state. We urgently need your aid in preserving and making available to all those physical and spiritual requisites which make life more than mere existence. We must succeed or we may be witnesses and contributors to man's inhumane treatment of his fellows on a scale never seen before. We must not reach the condition referred to in a recent speech by Dr. James Bonner, California Institute of Technology, when he stated:

We will, I suspect, begin to regard the starving populations of the underdeveloped nations as a race or species apart, people totally different from us as indeed they will be. 'They are just animals' we will say, 'and a serious reservoir of disease.' The inevitable culmination of the two cultures will be that the one culture (the rich) will devour the other.<sup>11</sup>

What about the U.S. population? The April 1 census has shown our population at 204,765,770. Figures recently published by the Commission of Population Growth, and the American Future show that our population is increasing at the rate of 6,000 per day or over 2,000,000 per year. Our current rate of increase will bring us to 300,000,000 by around the year 2008. While our rate of increase has slowed considerably and has been a cause for optimism in the press and elsewhere, there are at least two additional considerations which cloud such optimism.

The first consideration is that the number of people in the child bearing age is increasing. These are babies from the post war baby boom who have grown up. Even if the average family size drops to a 2 children, and there is no indication that it will, the population will still be increasing by the year 2000.

The second consideration is clearly illustrated in the following taken from the Eli Lilly Company News Letter:

If all the people of the world could be reduced proportionately into a theoretical town of 1,000 people, the picture would look something like this: In this town there would be 60 Americans (6%), with the remainder of the world represented by 940 persons . . . The 60 Americans would have half the income of the entire town with the other 940 dividing the other half. (About 350 of these would be practicing Communists, and 370 others would be under Communistic domination.) White people would total 303, with 697 being non-white. The 60 Americans would have 15 times as many possessions per person as all the rest of the world. The Americans would produce 60 percent of the town's food supply although they eat 72 percent above the maximum food requirements . . . Since most of the 940 non-Americans in the town would be hungry most of the time, it would create ill feelings toward the 60 Americans who would appear to be enormously rich and fed to the point of sheer disbelief by the great majority of the townspeople. The Americans would also have a disproportionate share of the electric power, fuel, steel, and general equipment. Of the 940 non-Americans, 200 would have malaria, cholera, typhus, and malnutrition. None of the 60 Americans would get these diseases or probably ever be worried about them.<sup>11</sup>

Conservative estimates are that the average child born into the United States will put at least 25 times as much stress on the environment as a child born in India due to our high rate of production, consump-

*We must not utilize clever interpretations of the Scriptures to quiet our concerns and lull us into complacency regarding ecological problems.*

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tion and waste disposal. Clearly this proportionate use of the world's resources, many of which are nonrenewable, cannot continue. Serious questions have been raised as to whether it is possible to raise today's world population to a standard of living comparable to ours. Clearly, the longer population control is delayed the more difficult and unlikely the sharing of the "quality" things of life and the more certain that the standard of living which we consider basic may have to be lowered.

The social, political, ethical and religious implications of the problems which face us in the regulation of our population are multiple and complex. Many of these problems do not have clearly discernible answers. For example, what legislation will be most effective in regulating reproduction and yet consistent with the dual principles of freedom of the individual and his responsibility to society? How can the necessity for population regulation be impressed on the so-called developing nations, which have the highest birth rates, but which regard such attempts as interference in their private affairs and suppression by the developed nations?

What are acceptable methods of birth control?

1. Prevention of union of sperm and egg (abstinence, *coitus interruptus*, condoms, diaphragms, anti-ovulation materials, etc.).
2. Prevention of implantation of the fertilized ovum in the uterine wall (IUD's, morning after techniques, etc.).
3. Removal of the implanted fertilized egg (embryo) up to some stage of development (abortion).

These are difficult questions. Urgency requires that we make decisions without satisfactory answers. Make no mistake about it, our population will be controlled either by mortality or a reduction in natality. As Christians and humanitarians, we cannot accept the former means. The choice for a short time is still ours, but we must act! We have the techniques to prevent catastrophe, do we have the foresight?

What can we do as conservative evangelical Christians and members of the American Scientific Affiliation? Certainly, we must face problems squarely and realistically. There is an ecological crisis. We must not utilize clever interpretations of the Scriptures to quiet our concerns and lull us into complacency regarding ecological problems. In the minds of some, "Man is here to keep nature running smoothly". More realistically man is part of nature and the biosphere and unfortunately the data indicate that much of man's interaction with nature has been disruptive.

Granted that many of our environmental problems are basically due to man's being out of harmony with God, solutions to the problems of population and environmental deterioration cannot wait upon the correction of man's basic problem. This involves a conscientious stewardship in which man is regarded as part of God's creation and his ecological as well as social actions of moral concern and responsibility. In



light of our Christian commitment, we must become involved in seeking solution to the problems besetting us. Perhaps the American Scientific Affiliation is here "for such a time as this".

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"Fewer People for a Better World"

# NEGATIVE POPULATION GROWTH: A PROPOSAL FOR ACTION\*

## I. The Population Must Be Reduced to Not More Than One Half Present Levels

The best scientific opinion today tells us that this country, and every country in the world, is already seriously overpopulated. Given two basic assumptions, which the vast majority of people everywhere in the world will agree with, the case is overwhelming for the absolute necessity of reducing the population drastically. These two assumptions are as follows:

1. That it is desirable for an industrial society, with all its benefits, to continue to exist for more than just a few decades into the future.
2. That every child born into this world should have the opportunity to have enough to eat, and to enjoy a decent standard of living.

In order for the above goals to be reached, it is clear that total demand on the earth's resources must be reduced. Otherwise, either environmental pollution will continue to bring about a drastic deterioration in the quality of life, and may eventually destroy the earth's capacity to support life, or, on the other hand, depletion of nonrenewable resources will reduce industrial production to a tiny fraction of its present volume.

Zero population growth, even if it were realized immediately, is not enough. Present levels of industrial production are too high to be sustained for long. Moreover, zero population growth would not halt industrial growth, since *per capita* consumption is growing worldwide at an annual rate of around 4%. (Doubling about every 18 years.)

\*A reprint from the February 1973 Emko Newsletter, Elizabeth Canfield, Editor, of the *Negative Population Growth, Inc.* Statement of Purpose and Program, NPG, 103 Park Ave., N.Y. 10007.

## BILL OF RIGHTS

### *Negative Population Growth*

We oppose every effort to abridge these inalienable rights:

1. The right to food, shelter, clothing and love.
2. The right to a healthful environment.
3. The right to life in an uncrowded world.
4. The right of all children and their future children to inherit an unspoiled earth.

In January 1972, thirty-three of Great Britain's most distinguished scientists endorsed the basic principles of a study called "A Blueprint for Survival", which warned that demand for natural resources is becoming so great that it will exhaust reserves and inevitably cause "the breakdown of society and the irreversible destruction of the life-support systems on this planet, possibly by the end of the century, certainly within the lifetimes of our children." They urged Britain to stop building roads, to tax the use of power and raw materials, and to *cut her population in half*. Negative Population Growth, Inc. is the first American population control organization to endorse this position.

Still another survival study came to the same basic conclusions. The study is called "The Limits To Growth", and was produced by a team of scientists from MIT, and sponsored by the "Club of Rome". This study showed the folly of any policies—whether population or economic—which would result in an increase in total demand on limited, and fast disappearing world resources.

Even more recently, a scientific panel, drawn from the National Research Council of the National Academy of Sciences, has urged that the U.S. begin limiting

its population and its consumption of resources. The panel said, "It is clear that the difficulties imposed by growing U.S. and world populations pervade all other resource issues". The U.S. scientific panel also stated that, "The numbers of humans occupying that habitat, moreover, *must be limited to numbers it can comfortably sustain* and their individual consumptions of materials must be kept within supportable limits".

## II. The Promise of a Better Life for All

As distinct from *total* demand, *per capita* demand must continue to increase, so that all can share in a higher standard of living. The only possible way to reconcile these two seemingly contradictory imperatives—reduction of total demand on the one hand, and the increase of per capita consumption on the other—is to reduce the total population. There is no other way, either theoretical or practical. A reduction in the population is not only essential to the well-being of future generations, it is *to the economic advantage of everyone now alive*.

## III. The One Child Family

The desirability and necessity of a substantial reduction in population is beyond dispute, once goals are set with a time horizon of more than just a few short years in the future. How could such a reduction be accomplished?

By reducing the birth rate to below the death rate. This could be realized by the one child maximum family, until such time as the population is reduced to a suitable level, at which time the two child family would stabilize it. We therefore urge the one child family as the *maximum* family size, together with child-free families for many couples. Even with the one child maximum family, *the population would not begin to decline for twenty to thirty more years*, because of the disproportionate number of young people in the total population at the present time. Once the population began declining, it would take another sixty or seventy years to achieve a reduction to a level not more than one half present levels.

Also, it is obvious that immigration, which accounts for about 20% of population growth in the U.S., must be severely limited.

## IV. National Governments Must Create Major Agencies to Deal Solely with Reducing the Population

The development of atomic energy and the reaching of the moon took place only because major agencies were created solely for those purposes, told to achieve those objectives as soon as humanly possible, and given the money and manpower needed for the task. Action at least as bold and massive will be required to reduce the population, a task which presents problems more complex than those of the atom or of space.

National legislative bodies must also create special committees on population reduction. The responsibility for specific legislation to set up major agencies and to accomplish the necessary reduction in population lies with the Congress.

## V. Individual Rights Versus the Common Good

Is the right to decide family size, irrespective of

the vital needs of society as a whole, a basic human right and a fundamental freedom? It is clear that there is a sharp conflict in the matter of family size between the desires of individuals and the needs of society as a whole. It is also clear that this conflict must be resolved in favor of the common good, just as all conflicts are resolved, *without a single exception*, where the vital interests of society as a whole are at stake, e.g., military service, taxes, laws against crime, etc.

Moreover, in addition to conflicting with the vital needs of society as a whole, the individual right to decide family size conflicts with every other basic human right and freedom, and, if left unchecked, will eventually destroy them, including the right to privacy, to political liberty, the right to eat, and the right to breathe.

It is obvious that controls will be necessary in order to effect the necessary reduction in population. The form and extent of the controls must be decided by Congress. They could vary from minimum and voluntary controls such as government guidelines to family size, at one end of the spectrum, to compulsory birth control at the other end, with compulsory sterilization after one child.

The middle ground between the two extremes would be tax and financial incentives making it to the financial advantage of couples not to have more than one child, together with, for example, laws raising the minimum age of marriage considerably, and making free abortion and sterilization available to all.

However, whatever Congress decides as to the form of the necessary controls, *it is essential that they be immediately effective in getting the job done, and the population reduced*.

## VI. Our Program and Purpose

Population control is the conscious regulation by society of total population size. Several years ago the National Academy of Sciences established a Committee on Resources and Man. After two years of inquiry and study this prestigious Committee stated that, "*Population control is the absolute primary essential without which all other efforts are nullified.*"

Our purpose, broadly stated, is, through public education, to encourage the United States, and then every country in the entire world, to put into effect national programs of population control, with the specific goal of a reduction in population to not more than one half present numbers. We shall strive to have this national goal adopted by the United States in 1976, the bi-centennial of the founding of our nation.

Furthermore, we intend to prove that a substantial reduction in population is not only essential for the survival of a livable world, and the well-being of future generations, but that it is *in the economic self interest* of every person now living. Accordingly, one of our principal tasks is to sponsor research in order to develop a comprehensive economic theory covering a substantial decline in population.

## VII. A Desperate Urgency

Overpopulation is without question the most crucial problem facing mankind today. It is extremely urgent that bold and massive programs to reduce the population be put into effect immediately. In the U.S., in spite of a decline in the birth rate, which may be only temporary, our present population of 208,000,000 is

still growing by roughly 2,000,000 each year, and is doubling every 50 to 70 years.

The world population is now increasing *at the rate of one billion every ten years*, (2% a year) and is doubling every 35 years. Now 3.8 billion, it is expected to reach 7 billion by the end of the century.

Even today the vast numbers of people on this planet are pushing against the outer limits of the earth's ability to even feed them, much less to give the vast majority of mankind any hope of attaining a decent

standard of living. Even now over 50% of the earth's population lives on the ragged edge of starvation, enduring what Gandhi called "The Eternal Famine".

If present trends are not reversed, and quickly, the result can only be human misery and suffering on a scale never yet seen or imagined. In the face of such overwhelming evidence, it is worse than irresponsible, it is sheer insanity to delay any longer in taking decisive action. *National programs of population control must be put into effect now!*

## Consulting Editors Respond . . .

### A Highly Commendable Program

I wholeheartedly agree with the two basic assumptions and the "Bill of Rights" of Negative Population Growth. I do not find any points of contention from either a scientific or a Christian point of view. NPC's public education program to achieve their purpose of persuading governments to put national population control programs into effect is highly commendable. Suggestions from a wide spectrum of means for achieving population control are given so that NPC does not get "hung up" on a specific program in promotion of their goal.

Achieving population control through negative population growth would present solutions to some of the most critical problems of our world. (1) *Poverty*. Most of us Christians enjoy our affluence and, at the same time, are relatively insensitive to the poverty of most of the rest of the world most of the time. We are either too busy with our activities, or we are helpless and overwhelmed by the immensity of the problem of hunger far removed from us (to consider one aspect of poverty) to be able to do much to alleviate this disparity between us and most of the rest of the world. (2) *Pollution*. I agree with other Christians that we, especially, should accept the responsibility to manage the world and its resources which God entrusted to man in Creation<sup>1,2</sup>. (3) *Survival*. World tensions caused by population pressures (growing needs of growing populations) are bound to be relieved by population reduction. As a result, the need for war as an instrument of national policy would be reduced.

I believe with other Christians<sup>3-5</sup> that God's Genesis directive to "be fruitful and multiply" has been fulfilled in our lifetime and that means to control human population must be enacted immediately. Still others may react negatively to the NPC proposal on the fear of or avoidance of presumed dangers in (1) "playing God," (2) too much government regulation, (3) appeal to selfish economic interests, or (4) violation of the sanctity of human life. I believe the supreme value in human life is its quality, not quantity. Jesus came to bring us not merely life, but abundant life and eternal life with God. We Christians should strive for the enrichment or betterment of human life, not merely the preservation of human life. And this enrichment

is going to have to come, it appears to me, at the expense of unchecked proliferation of human life which our world is experiencing.

It is past time for Christians to be leaving such matters only in "the hands of God." Instead, it is high time for Christians to be taking active and leadership roles in movements such as NPC, which is proposing to do something to alleviate the above world problems.

The theological basis for this position is that "man has come of age," as declared by Dietrich Bonhoeffer 3 decades ago. Man can and must make many decisions about life which he could not make before because of lack of knowledge and technical skill. Stripped of these excuses for inaction in the past we should live fully responsible for events in the world. We should not push off onto God responsibilities for events which we can now understand and begin to control. We should not believe that "if man can do it, God doesn't," but we should accept that God has given man more wisdom and knowledge to take on more responsibilities to do things with God<sup>6</sup>.

<sup>1</sup>RSCF Statement, "Man Has a Positive Responsibility to Manage Nature," *Journal ASA*, 25, 3 (1973).

<sup>2</sup>Armerding, Carl E., "Biblical Perspectives on Ecology," *Journal ASA*, 25, 8 (1973).

<sup>3</sup>Mixter, Russell L., "The Population Explosion," *Journal ASA*, 25, 10 (1973).

<sup>4</sup>Shacklett, Robert L., "Christian Perspectives on Abortion," *Journal ASA*, 25, 48 (1973).

<sup>5</sup>Pollard, William G., "Man on a Spaceship," *Journal ASA*, 21, 34 (1969).

<sup>6</sup>Bube, Richard H., "Man Come of Age: Bonhoeffer's Response to the God-of-the-Gaps," Abstract: *Journal ASA*, 25, 24 (1973); *Journal of the Evangelical Theological Society*, 14, 203 (1971).

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### No Compulsory Control!

I support the need for action on the part of Congress to provide tax and financial incentives to limit our U.S. birth rate. Under no circumstances, however, should Congress attempt to force compulsory birth

control onto its citizens, especially via compulsory sterilization. The spectre of a bureaucratic agency playing around with this aspect of humanity scares me silly!

The Club of Rome study makes another important point for the United States which must be highlighted perhaps by more than population control, namely, a drastic curtailment of capital investment and energy consumption per capita. Changes in this sector of our national life will be harder for our elected officials to face, perhaps, than the longer-range effects of population curtailment. Changes in the economic rules affect us right now, as evidenced by Phase I, II, III and IV, and will be clearly recalled by voters at the polls.

Finally, population control in the U.S., although obviously essential, is a peanut problem compared with other parts of the world, and I'm frankly discouraged about practical ways to achieve population limitation where it is needed the most.

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### Go Slow

I have two reactions to the proposal for negative population growth, one of the head and the other of the heart.

My head reaction is that it is hard to fault the logic, namely that a decrease in population is imperative if the premises of the article are granted that there exists a limited reservoir of resources and that each individual should have the right to a decent standard of living. Americans who live and visit in other places in our country where there are vast, uninhabited regions do not have the dangers of population pressure borne in upon them as urgently as do those people who live in and visit areas where the effects of overcrowding and pollution are all too evident. Nevertheless, it is impossible to avoid the conclusions that (1) deterioration of the quality of life is inevitable as long as the population continues to increase and (2) a population decrease is the only satisfactory solution to this problem.

My heart reaction is that one should go slow in pushing this conclusion. Alarms in the past have often proved to be false, and if the modification of human behavior is called for by an alarm, one should not be doctrinaire in imposing an undesirable course of action on people. Limitation of the number of children which a couple may produce is just such a situation. While I do not feel that the creation ordinance ("Be fruitful, and multiply") is a *command* to increase the population, I do feel that it is a *blessing* associated with the marital state which is not to be lightly forfeited. Of course to the extent that family size limitation is voluntary, there is no problem. The difficulty for me is to be able to support wholeheartedly any program of enforced control. Encouragements to limitation of family size are good. Legislation which penalizes those who exceed the recommended limit of one child is good. Legislation which prohibits families from having more than one child is not good.

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### No Uniquely Christian Response

Although I concur with the need and urgency of some sort of population control, the idea of negative population growth, with the aim of dropping the world population down to one-half its current value, seems over-stated and "a bit much". Even among the population-control buffs, this appears to be more than is usually prescribed. Must one shock readers by exaggerating a need, hoping that a resulting move to at least some population limit will receive more charitable attention?

The basic assumptions—essentially those of secular humanism—appear very "nice". Yet, rather than "it is desirable for an industrial society to continue to exist for more than a few decades," many argue that the assumption should read, "It is not desirable for an industrial society to exist at all." "That every child . . . (should) . . . have enough to eat, and enjoy a decent standard of living", elicits a positive reaction, but really provides no motivation. The real basis for appeal stems from such statements as "decent standard of living," "economic advantage," and "economic self interest"—crass, but much more realistic. Economic advantage determines the "better life".

The article does not really face the "world wide" problem. Between the first few paragraphs which whet one's appetite, and the final paragraph which comes back to some global remarks, proffered solutions refer almost exclusively to the U.S.A. and an appeal to western mentality. The really dirty problems of population control occur in non-western areas where religion and culture preclude any concern about the well-being of posterity, and where the mushy assumptions of secular humanism have no clout.

In my judgment, no environmental-pollution programs can really succeed without population-control. For many environmentalists, pollution, *by definition*, stems from "people". Garbage, litter, housing, demands upon industry, signs, noise, etc., all stem from people. Further, men measure the results of pollution by the discomforts of people—the more people, the more hay fever, emphysema, trauma, etc. Finally, there exists the horrible situation of "people pollution" itself; i.e., the ghetto effect arising from the squashing of more and more people into limited space. The dehumanizing psychological effects of "people-packing" shock even the well-trained, and the sinfulness of man reveals itself even to those who do not like the idea.

I know of no uniquely "Christian" response to the population problem, and I know of no direct biblical injunction toward population control. In fact, the Old Testament appears to enjoin the opposite: consider Genesis 1:28; 9:1, and Psalm 127, for example. Other matters also mitigate against whole hearted acceptance of the population-control mechanisms suggested in the accompanying article. The old Roman Catholic argument regarding the necessity of large families lest the heathen masses should overwhelm the "faithful", takes on a new vitality. If population control is to be clamped only on the U.S.A. and other countries with more

substantial Christian populations, one faces this kind of difficulty. The problem, and importance, of indigenous missions takes on a new perspective. The suggested cures of free sterilization and free abortion—which too readily become unlimited sterilization and unlimited abortion—have frightening aspects for the Christian.

But there is more: whereas in the Old Testament, a large family and expanding posterity marked the blessing of God upon a man, the New Testament presents a completely different view of blessing after death—a view which pretty much ignores continuity or expansion of posterity. An opposite tendency arises in the refusal to face any responsibility regarding the future—especially the immediate future. I have read well worked accounts of the Christian view of history, but very little—with the exception of some material on the yes-yes or the no-no of life insurance—regarding a Christian view of tomorrow. I shall haltingly suggest that to the best of wisdom given me, I am responsible to my family (I Timothy 5:8), and although the direct push of this verse regards immediate needs, I believe a fair extrapolation makes me responsible for family needs I foresee extending beyond my demise. This would include “population—pollution—environment” problems. The world needs global population control, and I can and do in good conscience support a couple of groups dedicated to sane objectives (I am not sure the accompanying article has these) regarding planned parenthood and zero population growth.

A final word seems germane. I am not sanguine regarding results and effects in this field. Yet, look at the Great Commission—I am to obey it even though I know the world will not be converted; I know instead that things will get worse. Some are in the professional missionary business full-time, and I support this “losing” cause. In a similar way, though with much less priority, I support the population-control cause. Note also that God himself will ultimately satisfy the Great Commission. Even so, though the prospect makes one shudder, population control will inevitably come. No matter how you read it, the four horsemen of the Apocalypse drop the population considerably—by a factor of one-fourth if taken literally—while other catastrophes wipe out one-third of the survivors. God ultimately solves the population problem too.

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*(Professor Giles completed the work given to him in this world and went to be with his Lord on December 19, 1973.)*

### **Selfish Motivation**

I have extremely ambivalent feelings about this tract on NPG, but not because I disagree with the goal. On the contrary, I believe that the world is already beginning to feel the agony of overpopulation. The flood disaster in Bangladesh and the massive starvation in the sub-Sahara regions have exacted such high cost of human life because population pressures have forced people to live in these precarious areas.

Nevertheless, the tract strikes me as very selfish and unChristian in its motivation. “It is obvious that immigration (to the USA) must be severely limited.”

“It is in the economic self interest of every person now living.” An appeal to the maintaining of a comfortable standard of living, without at least a hint of other ways to reduce our extravagant use of the world's resources is so narrow that I can accept it only with considerable uneasiness. I find the protectionist statement on immigration very disturbing.

I agree with the NPG bill of rights, but I think that the accompanying suggestions for achieving negative or zero population growth border on naive. Clearly long-established attitudes on the nature of the family, procreation, old-age and inheritance must change, but compulsive legislation will scarcely be the means to this end.

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### **Stewardship Begins with Us**

Affluent Americans must take the lead in decreasing our own breeding rate if we expect others in the world to decrease theirs. It will be understandable if at first the less developed countries or powerless minorities in the USA fail to go along with us. They may see NPG (or ZPG) as a trick to maintain the political status quo at their expense. It is often argued that “dissatisfied peoples are likely to listen with sympathy to the promises of Communism.” I was pleased that Russell Mixer emphasized other motives for curbing the population explosion (*Journal ASA* 25, 9 (March 1973)). Several projections of what might happen to US population if whites alone took ZPG seriously were recently published by sociologist Ernest Attah. He assumes that voluntary action will not be forthcoming in adequate degree from “those who believe that government does not speak for them and does not respond to their interests” (“Racial Aspects of Zero Population Growth,” *Science* 180, 1143 (15 June 1973)). To make government more responsive to the needs of minorities may mean redistributing economic wealth, and to decrease the birth rate first among the affluent may mean redistributing political power. But shouldn't Christians do what is right and trust God for the consequences?

Many persons probably regard the two-child family as ideal: To have one boy and one girl is educational for both children and satisfying to both parents. The desire to “keep trying” for a child of each sex may push parents beyond even the two-child family. To stop at one child deprives one parent of the experience of “growing up again” with his son or her daughter. Balancing a family by adopting a second child of the other sex ought to be presented as a desirable (and reliable) option to any who feel that a one-child family is too small. Our own experience is that even with well-meaning parents, a child may get more attention and spiritual nurture in a one child household. We see great value, however, in having an “open family” where hospitality and warmth toward other people's children are clearly demonstrated to our own. Perhaps the sharing of families within a loving larger community is a way Christians can support NPG. But if the apostle Paul was doubtful about Christians even marrying in a time of crisis, how can we be sure that

all Christian couples should be raising children?

We can hardly feel self-righteous if we stop reproducing at one child, or two. The fact is that a higher "standard of living" may make our small family more of a drain on the world's resources (and hence more of a threat to the world's other children) than a larger family. One thing Christian families can do, whatever their size, is to begin consuming less, recycling more, and learning to "make do." Our contribution to conserving the world's limited resources may seem tiny. But if stewardship doesn't begin with us, where will it begin?

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### *Individual Rights vs Common Good*

It's easy to reject the claim of "The Promise of A Better Life for All" as irresponsible. There is little, if any, support for the claim that fewer people make a better world. Such flimsy logic makes the propagandistic nature of the statement rather apparent.

This is not to say, however, that the claims should not be heeded, though perhaps for different reasons. Personally, I find the emphasis on "economic advantage", "higher standard of living," and "economic self-interest" to be somewhat repugnant as well as dubious. Nevertheless, the motives should not completely mitigate the argument concerning overpopulation. The threat is real and the warnings should be heeded. Persons may hold to similar views but for different reasons and with appropriate caution.

An equal danger, however, may be found in the subtle pleas of such organizations. Must we necessarily assume that the threat must be dealt with by "special committees on population reduction" or that Congress must decide the "form and extent of the controls". Indeed, the real question which arises centers on the struggle of "Individual Rights Versus the Common Good". These are social issues themselves which have no simple answer. Can we decide them by simple reference to a pressing environmental problem? I think not.

What is of significant concern, then, are the implications of linking social and physical issues in rather casual fashion. In fact, can we rightly determine the motives in such questions? Personally, I become skeptical of ready social solutions to complex physical problems, simply because those solutions usually become more complex problems themselves. Even in these days of electric shavers, there is merit in sharpening up Occam's razor on occasion to cut back easy assumptions to the place where the real problem may be dealt with.

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### *Moral Restraint Rather than Coercion*

First reaction—stop the world, I want to get off. Second reaction—urgent manifestos on population control are usually unbalanced and this is no exception. One particular problem is abstracted from the com-

plex, its solution "absolutized" in typical secular fashion, and amoral and totalitarian measures are thereby justified.

True enough, congested populations and spreading industrialism pose some awesome problems, but no one need discount either the range of resources that may yet be turned to unpolluting account or man's own resourcefulness. Rapid increase is very possibly a passing phase while infant mortality is being reduced, and dramatic projections on the graphs leave one wondering if people are all that silly. Rural subsistence farming has left some crowded legacies, but current trends have hopeful aspects. Concentration in favorable regions and withdrawal from marginal lands give a better chance for community services and conservation, and smaller families are a normal concomitant of urbanization. Agricultural surpluses are as chronic a problem as malnutrition and starvation, which by the way, owe less to absolute shortages than to problems of politics, distribution and dietary habits.

If the diagnosis is too pessimistic, there is a dangerous optimism in the prescription: it is assumed that compulsion will prove beneficent. In fact the cloven hoof is already evident in the implications of the argument. Of course "the common good" has often abrogated "all individual rights": the torture of innocent relatives has sometimes silenced dispute on that point. The analogy between compulsory sterilization and laws against crime blurs some essential distinctions, and it seems odd that life once conceived should be aborted to sustain "inalienable rights" in the hypothetical future or "economic self interest" now. Is it wholly facetious to suggest that if a population cut-back is of "desperate urgency", Congress is less likely to prove "immediately effective" than a few atomic bombs?

Furthermore, this modest proposal to halve the world's population is based on the doubtful assumption that an affluent but regimented society is better than a freer if poorer one, and (on its own premises) it could do no more than postpone the inevitable. Eschatological teachings apart, Christian faith and common sense alike suggest that we accept some reasonable bounds to our earthly expectations. Remembering that those who seek (especially by totalitarian means) to create heaven on earth usually create the opposite, we may do our responsible best without being stampeded into remedies worse than the postulated disease. On this issue, is not moral restraint (if necessary) better than indulgence, abortion and coercion? Is not the wish to have our cake and eat it too the root of many an evil?

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### *First Things First*

The present crisis teaches us once again what we always knew: man's environment can be cruel to him. We also know that environmental-population-ecological crises do not occur if men generally obey God.

If men control population and continue to disobey God, the present crisis will not disappear. *Obedience to the Triune God* must precede any other step in an attempted solution. The situation is very similar to



that described in several places in the Old Testament. Israel disobeyed and as a consequence God gave Israel droughts and pestilence. Could the Israelites have solved the problem of pestilence by using insecticides? Would cloud seeding have ended their droughts? Not at all. They claimed they could have the better life if they worked harder. God said in effect, just as He had said to Adam and Eve, "You want to go alone. I'll let you go alone. I won't protect you from your environment."

Is it too idealistic to expect man to be converted? If we ask for conversion, we are no more idealistic than the Old Testament prophets. There is no alternative to starting at the right place. If a man begins buttoning his vest by starting with the wrong button, there is no way he can complete his task correctly unless he starts over.

What would happen to the environmental-population-ecological problem if there were a great turning to the Lord for answers? Would the problem just vanish? I assume that the Lord would work then as He usually does—through men. There would be work to do. But then those who build the house would not labor in vain.

Would there still be a population explosion? We may only guess how the Lord would work. Yet it seems that if each person were to listen to what God calls him to do in life, that some would have small families, some large, and the sum of it all would be this: the right number of children would be born. Naturally, if a couple felt that God called them to have a small family, they would not conclude that He was calling them to use unbiblical means, such as abortion.

Does all this mean that every person must be converted before any of society's problems can be solved? No, it does not. When Israel was blessed, it was the nation as a whole, not every person, that had turned to God. Today, it is society's institutions—that is, society as a whole—which must turn to God. We as individuals have things to do in attacking the problem. Of these things to do, the first is to see to it that our institutions turn to the Lord. If this is not the order in which we do things, nothing else will be done correctly.

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### *I Am Part of the Problem*

When anyone comments on the presence of too many people in the world he always means other persons and not himself. But I and mine are part of the problem. So it is my job to influence my children to consider restricting family size to two (too late for daughter who has five!) and to keep available to students information which I have been providing ever since I attended the Northwestern University centennial a number of years ago and first was alerted to the population explosion. All this reminds me of an aphorism I saw on a camper's T shirt, "I love humanity; it's people I can't stand."

If the number of world denizens can be stabilized, business can "continue as usual"—I guess greatly reducing the total count of persons would result in a

great depression and multitudes out of work.

Abortion destroys something alive which is developing a soul. Three views of the origin of the soul are: (1) it has always existed. (2) it is a brand new creation at the time of conception and (3) what appears to be the best view, the soul develops as the embryo and fetus develop. I hold that abortion is killing and can only be done to save the life of another, i.e. the mother. In the case of the unwanted pregnancy, let it come to term and the infant be adopted. The adopting parents could pay the hospital costs (most would be glad to). Birth control is commendable: it prevents the formation of an embryo; abortion destroys it.

Have you heard this one? "The best form of birth control is sulfa control?"

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### *All Economic and Political Systems Inadequate*

Resources to support the population are a more basic issue than the growth and size of world population per se. My file of clippings relevant to "Population Growth and Food Supply" has items indicating that a tremendous wealth of protein can be obtained from ocean animals and plants, and sugar from sawdust. Fish meal cakes and cookies are helping to close the "edibility gap" that prevents people from eating fish concentrates. Chemicals can close the pores of plants, reduce their water needs, and enable corn to grow with less rainfall. Oil-eating bacteria can be the basis for protein production. Soybeans are converted into meat-like products; bacteria devour waste-paper and become a protein-rich food; parasexual hybridization produces new hybrids with genetic cells from different species; experiments turn sewage into oyster meat; underground pools of hot water are tapped to produce clean energy, and many other techniques are increasing the food supply and energy resources.

*War on Hunger*, published by AID, reports numerous developments increasing the food supply, controlling population growth, and improving employment and income distribution. Water is brought to deserts, improved varieties of seed double the production of rice, control of weeds and of rodents increases human food supply, and in numerous other ways the war on poverty and hunger is waged throughout the earth. These reports often leave one optimistic, yet the fact that only relatively small segments of the population are directly reached introduces a pessimistic balance.

Reports of the high cost and dreadful impact of urban-industrial civilization upon human potential for the future are frequently linked with Neo-Malthusianism. Malthus' famous *Essay on the Principle of Population* in 1798 held that food supply grows arithmetically while population grows at a geometric rate. The population imbalance is corrected through positive checks (war, pestilence, famine, vice, and misery) and preventive checks (reducing the birth rate through "moral restraint" by deferred marriage, celibacy, and control of sexual relationships in marriage). His *Essay* was

a reaction to a 1793 essay by Wm. Godwin, who believed that human misery was due to corrupt institutions and whose doctrine of natural rights led to the belief that human nature is perfectible through reason, that spontaneous cooperation would be the basis for social action in the utopian future, and that numerous improvements would bring about better health and longevity. There would be no war, crimes, disease, anguish, melancholy, nor resentment, for every man would "seek with ineffable ardour the good of all." The Malthusians and Godwinians have been in conflict pertinent to population and the world's food supply ever since!

The economic and social arrangements for the distribution of goods constitute the greatest barrier to a balance of population and resources. Obviously, most Americans are relatively privileged. Through both public and private ventures, we let crumbs fall to people who beg at our tables, but we are extremely reluctant even to consider changes in the social systems which perpetuate their problems.

Current economic and political systems in all nations (not just democracies!) are inadequate. The root problem is "in the heart," for man tends to be extremely selfish, protecting his vested interests at all costs. How can the basic motivations, ultimate socio-economic commitments, and values of people be changed? The Gospel of Jesus Christ certainly says something on the subject! But if we receive it only in a truncated form that demands merely a verbal commitment, assuming that it takes care of all time and eternity, we are making a tragic mistake that belies our alleged faithfulness to the totality of the written Word of God. Faith without works is dead—and deadening.

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### **Will Means Destroy Ends?**

We are all aware of the critical nature of population expansion. Few thoughtful people today would not agree on the nature of the problem. There are many disagreements on the solutions. Unfortunately, solutions require popular support—often based on simplistic analyses of the problem, and offering simplistic solutions. Thus the EMKO proposal for negative population growth, to be accomplished through the simple mechanism of one-child families is both an admirable expression of public concern and a naive, simplistic analysis.

The EMKO analysis is based on an appeal to personal aggrandizement—namely to ensure to one's children the same food, shelter, clothing, privacy, land, uncrowdedness, money, etc. that one now possesses. Ultimately the appeal is to *economic self interest*. Yet as Garrett Hardin<sup>4</sup> has so aptly pointed out, the destruction of the common interest comes from a pre-eminent emphasis on individual self interest. The failure to link self interest to common interest has been the downfall of human communal enterprises. Hardin suggests that the Judaeo-Christian tradition of individualism has contributed to the failure to launch

national programs of cultural concern. Thus my first objection is that negative population growth is not grounded in communal moral concern, but is presented in terms of individual aggrandizement.

My second objection is that the population problem is presented in terms of general population per se. But the population growth problem varies significantly with the culture. Issues of population control in the United States, Sweden, China, and India are vastly different. Even within the United States the issues of population control amongst Indians, Blacks, Mexican-Americans, poor whites, and the landed aristocracy are significantly different. Can we blandly assume that we can discuss general population control as if it only involved more people per se? If nothing more than a handle for solutions, we must specify the competing values and human needs in different cultures and sub-cultures before we can turn to solutions to population growth.<sup>5</sup>

Let us briefly look at the simplistic solution which is offered—namely one-child families. The long history of child-rearing has not been one-child families.<sup>1</sup> There is very little data available on such a radical cultural innovation. On the face of it, most of our clinical experience suggests that the one-child family is *not* a desirable psychodynamic setting for child-rearing. The single child tends to get too much or too little parental involvement—made into the perpetual baby or a premature adult. Further, intimate peer interaction between siblings has thus far been a critical factor in maturational development. For example, Harlow's experiments with peer monkey rearing has demonstrated the critical developmental importance of siblings. The evidence to this point suggests that the one-child family would have to be supplemented by other peer socialization experiences.<sup>5</sup> Can and will the society provide these peer nurturance experiences at the same time it limits children to one?

Further, the one-child family solution fails to ensure that one child will be provided effective parental care. What about the shot-gun teen age marriage, the pregnancy designed to hold the marriage together, the child desired to prove one's femininity or masculinity, etc.<sup>6</sup> In short, the proclamation of the one-child family does not ensure better child rearing, it merely reduces the number of children.

Population growth is a complex problem, that deserves complex solutions.<sup>2,3,7</sup> Negative population growth may be a desired goal, but not at any cost.

<sup>1</sup>Aries, P. *Centuries of Childhood; A Social History of Family Life*. New York, A. Knopf, 1962.

<sup>2</sup>Bumpass, L. & Westoff, C. F. "The 'Perfect Contraceptive' Population." *Science* 169: 1177, 1970.

<sup>3</sup>Crowe, B. L. "The Tragedy of the Commons Revisited." *Science* 166: 1103, 1969.

<sup>4</sup>Hardin, G. "The Tragedy of the Commons." *Science* 162: 1243, 1968.

<sup>5</sup>Kangas, L. W. "Integrated Incentives for Fertility Control." *Science* 169: 1278, 1970.

<sup>6</sup>Lidz, R. W. "Emotional Factors in the Success of Contraception." *Fertility & Sterility* 20: 761, 1969.

<sup>7</sup>Spengler, J. J. "Population Problem: In Search of a Solution." *Science* 166: 1234 1969.

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*Suffers from Inadequate Preparation*

I will restrict my comments to some presuppositions which seem to underlie the recommendations made by the authors of this statement. First, I strongly question the use of concepts such as "basic human right" (V) and "inalienable rights" (Bill of Rights), for the term "rights" is meaningless outside the context of a specific culture. Certainly the "right to privacy" and to "political liberty" are not cross-cultural concepts. After stating their belief in basic human rights, the authors ask whether the "right to decide family size, irrespective of the vital needs of a society as a whole" is a basic human right and freedom. Their conclusion seems to reflect a naively idealistic view of the social and political system of the United States, for they state that in a conflict between the vital interests of society and the desires of individuals, the conflict is resolved "without a single exception" in favor of the common good. Military service, taxes, and laws against crime are given as examples. To show how specious this statement is, I need only cite the disproportionate percentage of Blacks drafted into military service, tax loopholes for the wealthy, and the difference between penalties for "white collar crime" and crime usually committed by people in lower socioeconomic statuses.

A second presupposition seems to be that economic well-being is the most crucial consideration. This can be illustrated by reference to a "decent standard of living" (I & VII), the statement that a reduction in the population is to the "economic advantage of everyone now living" (II & VI), and the suggestion that it would be to the "financial advantage" of couples to not have more than one child (V). It is interesting to note that the authors vacillate between considering the "rights" of *all* peoples to resources, and consideration of the United States alone. They emphasize the fact that the vast majority of mankind has no hope of attaining a decent standard of living (VII), but insist that immigration to the United States must be severely limited (III), which would keep other people from sharing in the good life which we have.

My overall opinion is that the statement suffers from lack of adequate preparation—clichés and "sloppy thinking" abound. Evidently no distinction is seen between the process of technological manipulation of the environment (e.g., the development of atomic energy or reaching the moon) and the manipulation of cognition and value systems. There is no recognition that strong cultural reasons may exist for having more than one child, e.g., to help with agricultural work, to continue the family line, or to inherit a business.

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*Exaggerated, Radical and Unrealistic*

My immediate response to the pamphlet on "Negative Population Growth" is a negative one. Though I would agree that some population control is a desirable feature in planning for the future, I would disagree with both the arguments and the proposals of the pamphlet which seem exaggerated, radical, and

unrealistic.

I. To propose that the population must be reduced to not more than one-half present levels seems to be both unnecessary and impossible to realize. Though I would agree with qualifications to two assumptions: (1) that an industrial society should continue and (2) that every child should have enough to eat, etc., I would not agree that NPG is the best or only means to achieve these goals.

The U.S. and other industrial nations consume a disproportionate amount of resources for luxuries which Americans think of as necessities, e.g. air conditioning. A massive campaign in the media to save our resources, e.g. gasoline, would hopefully curb our consumption. At a modest as opposed to an increasingly extravagant standard of living it would seem that the U.S. can support an increased population stabilized at the present declining rate of population growth.

II. Per capita demand can and should increase in the underdeveloped nations, but need not develop as rapidly for those in the developed nations to enjoy "a better life." Why is NPG the "only possible way" to achieve this end? Stabilizing population growth is a necessary means to this end but is only one of several ways to achieve this.

III. The goal of reducing the population "to a level not more than one-half present levels" is unnecessary and unattainable; therefore the goal of a one-child family is unrealistic. One should distinguish between the growth rates in developed and undeveloped countries. For many poor families children are their chief consolation. When countries such as Japan develop higher standards, the growth rates also decline. The proposal to severely limit immigration to the U.S., where considerable space is available, seems ethnocentric if not racist.

IV. An obsession to reduce the population can result in such policies as the forced sterilization of Negroes in the south, as is indeed argued in section V. The ethical arguments of the pamphlet are dogmatic, simplistic, and alarming in their full implications. It is not clear at all that there is "a sharp conflict" between the desires of individuals to determine family size and the interests of "society." What is clear is the conflict between "compulsory" birth control and sterilization and individual rights. The ancient Spartan state exposed unwanted babies. Do we want such a totalitarian state? Surely then the cure would be more accursed than the illness.

V. Population control is not the same as "population reduction." Such reduction is not "in the economic self interest of every person now living."

VI. Better means to alleviate hunger and famine would be the promotion of more "green revolutions," the more generous sharing of our resources, etc. Surely this is a more "Christian" way.

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# The Future of Our World: Chances of Biblical Eschatology in a Secular Age



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*There is an immense interest in the immediate future. At the same time, interest in the ultimate future, in the sense of a life beyond our present earthly existence, is constantly diminishing. But the secular progressiveness of man through which man is so intensely preoccupied with the immediate future is inseparable from the Judaeo-Christian faith. Being essentially monotheistic and oriented toward the future, this faith opened for man the possibility of conquering the world. If man, however, denies this faith, he will lose sight of his ultimate future and his pursuit of the immediate future will become meaningless too. The laws of thermodynamics and other scientific findings suggest that our world is bound to transitoriness and decay. Similarly the continuous struggle for existence and the fact that time is constantly elapsing remind us of our transitory state. Yet the New Testament tells us of the resurrection of Christ. It shows us that with his new beginning the possibility of a new life beyond transitoriness and decay has been opened for us. Thus the resurrection of Christ can give new meaning to our future at hand, since it connects our immediate future to our ultimate future which it foreshadows.*

In this paper we investigate whether our secular age leaves any possibility or even necessity for a Biblical view of the future of our world and of ourselves. In so doing we inquire first about the future as seen from various perspectives of human thinking and then ask what possibility there is for a Biblical view of the future.

## GENERAL ASPECTS OF THE FUTURE

It is rather bewildering to discover that everybody is interested in the future, but that almost nobody cares about a future "life beyond" our world. Futurology is becoming an academic subject while there is hardly a course, even in conservative theological seminaries, in Christian eschatology. Man is no longer interested in a "life beyond".

## Diminishing Interest in a "Life Beyond"

What is the reason for this ever-diminishing interest in a "life beyond"? The first reason is our materialistic attitude. We are mainly concerned with what is at hand and what we can manipulate. "Life beyond", however, as we are taught in almost every Christian church, is up to the mercy of God and presupposes our physical death. But we neither want to be dependent on the mercy of God nor do we desire to give up our life in order to gain some other "life beyond". We want to live right here and now and as long as possible. Thus we are not concerned about preparing ourselves spiritually for sudden and early death, but we try our best to manipulate and delay death. For us, death is not the turning point, where the new world of God will be opened for us, but rather, we see it only as the

termination of our interesting present life. Because the end of our life is awful for us and is incongruent with our materialistic attitude, we try to negate it. Some sympathy cards express this negation. For example:

I cannot say, and will not say  
That he is dead, — he is just away!  
With a cheery smile, and a wave of the hand,  
He has wandered into an unknown land,  
And left us dreaming how very far  
It needs must be, since he lingers there,  
And you, O you, who the wildest yearn  
For the old-time step and the glad return, —  
Think of him faring on, as dear  
In the love of there as the love of here;  
Think of him still as the same, I say:  
He is not dead — he is just away!<sup>1</sup>

Our secular funeral practices have similar tendencies. A special mourning color has disappeared, because we do not want to admit that death really is the irrevocable end of this life.

Another factor for the diminishing interest in a "life beyond" is our high living standard. Though we still work hard to make our living, our earth is no longer a vale of toil and tears. The literary category of the *ars morendi* (the art of dying) of the Middle Ages, which influenced many generations in their attitude toward life and death, would be impossible today. Our lives are filled with many interests and excitement and we are much too busy to be concerned about the last things. The cry for redemption from within the vale of anguish and anxiety can still be found in Negro spirituals, but black leaders now connect these songs unmistakably with this-worldly demands. "Life beyond" does not provide an incentive for hope, because we seem to be able to "hope" only for things that are within our own reach.

The reason for diminishing interest in the "life beyond" is also partly caused by the fact that a "life beyond" no longer appeals to us. The Biblical picture of heaven with its golden streets, pearly gates, celestial choirs, and eternal comfort is for us rather boring. Such a picture is unrealistic and closer to the land of fairy tales than to our reality. It would be difficult to translate this imagery into modern terminology and thus make it more attractive. Our present life is so different from the Biblical expressions about the future "life beyond" that we seem to notice only dissimilarities. In the future life we shall devote ourselves to eternal worship and service to God, while here on earth we encounter busy streets and an on-the-go life that makes it almost impossible for us to set some time aside for devotion or meditation. In the future life there will be no distinction between male and female, while our life here on earth is so centered around sex that someone seems to be odd if he is not informed about the latest "techniques" of sex-play. The future "life beyond" will consist mainly of singing hymns and praying to God, while here on earth church attendance is declining and one of the most discouraging jobs is to find good and willing members for a church choir. We could continue with our list and state the usually contrasting features of our present life and the Biblical images of future life. We can only conclude that our life is neither a preparation for a future "life beyond" nor a sign that points toward it. There is but one alternative: either any future "life beyond" is a pure imagination of weird minds, or it is a reality. However,

*Futurology is becoming an academic subject while there is hardly a course, even in conservative theological seminaries, in Christian eschatology. Man is no longer interested in a "life beyond."*

if it is conceded to be a reality, then it can hardly be a projection of our present state or of our manifest desires. It must be its complete negation and rejection. There is no direct man-made way from here to the "beyond".

This conclusion is confirmed by the obvious independence of our present life from any life beyond. Our present life seems to be based on itself and not on anything beyond itself. While the future life is determined and granted by God's grace, our present life is based on our own success or failure. While the future life can be reached only through God's forgiving our sins, our present life is determined by our own efficiency. Thus, our very behavior demonstrates how little we care about any future life beyond. We are neither concerned about it nor do we expect anything from it. Strangely, however, life beyond and life here on earth are not as unrelated as they seem at first glance. The hope for a future life is essential to the Christian faith and is not a curiosity left over from an age long past like the bones of a dinosaur. Similarly, modern materialism with its inborn strife of a philosophy of progress and advancement is deeply rooted in the belief in a life beyond. Only by realizing this connection, can we understand the dynamic power of secular progress.

### Secular Progress is Founded in Christian Faith

The concept of progress is of clearly Western origin and is founded in the Christian understanding of history.<sup>2</sup> Many nations developed a culture, but only those in the Western sphere of influence had a progressive idea of history. The reason for this lies in the desacralization of nature and in the linear concept of time. As long as there is a plurality of gods which are identified with parts of nature it is a sacrilege for man to gain power over nature and to subdue it. If people are afraid to wound the virgin earth with a plowshare it is unlikely that high agricultural methods will develop, or if people believe in sacred cows not to be touched, no dairy industry can develop. Only a desacralization of nature and the concentration of everything divine in one God who is not part of nature can change the situation. Exactly this happened in the Judaeo-Christian tradition. The Judaeo-Christian belief in one God enabled man to subdue nature and to gain power over it.

Of course, we cannot overlook that there were other highly developed cultures before and outside the Judaeo-Christian sphere of influence. Thus, the Greeks succeeded in developing a high culture in spite of their polytheism. But as noted by the German philosopher Friedrich Nietzsche in his investigation on *Philosophy during the Tragic Age of the Greeks* (1873), their view of history is a concept of the eternal recur-

rence. History is determined by innate laws of the becoming and by the play of necessities.<sup>3</sup> This plurality of possibilities does not leave room for something new under the sun. Small wonder that the Greek outlook on history and on future is basically pessimistic. The English historian Arnold Toynbee tried to understand human history with this cyclic concept too. He explained the emergence of all civilizations as an infinite process of challenge and response.<sup>4</sup> A human civilization is always developed as a response to a challenge, it originates, thrives and flourishes at its heights and then withers away and dies. The Teutonic religion proposed a different recurrence, which was not any less pessimistic in outlook. At the *Ragnarök*, the big world fire, even the gods were bound to die and nobody survived. But the winter of the universe is followed by a new spring; the earth is purified and returns to its primal state. Even the old gods return. Again the Teutonic myth of a universal doom betrays a weary, depressed mood.<sup>5</sup> Other religions have applied the system of seasonal changes to the understanding of history in a more drastic way. In the immediate neighborhood of Israel, the Canaanite religion conceived the seasonal changes as the expression of the fight between two gods, Baal and Mot.<sup>6</sup> In their religious liturgies the Canaanites celebrated the victory of Baal, the god of winter rain and fertility, over Mot, the god of death and of the dry summer, and they lamented half a year later about the death of Baal and the victory of Mot, when the dry season commenced and everything perished under the merciless rays of the glowing sun.

A cyclic concept of history or of nature could not lead to a progressive endeavor of man, because man felt himself subjected to a nature and history without any final goal. At this point, the Judaeo-Christian belief in God brought tremendous change. Because of its strict monotheism it found it impossible to separate the God of creation from the God of salvation.<sup>7</sup> The whole universe is created by God; therefore, it has a definite beginning. The same God who created the world will redeem it; therefore, the world has a definite goal. The Creator of the universe is at the same time its Redeemer. This is the source of hope and of energy for man. However, we must emphasize that the source of hope is solely founded on the faith in an acting God, who has the beginning and the end of the world in his hand. This hope is not founded on the belief in progress. It was precisely at this point that the modern perversion of the enlightenment era began, when it attempted to replace the faith in God by the belief in progress. Origin and result were thus exchanged.

While faith in God as the giver of the future requires confidence that God can inaugurate the future, faith in progress assumes that man alone is sufficient to guarantee the future. Self-confidence instead of God-confidence is the leading motif in the human pursuit of progress. This change became evident for the first time in the thinking of the French philosopher René Descartes when he introduced radical doubt as a means to distinguish between false and true. Though this doubt served only a methodical purpose, God-confidence was abandoned.<sup>8</sup> Similarly, we must understand his basic premise that we can doubt everything except the fact that we think. The subject, the thinking ego, is made the solid ground for all knowledge.

It is conceded that Descartes regarded God as the granter of all reality outside the thinking subject and even tried to prove God, but, nevertheless, self-confidence already prevails over God-confidence at decisive points.

In his famous treatise *Answer to the Question: What is Enlightenment* (1784), Immanuel Kant went a step further. For him enlightenment is the emancipation of man from his self-inflicted immaturity.

Immaturity is the inability to use your intellect without the guidance of someone else. This immaturity is self-inflicted, if the cause of this is not found in a defect of the intellect, rather in a defect of decision and courage to use your intellect without the guidance of someone else.<sup>9</sup>

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*Because of its strict monotheism, the Judaeo-Christian belief found it impossible to separate the God of creation from the God of salvation.*

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Man should rely on himself. The autonomous man with self-confidence replaces the theonomous man with God-confidence. Man wants to take the future in his own hands. In his book *The Education of the Human Race* (1780) Gotthold Ephraim Lessing understands the religions of mankind only as representing different levels in the development of human understanding.<sup>10</sup> Lessing makes clear that we could have gained the knowledge which was given to us through divine revelation, through our own reason. It would have taken only a little more time. This means that divine revelation actually becomes unnecessary, that the whole world is on the way to further development, to a better future, and man plays a decisive role in it. God-confidence was no longer necessary and could be discarded.

At the same time the concept of the kingdom of God also became secularized. The reason for this development was primarily the idea that man is predestined either to be received into the kingdom after his life here on earth or to be condemned to eternal damnation. This popular understanding of the Calvinistic theory of election led people to investigate to which category they belonged. They assumed that if they were the elect, the fact of their election was to become evident in earthly success. Thus Calvinistically inspired people worked tirelessly in an ascetic manner to prove to themselves and to others that they were on the right side. The results of this work were not to be enjoyed but to be added to the constant reproduction of the capital employed. The German sociologist Max Weber and the German theologian Ernst Troeltsch thus called Calvinism the forerunner of modern capitalism.<sup>11</sup>

Surprisingly, pietism played a similar role with its radical orientation towards the other world. This otherworldliness, by necessity, led pietists to a responsible use of their time here on earth. Time was not to be spent in worldly joy and amusement but in self-crucifying work. The father who presided over hours of devotions is at the same time the ancestor of many industrial endeavors. In the 19th century the centers of the pietistic movement in Germany, in Rhineland-



Westphalia and Wurttemberg, became the centers of industrial development. The religious convictions of the ancestors led to a splendid industrial success of the grandchildren, most of whom have long ago discarded the religious premises of their forefathers. In America the development was similar, partly in direct connection with the immigration of German pietists. One of the largest American steel companies, the Bethlehem Steel Company in Bethlehem, Pennsylvania, began as a small smithy of a blacksmith in the Brethren Community who had immigrated from Herrnhut-Germany at the beginning of the 18th century.<sup>12</sup> He settled in Bethlehem, a Herrnhut missionary settlement in the forests of Pennsylvania. Quality and industriousness helped to develop his workshop into a large company. Though the name Bethlehem still points to the pietistic and pacifistic origin of the company, it has turned into a huge armament enterprise without regard to its religious premise. In his book *The Kingdom of God in America* (1937) H. Richard Niebuhr pointed to an important factor that caused this loss of the religious premise. He claimed that the spiritualistic and Calvinistic groups finally favored a man-made heaven. Their belief in man as a good creature, virtuous enough to acquire heaven, and their radical transformation of life on earth undermined in the long run the expectation of heavenly bliss.<sup>13</sup> Life on earth became attractive enough to cause them to forget life in heaven, especially when they felt man was able to bring about a kingdom on earth. Two world wars, a depression and a period of confusion and social unrest have caused many people to doubt whether man can change the world for the better. Although it is still prevalent in America, in most countries this optimistic belief in progress has vanished.

Hope is as necessary for human life as oxygen. When man has no hope, he has no incentive to live but instead wants to die. The rate of mental illness is higher in periods of economic and social depression than in periods of economic growth. However, hope apart from Christian faith is futile and deceptive, because man must then be turned into a cog-wheel of progress in order to keep progress progressing. Mechanization and automation in modern traffic or in space flights give us some taste how inhuman and demanding progress can be. Progress can become quite totalitarian and need not necessarily be an earthly blessing, because it is the new God whom man must

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*By itself our universe implies no eternal concept of life.*

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worship and who demands his life. Emil Brunner is right when he calls the belief in progress and the hope for a better future an "illegitimate child of Christianity."<sup>14</sup> Some other theologians, however, are more willing to adapt themselves to the concept of progress. Here we have to name especially Teilhard de Chardin who was courageous enough to accept evolution as the leading motif of his theological thinking.

#### Evolution as the Future of the World?

For Pierre Teilhard de Chardin man is a transitory being who is on his way from Alpha to Omega. These,

the first and last letters of the Greek alphabet, signify the extension of the evolutionary process. There is an upward-slanting movement that embraces the whole universe and which goes from the cosmosphere via zoosphere and noosphere to the Christosphere.<sup>15</sup> Through hominization man emerged into the noosphere and through Christification the evolutionary process will come to its fulfilment when everything will be received into Christ. The universe, and within it man, has a definite destiny and a definite future. Life is neither an absurdity as held by Jean-Paul Sartre<sup>16</sup> nor is man's existence a "Being-towards-death" as projected by Martin Heidegger.<sup>17</sup> Even totalitarianism, such as seen in modern technology or in the bureaucratic government is not the final word in evolution, as it is only a temporary aberration of the movement toward unity.<sup>18</sup> There will be further and consistent complexification of the noosphere. The knowledge about the universe at large will increase and so will the psychosocial pressure on the surface of the planet.<sup>19</sup> The condensation of human mass which we already face in the modern technopolis will take place on an earth-wide scale. Man cannot withdraw from man without stumbling over another man while going backward. Teilhard sees no need for us here to give up in despair because our planet is becoming too small for an ever growing mankind. This psycho-social pressure will unify man, his society and culture, and will, finally, lead toward personalization, increased differentiation and to richer fulfilment of the individual. Evolution is always an ascent toward increased consciousness.

But what is the end of evolution? Even Teilhard does not conceive of it as an infinite process, but as having a definite goal in the paroxysm of man under the intense psycho-social pressure which will lead towards a Christification. Everything will be received and end in Christ. This excludes any final catastrophe as the end of our present world, since such a sidereal disaster could only lead to an extinction of a part of our universe rather than to the fulfilling of the universe at large.<sup>20</sup> We must admit that Teilhard's view gives meaning to human life and to its future without neglecting the scientific aspect of human origin and destiny. That he is a well-respected paleontologist speaks for itself. However, the whole evolutionary process from inanimate matter to the Christification seems to be patterned according to the transubstantiation of the elements into body and blood of Christ as it is celebrated in the Roman Mass.<sup>21</sup> Because all developmental lines converge in the point Omega, the conclusion follows (and Teilhard never rejects it) that everything and everybody will be saved, that the church becomes identical with mankind and that the last judgment is replaced by the process of natural selection. At this point the official Roman Catholic church objected saying that Teilhard does not do justice to the problem of evil. When he understands evil as evil of disorder and failure, of decomposition, of solitude and anxiety and of growth,<sup>22</sup> he misses the essential point that the New Testament writers never tired of emphasizing: Evil is caused by anti-Godly powers that threaten and denounce God's supreme position. What Teilhard observes is certainly true, but these are only the effects. He has forgotten to mention the cause of evil. Furthermore, in concentrating all attention to the future point Omega, he tends to neglect the present moment, since it seems to be only a minute

speck in the large eons of our world. This leads also to a neglect of the individual. In spite of a concern for a personal future Teilhard's basic concern is for mankind and not for man, for the cosmos and not for our earth. The individual does not matter in the evolutionary process. Here the emphasis of the New Testament runs contrary: Christ did not open the future to the world in general, but to individuals, to you and me. Our reservations are not intended to reject Teilhard's evolutionary eschatology. They only want to point to his limitations, limitations which we all share in some way or other. Now we must turn to the vital question whether a Biblical view of the future is possible.

### REGAINING A BIBLICAL VIEW OF THE FUTURE

Before we develop the Biblical view of the future, we must ask whether science has any basic objections against a future life beyond our present state, or whether it holds that our present state will continue forever.

#### Is a Future "Life Beyond" Possible?

Time is constantly elapsing and thus the future is constantly approaching and becoming present to us. The future becoming present and present becoming past seems to be a never ending process. Time as an eternal flow seems to be endowed with scientific sanctification. In 1842 J. Robert Mayer suggested the law of the conservation of energy in an essay *Remarks on the Forces of Inorganic Nature*. This law asserts that in an energetically closed system the quantity of energy remains constant, while just the form of energy is changeable. Energy can only disappear to re-enter the scene in a different guise. The energy of electricity, for instance, can be transformed into energy of light and of heat. Or the kinetic energy of flowing water is transformed into electric energy. Energy can also be gained by burning materials that disintegrate in burnt substance and energy of light and of heat. The decisive question is whether our universe is such a closed system that it neither loses energy nor gains it from outside. As far as scientific investigation has revealed to us, it is unlikely that our universe will be subjected to energetic forces from outside. Of course, we could reckon with the intervention of an almighty God, but then we must abandon a strictly scientific line of argumentation. This would mean that our universe will always remain the same, it has no beginning and no end, and the future is only a modification of the past. Such an eternal universe is somewhat attractive, since it provides steadiness within all changes. On the other hand, it is rather devastating to realize that the quantity of energy remains basically the same in our universe, no matter how hard we try to change things. We cannot add one calorie to it.

Furthermore, the law of conservation of energy was soon supplemented by the law of entropy. Rudolph Julius Emmanuel Clausius in 1850 and William Thomson in 1851 discovered that though the quantity of energy in a closed system remains always the same, this cannot lead to perpetual motion. Entropy or the non-convertibility of energy never decreases, it either remains constant or increases.<sup>23</sup> When we place a hot pot in a cold room, the energy of this pot disperses into the room and heats up the room a little, while the pot cools down. Though it is theoretically feasible that

the room could cool down again and the pot be heated up by the energy released from the room, the law of entropy tells us that this is unlikely. Although not lost, the energy is in a sense "used up" and is no longer convertible. We can run a movie backwards and get the effect of water running back into a pipe or of a diver leaping back from the pool onto a platform, but in reality we know that this is impossible. Thus, some scholars talk of the "time arrow" that bars events from being repeated.<sup>24</sup> When we think of our universe and the obvious eternal recurrence of the same, it is difficult for us to realize that all the movements of the stellar bodies are singular and not repetitive. The interstellar gas dispersed throughout the universe is slowing them down, not noticeably, but enough eventually to use up their kinetic energy.

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*The New Testament is no textbook about what we will find in heaven, but a guide to heaven.*

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All processes will slow down and come to a standstill. The theory of a pulsating universe is not exempt from this phenomenon because the pulsations too will slow down and come to a stop. Of course, we can tell ourselves that this will not happen to us or our children, since the state of ice death in which everything levels to the state of an energetic equilibrium is still millions of years away. But from Einstein we have learned that time is only a relative measure, and it elapses more slowly or more quickly depending on how we look at it. Furthermore, scientists have discovered that another fate is threatening us in the more immediate future. Within the next ten million years the surface temperature of our sun will increase by one hundredfold.<sup>25</sup> Through nuclear reaction hydrogen is constantly transformed into helium in the interior of the sun. Helium, however, is less permeable by heat and encloses the sun like an insulating envelope. Thus the more helium is produced, the more the sun heats up, until the heat pressure is high enough to counterbalance the helium pressure on the surface and to establish a new equilibrium of pressure. The resultant heat increase will cause all water on our earth to evaporate and to make the surface of our planet similar to that of the planet Venus. Needless to say, this heat wave, finally followed by the final heat death when all energy levels will have attained an equilibrium, will make life on our planet impossible.

However, one could argue that entropy is probably a sufficient conception for inanimate nature, but that it does not pertain to life.<sup>26</sup> Life shows at every moment that it is progressing towards a greater complexity and diversity; by its success it clearly seems to counteract all physical entropy. Thus, there cannot be a total death of the animate world, because the stream of life is irreversible, despite all adversity. This seems to be a strong argument against a final and total equilibrium at all energy levels. However, when we remember the source of the building blocks of life, we notice that life is sustained only through exploitation of the inanimate world. What happens if all possible energy sources are used up? What happens when the natural resources are exhausted and the sun stops giving its life-nourishing light? We cannot exempt life from its

context with the rest of nature. It may be uncomfortable or even offensive for us to face, but there is no eternal force within our world. Our world is doomed to death.

We have seen that by itself our universe implies no eternal concept of life. The only possibility left is that of a future life beyond our universe on a different stage. However, it is questionable whether such a life is at all desirable. What does it mean for us that we continue some kind of existence beyond our present universe? Would we merely continue what we face here, i.e. only prolong our transitory and confined existence?

### Is a Future "Life Beyond" Necessary?

As we look around us we notice a universal and continuous struggle for existence in all phases and places of life. Men compete with each other to survive in our competitive economic system. Animals mercilessly kill each other or devour plants merely in order to exist, and every neglected patch of soil shows us that even plants struggle with each other for the most favorable place. The atomic realm is not much different; one molecular combination strives with the other to maintain its own existence. Life can be preserved and developed only by destroying other life. Is this the essential state of our existence, or does not this almost demand a basic change? Will there never be an end to this universal struggle, of everybody against everybody, or will there sometime be a place where we can rest and simply enjoy nature around us? I do not mean a shallow romantic attitude that does not penetrate beyond the surface of existence, but a depth comprehension of nature that is not obstructed by this cruel struggle of which we are a part.

Connected with the struggle for existence is the transitoriness of life. The essence of time is its completion and replacement. Future is constantly replaced by new future and the present by a new present. But man wants more than this constant transitoriness. Even a continuously striving scholar like Faust cannot escape from man's most inborn yearning: "Stay with me moment, you are so beautiful."<sup>27</sup> However, Faust has to realize that this yearning overcomes him irresistibly and drives him almost to insanity. Life goes on incessantly and there is no rest for us until we perish.

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*The Biblical eschatological imagery must be totally reinterpreted in concepts which are available and familiar to us now. Otherwise Biblical eschatology will remain an archaic remnant of an ancient faith.*

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Life is only an episode and then it goes back to whence it came. The verse in Genesis "You are dust and unto dust you shall return" (Gen. 3:19) is one of the most profound and devastating remarks in the whole Bible. Man came out of nothingness and will go back into nothingness. As we confront this destiny there are only two possibilities for us. (1) There is really no steady moment in the world. We are going into the nothingness from whence we came, and the

world at large will face the same fate when the equilibrium of all energy levels will bring the life processes to a final stop. Knowing about this fate our reaction can only be despair or resignation, and nihilism is the adequate philosophic position.<sup>28</sup> (2) The world as we now see it really calls for redemption from this vicious circle and there is a power from beyond this world that leads to a fulfilment and to a redemption beyond the limits of this world. If this possibility is true, in thankfulness we see our present situation in an entirely different way. Our view then is that life here on earth is only a preparation for the life beyond granted to us through the power of God revealed in Jesus Christ.

But what is the meaning of this life beyond? Is it just a projection of our earthly desires as Feuerbach claimed,<sup>29</sup> or a means to calm down the material endeavors of the underprivileged here on earth as Karl Marx suggested? Neither of them is right, because it is the gift of God and contradicts all our materialistic endeavors. If it is a projection, it must be God's projection and not ours.

### The Future "Life Beyond"

The New Testament is no textbook about what we will find in heaven, but a guide to heaven. It makes as little sense to take the New Testament imagery literally as it would to take a sermon illustration literally. When we want to make any assertions at all about a future life beyond, we must start with the central events of the New Testament, Christ's death and resurrection.

Christ's resurrection is the indication of a life beyond. While Christ's death was a complete death with all symptoms of death, his resurrection was not merely the elimination of death at one specific point for a specific time. After his resurrection Christ has never died again; consequently, his resurrection must be different from a resuscitation.<sup>30</sup> The Easter event is the presupposition of Christ's authority. He who can defeat his own death and replace it with a new possibility of life can also grant us a new perspective of the future. This is exactly what the New Testament writers felt. Christ's resurrection is the indication and the beginning of a total transformation of the world. Paul shows this with the example of the grain (I Cor. 15). Man sows the grain and subsequently the kernel is transformed into new wheat, although anyone looking only at the surface of the earth would think that the grain had died. Christ did not come back to our world and live as one of us in our environment. Though he had been here after Easter for a short while, he was actually beyond our confinements.

This leads us to another point: Christ's resurrection is also the indication and the beginning of the "how" of the beyond.<sup>31</sup> It opens an entirely new dimension with inconceivable possibilities. It is the end of finitude, the end of transitoriness and the end of faith. In his resurrected state Christ was no longer confined to our earthly limitations. He overcame space and time. As the disciples experienced it, he penetrated walls and disappeared in their midst. He was no longer a transitory being that was part of and subject to the history of our universe. He was exempt and beyond our perishable stage. Christ's resurrection was for him also the end of faith and indicates that the future life beyond will be our fulfilment of faith. When he

was resurrected into a new reality he needed no longer to believe in it, he experienced it. For us the future life is still a matter of faith, e.g., as indicated by the rejection of Thomas who had wanted to grasp this new life with his hands immediately (John 20:24-29). When we will be received into this new life, all the ambiguities of this world will be left behind. We need no longer ponder about a "yes" or a "no" or about good and evil. The immediate confrontation with God in the future life will release us from these anxieties, because His immediate presence will suffice to let us find the answer.

Knowing about the reality of a future life beyond leads us also to a new understanding of our present world. We realize that the course of this world is only a prelude to the future world. This prevents us from a neglect as well as from an overemphasis of this world. Neglecting this world would mean that we spoil the future world also, because a prelude is a necessary introduction to the main part. Thus we must take our present world seriously as a preparatory state for the new world to come. Seclusion from worldly affairs was never the proper attitude of Christians. Overemphasis of this world, however, would not be appropriate either, because this world is only a prelude while the main part is still to come. An apocryphal word of Jesus states this very properly: "The world is a bridge. Pass over it. But build not your dwelling there."<sup>32</sup> Who feels himself too much at home here on earth, has difficulty finding the beyond. It may well be that he waits too long to make the decision for the beyond.

The future life beyond is determined by and accessible only through God. It may be a comfort for us to know that we cannot interfere with our own preparations for this life. Thus we can trust in this life beyond because all human uncertainties and distortions are eliminated.

### CONCLUSION

We have come to the end of our investigation of the future of our world. Many more aspects could have been shown, but we chose to confine ourselves to these few. As a result we can conclude that in the light of secular concepts of the future there seems to be a need for a rebirth of Christian eschatology. Unless secular progress regains its Judaeo-Christian foundations, it is bound to miss man more and more. It becomes dehumanizing instead of a humanizing force. Natural science illuminating Biblical eschatology and contrasting with secular notions of progress indicates an end of the universe. However, we cannot build a Christian eschatology on the findings of natural science unless we want to arrive at a natural theology. Yet it is important to know that science does not overrule Christian eschatology except through its own presuppositions or by making unscientific metaphysical assertions. On the other hand we have seen that the Biblical eschatological imagery must be totally reinterpreted in concepts which are available and familiar to us now. Otherwise Biblical eschatology will remain an archaic remnant of an ancient faith.<sup>33</sup>

### FOOTNOTES

<sup>1</sup>Gibson *Sympathy Card* 25G 1562-6 with verses by James Whitcomb Riley.

<sup>2</sup>Cf. Ernst Benz, *Evolution and Christian Hope: Man's Concept of the Future from the Early Fathers to Teilhard de*

Chardin, trans. by Heinz G. Frank (Garden City, N.J.: Doubleday, 1966), 121.

<sup>3</sup>Friedrich Nietzsche, *Philosophy during the Tragic Age of the Greeks*, trans. by Maximilian A. Mugge, in *The Complete Works of Friedrich Nietzsche*, ed. by Oscar Levy, II (New York: Russell & Russell, 1964), 100ff.

<sup>4</sup>Arnold J. Toynbee, *A Study of History*, I (London: Oxford University Press, 1956), esp. 271-299.

<sup>5</sup>Cf. Hans-Joachim Schoeps, *An Intelligent Person's Guide to the Religions of Mankind*, 107f.

<sup>6</sup>Cf. Hans-Joachim Kraus, *Worship in Israel: A Cultic History of the Old Testament*, trans. by G. Buswell (Richmond Va.: John Knox Press, 1966), 38ff.

<sup>7</sup>Cf. Ernst Benz, *Evolution and Christian Hope*, 126.

<sup>8</sup>Rene Descartes, *The Meditations*, in *The Meditations and Selections from the Principles of Rene Descartes*, trans. by John Veitch (La Salle, Ill.: Open Court Publishing Co., 1948), esp. 30ff.

<sup>9</sup>Immanuel Kant, *Beantwortung der Frage: Was ist Aufklärung?*, in Immanuel Kant, *Werke in sechs Bänden*, ed. by Wilhelm Weischedel, VI (Frankfurt: Insel-Verlag, 1964), 53.

<sup>10</sup>Cf. Henry E. Allenson, *Lessing and the Enlightenment, His Philosophy of Religion and Its Relation to Eighteenth-Century Thought* (Ann Arbor: University of Michigan Press), 150-161.

<sup>11</sup>Ernst Troeltsch, *Protestantism and Progress; A Historical Study of the Relation of Protestantism to the Modern World*, trans. by W. Montgomery (Boston, Mass.: Beacon Press, 1958), 134ff.

<sup>12</sup>According to Ernst Benz, *Evolution and Christian Hope*, 130.

<sup>13</sup>H. Richard Niebuhr, *The Kingdom of God in America* (New York: Harper & Row, Harper Torchbooks, 1959), 164-198, summarized this change under the headline: "Institutionalization and Secularization of the Kingdom."

<sup>14</sup>See Emil Brunner, *Eternal Hope*, trans. by Harold Knight (London: Lutterworth Press, 1954), 25.

<sup>15</sup>Cf. Teilhard de Chardin, *The Phenomenon of Man*, 257-263, where he expresses his understanding of evolution especially clearly.

<sup>16</sup>Cf. Jean-Paul Sartre, *Being and Nothingness; An Essay on Phenomenological Ontology*, trans. and with an introd. by Hazel E. Barnes (New York: Philosophical Library, 1956), 476-481.

<sup>17</sup>Cf. Martin Heidegger, *Being and Time*, trans. by John Macquarrie and Edward Robinson (London: SCM Press, 1962), 274-311.

<sup>18</sup>Cf. Teilhard de Chardin, *The Future of Man*, 243f.

<sup>19</sup>Cf. Teilhard de Chardin, *The Future of Man*, 228ff.

<sup>20</sup>Cf. Teilhard de Chardin, *The Future of Man*, 306f.

<sup>21</sup>Cf. Ernst Benz, *Evolution and Christian Hope*, 224ff.

<sup>22</sup>See Teilhard de Chardin, *The Phenomenon of Man*, 310f.

<sup>23</sup>Cf. the translated excerpt from Clausius' paper on entropy ("Über verschiedene für die Anwendung bequeme Formen der Hauptgleichungen der mechanischen Wärmetheorie") in William F. Magie, ed., *A Source Book in Physics* (Cambridge, Mass.: Harvard University Press, 1965), 234ff; see also Adolph Grünbaum, "Time and Entropy," *American Scientist*, XLIII (1955), 550-572.

<sup>24</sup>To my knowledge Sir A. S. Eddington, *The Nature of the Physical World* (New York: Macmillan, 1929), 68ff. was the first to introduce the term "time arrow".

<sup>25</sup>Cf. George Gamow, *The Birth and Death of the Sun; Stellar Evolution and Subatomic Energy* (New York: Viking Press, 1946), 116-120.

<sup>26</sup>Cf. Teilhard de Chardin, *The Vision of the Past*, 168ff.

<sup>27</sup>Cf. *Goethe's Faust*, a new American translation together with the German text, by Carlyle F. MacIntyre, with illustr. by Rockwell Kent, I (Norfolk, Conn.: New Directions, 1941), 116f.

<sup>28</sup>Knowing that the understanding of a life beyond this life was a rare exception for the Old Testament, it is not surprising that the outlook of the people of the Old Testament was melancholic (cf. Walter Köhler, *Old Testament Theology*, 150f).

<sup>29</sup>Cf. Ludwig Feuerbach, *The Essence of Christianity*, trans. by George Eliot, Introd. by Karl Barth, and foreword by H. Richard Niebuhr (New York: Harper & Brothers, Harper Torchbooks, 1957), 170-184.

<sup>30</sup>Walter Kunneth, *The Theology of the Resurrection*, trans. by James W. Leitch (St. Louis, Mo.: Concordia Publishing House, 1965), 72-80, therefore, calls the resurrection very appropriately the "primal miracle".

<sup>31</sup>Cf. Karl Heim, *The World: Its Creation and Consummation*, 137.

<sup>32</sup>Cf. Joachim Jeremias, *Unknown Sayings of Jesus*, trans. by Reginald H. Fuller (London: SPCK, 1957), 99f.

<sup>33</sup>For a more extensive treatment of this topic and related areas, see Hans Schwarz, *On the Way to the Future. A Christian View of Eschatology in the Light of Current Trends in Religion, Philosophy and Science* (Minneapolis: Augsburg, 1973).

# The Function of Tongue-Speaking for the Individual: A Psycho-Theological Model



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## Introduction

Paul states the fundamental proposition concerning the function of tongues for the individual in these words: "He who speaks in a tongue edifies himself . . ." (I Cor. 14:4). In this article we will be concerned with a psycho-theological model for interpreting the function of tongues for the individual who practices tongue-speaking in his private life. Note that we are not concerned with the exegetical and historical questions concerning the problem of identity between the present day phenomena and that mentioned in the New Testament. We simply assume that they are the same for the present purpose of developing a model. We will proceed therefore to the propositions concerning the function of tongues for the individual in terms of biblical, psychological, and theological categories.

## The Function Biblically Described

*Biblically the function of tongues for the individual may be described as the spiritual upbuilding of the person by means of prayer to God concerning the mysteries of his own spirit.*

This proposition sums up the Biblical evidence found in the Pauline discussion. In addition to the text already given above, which establishes the upbuilding function as fundamental, we may add the following texts: "For one who speaks in a tongue speaks not to men but to God; for no one understands him, but he utters mysteries in the spirit." (I Cor. 14:2). "For if I pray in a tongue, my spirit prays but my mind is unfruitful." (I Cor. 14:14). "But if there is no one to interpret, let each of them keep silence in church and speak to himself and to God." (I Cor.

14:28).

This proposition involves three things. The first is that of spiritual upbuilding. In general terms this is to be understood as the establishing more fully of the individual in the depth and reality of the Christian life as it centers in Jesus Christ. Perhaps Col. 2:6, 7 states it as well as we could want: "As therefore you received Christ Jesus the Lord, so live in him, rooted and built up in the faith, just as you were taught, abounding with thanksgiving."

The Christian Gospel involves the total man; therefore all levels of his functioning must be renewed if the Gospel is to be totally effective. There is a process in the Christian life as well as an initial contact with Jesus Christ. There is sanctification as well as regeneration. The process of being more fully and functionally related to Jesus Christ in a living way is the spiritual upbuilding meant here.

The second matter involved in this proposition is that of prayer. Prayer, in its deepest sense, is the communication in relation of the individual with God. The nature of tongues is relational. It is an addressing, on a deep personal level, guided by the Holy Spirit (Rom. 8:26), of God. Thus tongues have an inherent meaning. It is not mere gibberish or ecstatic ravings. It is a communication with God on a level more profound than that of the rational and cognitive.

The third aspect of this proposition is that the contents of this upbuilding prayer are described as "mysteries of the spirit." Here we take the "mysteries" as deep concerns of the man's own spirit, but which concerns are so uttered is guided totally by the Holy Spirit. The precise contents will vary from person to person according to his situation, need and concerns.

even as we find it to be so in prayer with the mind. The word "mystery" is not in its usual Pauline sense here of previously hidden divine revelation now made known. Rather it signifies the fact that no one save God knows the meaning of the communication.

### The Function Psychologically Described

*Psychologically the function of tongues for the individual may be described as increased integration of the total personality.*

If we take our cue from the biblical category of "upbuilding" we can see that being more "rooted and built up" in Jesus Christ suggests a more total integrating of the whole person in the life of Jesus Christ. From the perspective of modern psychology and psychiatric theory and practice it is clear both that man as psyche has many levels of functioning and that change in the functioning of the psyche involves cognitive and affective components.

Man is a complex being. The conscious and rational elements, so critical to human experience, are not the totality of man. Rather they are the perceptible pinnacle of function of a vastly greater and more profound psycho-biological structure. Personality is deeply rooted in unconscious processes. Further, these processes are very powerful by virtue of their closeness to the inmost principle of life as it functions in man. The theological axiom that a man acts according to what he is, is well substantiated in a psychological sense.

These deep levels of personality involve many diverse elements related to the basic needs of human life and their satisfaction, but they are also related to the higher needs of the human psyche, such as coherence, value and meaning. Already in Karen Horney's writings there is a recognition of a positive impulse of the inner self to develop in a definite, individual and authentic manner. This point has been picked up and developed very fruitfully in the last decade or so in the psychagogic psychology of Maslow, Jourard and Mowrer among others.

The focus of these theorists is not on what can be learned by an analysis of man's illness but on what can be learned from an analysis of those who are identified as functioning fully and in a "healthy" way. Maslow describes his "self-actualizers" very well in his book *Motivation and Personality*, Chapter 12. The picture given there is of an efficiently functioning person, highly integrated within, positively and creatively related to others and to the environment, whose subjective experience is characterized by such words as freedom, satisfaction, joy, meaning, value and the like. A truly healthy person is one whose basic experience and action are organically rooted in the deepest impulses of the life. There is nothing superficial or artificial about such persons. They are truly persons in the deepest sense.

But not only are there deep levels of functioning of the human psyche. We also know that changes in the functioning of this deeply rooted structure of personality require conditions which involve the total person both cognitively and affectively. It is especially noteworthy that, because the roots of personality are so deep, the personal structure cannot be directly altered by "taking thought". Psychiatry and psychotherapy have amply demonstrated that mere cognitive perception of one's problem or neurotic structure

is therapeutically worthless if not a positive hindrance. What is required for effective therapy is a balanced combination of cognitive and affective components which constitutes a therapeutic insight. In this situation "kinks" in the psychic structure are eliminated and the deepest inner impulses of the life are able to operate more fully. Inner conflict is reduced and positive integration of the conscious and unconscious levels is furthered.

The function of spiritual upbuilding which our proposition attributes to the exercise of tongues can be easily related to the psychological paradigm of health and also to the psychological conditions required for personality change and integration. This is so especially in the light of the kind of effects most often mentioned in modern accounts by those who have entered into this experience.

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*The Christian Gospel involves the total man; therefore all levels of his functioning must be renewed if the Gospel is to be totally effective.*

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After surveying the various psychological theories concerning the cause and nature of tongues, Virginia Hine concludes that a functional interpretation of tongues seems most probable. She states her conclusions on this matter in the following words<sup>1</sup>:

Through a functional approach to the phenomenon we have come to assess glossolalia as a non-pathological linguistic behavior which functions . . . as one component in the generation of commitment . . . it operates . . . in personal change, providing powerful motivation for attitudinal and behavioral changes in the direction of group ideals.

Hine itemizes her findings concerning the subjective correlation of tongues thus<sup>2</sup>:

Forty percent mentioned increased capacity for love toward, sensitivity to, or concern for others. Thirty seven percent mentioned the "fruits of the spirit," such as love, patience, kindness, gentleness, etc. The remaining nineteen percent described an increase in self-confidence and the "power to witness", an active attempt to influence others.

In sum she states<sup>3</sup>: "Attitudinal changes were generally described in terms of greater capacity for love toward others, a sense of tranquility and joy, and more confidence in their beliefs."

In his recent comprehensive, objective and sympathetic examination of tongue speaking, Morton T. Kelsey quotes with approval<sup>4</sup>:

Speaking with tongues is one evidence of the Spirit of God working in the unconscious and bringing one to a new wholeness, a new integration of the total psyche, a process which the Church has traditionally called sanctification.

We might point out here that it is possible to view tongues not only as an evidence but as a means to the ends described.

The human psyche is complex and needs to be integrated on all levels of function properly. One of the key conditions for such an integration is an experien-



tial mode of being in which the psychic structure is loosened and opened so that the "kinks" can be removed and the genuine life impulses can replace them throughout the whole spectrum of psychic levels. From the psychological evidence it seems clear that tongues are suited to serve just such a purpose. The tongues experience would then be understood to involve a state in which the unconscious level of personality is allowed operation along with the conscious, concerned with the mysteries of one's own spirit, but guided by the Holy Spirit, in a state of psychic openness best described as "faith-receptivity". Our theological proposition on this point will make this clearer.

### The Function Theologically Described

*Theologically the function of tongues for the individual may be described as the "Opening" of the higher levels of the total person (unconscious, conscious) to the life of the incarnate and ascended Lord. This influx of life from Jesus Christ from within is formed in the character according to its own nature which is fixed by the light of God's self-revelation in Jesus Christ as recorded in the written, normative Word of God.*

This proposition is simply the transposition of realistic Eucharistic theology into the context of the charismatic life of the Body of Christ, the Church. To understand this proposition it is necessary first to indicate in outline form the theological structure underlying the Church doctrine of union with Christ in its ontological aspect. This we summarize thus:

1. Man is to be understood as an organic unity of life encompassing the total person, even to the inclusion of the body. This organic unity is brought about by the activity of the life-principle at the deepest level of personal existence.
2. By the Incarnation of the Eternal Son, along with His subsequent death, resurrection and ascension, we find that the organic principle of human life has been perfectly and fully expressed. The one true Man, the highest possible form of human life in union with God, is now a reality effected by divine action.

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*Because the roots of personality are so deep, the personal structure cannot be directly altered by "taking thought."*

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3. In redemption applied to the individual, regeneration, which is the beginning point of that application, means and is the replacement of the original life principle received from Adam by the principle of the New Humanity, the glorified life-principle of Jesus Christ.
4. Objectively the communication of this life principle to the individual is only by the action of the Holy Spirit.
5. Subjectively the rule for the effectual operation of this life-principle at the level of character (attitude and behavior) is that of faith understood as a combination of *notitia*, *assensus* and *fiducia*, with the stress falling on *fiducia* as the total response of the person in an experiential mode, of openness and receptivity. Both "He

who on the basis of faith is just shall live" and "The just shall live by faith" are proper biblical and theological keys to Christian existence. Our new relationship to God is established by faith and our new life in God functions by faith.

With this conception of the Christian life in mind we are now able to make the connection between the well established theological understanding of union with Christ and the historically underdeveloped understanding of the function of tongues for the individual.

Theologically tongues function for the individual as an occasion and means by which the Holy Spirit carries out His work of sanctification, of conforming the total person as a functional reality to the image of Jesus Christ. The specifically unique and significant role of tongues here is to be understood in terms of achieving, maintaining and increasing the person's inner openness of faith-receptivity to the life of Jesus Christ within as it is "brought" there by the uniting and incorporating work of the Holy Spirit.

In terms of the Gospel images it might be understood as an unblocking and widening of the connection between the Vine and the branch. Or in terms of feeding upon the body and blood of Jesus, which is absolutely essential to eternal life, tongues function as a means by which, in a somewhat osmotic manner, the life-principle of Jesus Christ enters into the unconscious and conscious aspects of the person so that the person's character is progressively being altered according to the impulse of the new life-principle which corresponds to the objective norm of Scripture.

In this way the Holy Spirit is able to treat various spiritual "kinks" in the person's inner structure and at the same time to reform, at a deep and lasting level, that same inner structure according to the life principle of Jesus Christ.

### Conclusion

If the function of tongues for the individual is as indicated in our propositions it is not difficult to see that tongues can be highly regarded by those who experience it, especially if faith, prior to the initial experience, has been weak or non-existent in the one receiving. To avoid an unbalanced over-reaction at this point it is well to end our discussion by putting this whole matter in perspective.

Positively tongues have something for our modern tendency to reduce man to a rational and an ethical creature. "All we need is more knowledge, clearer principles and all will be well"—so runs this error. And we certainly do need these. But they are not enough. We need to incorporate them into the real roots of our personality. And it is just the conditions necessary to such incorporation which we systematically suppress and eschew. We need, both in the Christian life and in corporate worship, to foster an atmosphere of openness, of receptivity, an atmosphere in which the experiential mode is promoted. Tongues, acting as a channel and means of increasing the experiential mode, certainly make the person exercising them more open to the knowledge and insight which we stress in our reduction of man to auditor and stimulus-response mechanism.

Negatively, tongues need to be seen in the context of other means by which openness and integration can be fostered—preaching, singing, praying, community,

*Theologically tongues function for the individual as an occasion and means by which the Holy Spirit carries out His work of sanctification.*

action. Tongues are not the only means to the end of sanctification. The whole history of the Church shows this. This gift is not an end in itself because the gifts of the Spirit aim at the fruit of the Spirit. And with

tongues as with other means there is no automatic road to attaining the end of the Christian life, likeness to Jesus Christ. To make too much of tongues as a means is an understandable error—to ignore tongues is an unfortunate one.

## REFERENCES

- <sup>1</sup>Virginia H. Hine, "Pentecostal Glossolalia: Toward a Functional Interpretation", *Journal For the Scientific Study of Religion*, VIII, (No. 2), p. 225.
- <sup>2</sup>*Ibid.*, p. 216.
- <sup>3</sup>*Ibid.*, p. 222.
- <sup>4</sup>Morton T. Kelsey, *Tongue Speaking*, Doubleday & Company, Inc., New York, 1968, p. 222.



**TONGUES OF MEN AND ANGELS: THE RELIGIOUS LANGUAGE OF PENTECOSTALISM**, by William J. Samarin, The Macmillan Company, 1972, 277 pp. \$7.95.

According to a statement on the dust jacket, this book is "a controversial and sympathetic analysis of speaking in tongues." One could say that it is controversial because Samarin concludes that glossolalia is normal rather than supernatural, and is sympathetic because he accepts it as a linguistic symbol of the sacred which functions importantly in the feeling dimension of religion.

Samarin's approach is sociolinguistic. He is interested in *what* it is that glossolalists are actually producing, and *why* they speak in tongues. His data were gathered by participating in meetings (in Canada, Holland, Italy, Jamaica, and the United States), conducting personal interviews, and distributing questionnaires. A large sample of glossolalic utterances was quite easily obtained because open meetings were taped, and many of his informants were willing to have their speech taped. Three appendices are provided which contain: (1) a description of the questionnaire used in studying glossolalia among Christians, (2) a public testimonial about the conversion of one of these Christians, and (3) samples of different types of glossolalic utterances.

Most explanations for why people speak in tongues have been psychological, e.g., altered states of consciousness, emotional release, and regression. After analyzing studies of that type, Samarin concludes that the evidence supporting such explanations is not impressive, and, in fact, is often contradictory. He suggests that one possible reason for considering glossolalia to be aberrant behavior is the rational tradition in the West which looks with disfavor on emotion and lack of decorum in religion.

A linguistic analysis of glossolalic speech demonstrates that it is not language. It is *like* language in many ways, but only because the speaker (perhaps unconsciously) wants it to be. Although there are no

words, the rhythm and melody in the utterances make the strings of syllables which are put together more or less haphazardly seem to be words and even sentences. However, "no glossa, no matter how well constructed, is a specimen of human language, because it is neither internally organized nor systematically related to the world man perceives" (p. 128). Although claims of xenoglossia (speaking in a language unknown to the speaker) are rather common, Samarin has not been able to verify any of the reports. Either the stories have been greatly distorted, or the person reporting the incident was linguistically incompetent or unreliable.

According to the users of tongues, its major functions are in prayer and giving messages. Samarin found that the second generation Pentecostals tended to speak in tongues less than did adult converts. Most informants gave personal (e.g., some kind of breakdown in communication with God) rather than social reasons for the lessening use of glossolalic utterances.

Although glossolalia is identified with a religious community, its functions are not all religious. Samarin suggests a number of functions which would not ordinarily be recognized by the participants. Among psychological functions are: symbolizing a change in life style for the speaker, supplying proof of God's presence, and providing a pleasurable state of intense emotion. Among the social functions are: contributing to the spontaneity of meetings, validating leadership and authority, integrating individuals into the movement, and giving women a share in an institution traditionally dominated by men. Like ordinary language, glossolalia also functions to change the nature of the event, in this case making it more religious.

As noted above, Samarin is concerned with why people speak in tongues. He has concluded that glossolalic behavior is not aberrant behavior, it is only anomalous. It is anomalous behavior because it departs from typical speech, not because the tongues speakers are in any way abnormal. The *production* of tongues is not strange (it is easy to imitate), but the

beliefs about this pseudolanguage are, and glossolalic behavior has been judged to be abnormal because of the belief by certain Christians that it comes from God. Belief is confused with behavior, resulting in the condemnation of both the speakers and the speech. Tongues can be viewed as part of the world-wide inventory of varieties of religious language, and constitutes a linguistic symbol of the sacred. Even though Samarin does not believe that glossolalia is a miracle, he can believe that it symbolizes the presence of God to the speaker.

Why then, do people speak in tongues?

People talk in tongues, because it is part of a movement that offers them the fulfillment of aspirations that their previous religious experience created in them. They too want to believe in God passionately, to know the delight of communion with him, and to see him at work in life. They see evidence of all this in members of the charismatic movement. It is intellectually satisfying, and belief is nurtured by intimate personal relations. This is why they accept the beliefs and practices of the movement. They accept tongues, too, because everything else is so attractive (pp. 235-236).

A review of this length can deal in only a general way with the data and conclusions of this study of glossolalia. It cannot deal adequately, for example, with Samarin's linguistic analysis of glossolalic speech and his comparison of it with language and other speech forms, to which he devotes over 75 pages. This study will certainly have to be considered in any future discussions of the nature and functions of glossolalia.

Reviewed by Claude E. Stipe, Department of Sociology and Anthropology, Marquette University, Milwaukee, Wisconsin.

**THE PSYCHOLOGY OF SPEAKING IN TONGUES** by John P. Kildahl, Harper and Row, New York (1972) 110 pp. \$4.95

**NEW TESTAMENT TEACHING ON TONGUES** by Merrill F. Unger, Kregel Publications, Grand Rapids, Michigan (1971) Paperback. 175 pp. \$1.75

**THE PENTECOSTALS: The Charismatic Movement in the Churches** by Walter Hollenweger, translated by R. A. Wilson, Augsburg Publishing House, Minneapolis (1972) 572 pp. \$10.00

When Prudencio Damhorierna estimates that there are 12 to 14 million Pentecostals in the world today and when Morton Kelsey claims that "some two or three million, and perhaps a great many more, Americans" would have the experience of tongue-speech in the 20th century alone, it is time that fresh attention be given to the phenomenon known as glossolalia. Books are appearing that look at tongue-speech from psychological, sociological and biblical perspectives.

The clinical nature of Kildahl's book is nowhere more apparent than in the very method of information gathering. For example, firsthand observation of glossolalists, the distribution of detailed questionnaires, correspondence with tongue speakers, and interviews with a number of linguists and anthropologists were methods employed by the researchers. Professor Kildahl met with a wide variety of church groups committed to the practice of glossolalia so that firsthand information could be obtained. Extensive use was made of tape recordings of actual samples of glossolalia. The researchers also carried on dialogue with non-speaking prayer groups that were otherwise similar in nature

to the glossolalists.

Kildahl concludes that glossolalists are "neither more nor less emotionally disturbed than equally religious non-tongue-speakers" (p. 65). He does, however, notice among those who speak in tongues a dependence upon an authority figure and a desperate need for acceptance by a group or by God. Moreover, he says, once the gift is received there is a feeling of relaxation and euphoria.

It seems fair to say that in recent literature, the psychological dimension of glossolalia is receiving more attention than the biblical basis for the experience. It was Stuart D. Currie in the pages of *Interpretation* (XIX, July 1965, 275) who remarked with considerable insight: "Unless and until one has some fairly clear idea of what *glossais lalein* means in the New Testament, it would appear rash to use the expression to describe a contemporary phenomenon." Thus, Unger's book deals with a subject that is timely to say the least.

After a chapter entitled "Charismatic Revivalism in the Church Today," Unger proceeds in chapters 2 through 9 to deal with the references to tongue-speech in the book of Acts. Very scant attention is given to the problems related to the sources used by Luke in the Pentecost narrative. He concludes that glossolalia in the Acts was a sign in every instance (Acts 2:4; 10:46; 19:6) and in no case was it an apostolic gift (p. 74).

Chapters 10 through 14 deal with the Pauline position on tongues. Unger emphasizes the fact that Paul stressed the "temporary character of speaking in tongues" in comparison with the enduring nature of love. The question of the relationship (if any!) between the Corinthians, glossolalia and that of Pentecost is glossed over as is the larger question of ecstaticism at Corinth.

Unger concludes with Paul: "Tongues shall cease" (1 Cor. 13:8). The author further suggests: "Experience that is not based solidly on the Word and that does not grow out of an accurate knowledge of the Word is as unstable as a house built on the sand" (p. 168).

Those interested in the history of Pentecostalism will be grateful to R. A. Wilson who has translated from the German the 1969 encyclopedic *Enthusiastisches Christentum* which traces the history of the movement from its inception to the end of the last decade. In the first part (pp. 1-287) Hollenweger tackles the sticky problem of definition. The perplexing diversities within the ranks of Pentecostalism have long plagued scholars. The author rejects the older sociological definition of "sect" and proposes that "a person belongs to a sect if he has excluded himself from the fellowship of the saints, that is, if he asserts that in his own ecclesiastical organization, in his own theology, and in his own experiences of faith, God's will is infallibly 'incarnate'" (p. 504). Hollenweger, then, includes all groups who teach at least two post-conversion crises in the life of the believer. The first is the baptism of the Holy Spirit and the second is usually—though not always—characterized by glossolalia.

This work will add greatly to an understanding on the part of main-stream Christians of their Pentecostal brothers. It could be the beginning of significant and meaningful dialogue that would hopefully end in

mutual respect and understanding.

*Reviewed by Watson E. Mills, Department of Religion,  
Averett College, Danville, Virginia.*

**A CHRISTIAN POLITICAL OPTION** by Bob Goudzwaard, translated by Herman Praamsma. (Toronto: Wedge Publishing Foundation, 1972. pp. 66. \$2.75, paper.)

**WORSHIP AND POLITICS** by Albert F. Gedraitis. (Toronto: Wedge Publishing Foundation, 1972. pp. 92. \$2.75, paper.)

These two slim volumes are the first of the New Exodus Series begun by the publishers "to encourage the growth of a grass roots Christian social consciousness in Canada and the United States." Goudzwaard has been a professor of economics at the Free University of Amsterdam since 1971. Gedraitis is a research writer for the Christian Labour Association of Canada. They seek, in a nonscholarly fashion, to guide the political thinking of evangelical and perhaps other Christians.

The "political option" which Goudzwaard favors is the creation of an independent Christian political party. The bulk of his book, however, is an introduction to the nature of contemporary political problems. In addition to a Christian party, he proposes a far-reaching bureaucratic control of the organization and operation of business enterprise that is reminiscent of the Fascist "corporate state." His economic and political values, despite disclaimers, betray a strong Marxian or socialistic bias. Free enterprise is the root evil, causing the demonic problems of imperialism, militarism, racism, and exploitation of labor and consumers. Preoccupied with *economic* problems, he has little to say about the moral and spiritual roots of the world crisis.

Nowhere does he delineate the connection between this brand of politics and the Scriptures. Neither does Gedraitis. Though Goudzwaard shows a greater awareness than Gedraitis of the subtleties of politics, his economic analysis is rather thin and fails to take account of the arguments of such free enterprise economists as von Mises and Friedman.

Gedraitis, in a *tour de force*, sets out to enlist the Scriptures in the cause of political activism, even revolutionary strategy. He mischievously undertakes to demolish the standard Scriptural barriers to Christian utopian politics by turning them on their head. The kingpin of his argumentation is his interpretation of the New English Bible's unique rendering of I Corinthians 1:28, "He has chosen things low and contemptible, mere nothings, to overthrow the existing order." He insists that Paul was clearly instructing his churches to overthrow the Roman Empire as soon as conditions permitted. The separation of the two kingdoms must be ended so that the kingdom of earth (world) becomes the kingdom of God. Without such communal action, worship is meaningless and hypocritical.

Gedraitis makes no mention of the fact that his interpretation of verse 28 is not compatible with twelve other well known versions of the New Testament (KJV: "things which are not, to bring to nought things that are."). Nor is he evidently aware of such interpretations as Matthew Henry's: "It is common

for the Jews to speak of the Gentiles under this character, as *things that are not* . . . The gospel is fitted to bring down the pride of both Jews and Gentiles."

In the hands of Gedraitis Romans 13:1, "Let every person be loyally subject to the governing (civil) authorities," (Amplified Version) becomes a duty to obey only just governments. The warning in Romans 13:2 against resisting authority becomes a warning against failing to "face up to" these powers that are ordained of God. Whoever dissents from this interpretation "is bent on serving the evil spirit of Conservatism." "Abhor that which is evil . . . and overcome evil with good" (Romans 12) becomes a warrant for overcoming political evil by "communal action". "My kingdom is not of this world" becomes in effect "My kingdom is a model for altering the world by political strategies."

It should be helpful to identify some of the premises and presuppositions that appear to underly these works. In the first place, both books are permeated by an organismic conception of society. Social structures are viewed (in the tradition of Plato, Rousseau, Hegel and Marx) as entities over and above the human being of which they are composed. Society is hypostasized, an abstraction becomes an actuality, a myth moves with power. Therefore, the arms of Christ must be outstretched not only to individual hearts but also to collectivities (which Gedraitis calls "creation") that have a life of their own, for sin resides in both (p. 26). The effect of this doctrine would seem to be that Christ is not the only mediator between man and God, and that Dostoyevski's Grand Inquisitor was right in condemning Christ for having resisted the third temptation in the wilderness.

It is therefore not surprising that these authors readily place much faith in mass communal political action, governmental bureaucracies, even world government. The organismic presupposition may also help explain their affinity for the World Council of Churches and the 1967 Confession of the United Presbyterian Church. Since the kingdom of God is to be realized on earth through human action, Christ at His second coming will need only to complete the process. Except for this reference to the second coming, no attention is given to Scriptural prophecies yet to be fulfilled. A neo-social gospel is being offered by evangelicals on stronger worldly grounds than scriptural grounds. It may be received rather favorably in view of a certain attractiveness which the organismic theory has had in an age where many have worshipped at the shrine of "The Great Society" (or the electoral majority, or paternalistic government). The hypostasized collectivity of *The People* shines for many "as an angel of light"

Apropos of hypostasis, two scholarly treatments deserve mention here: Eric Voegelin's *Order and History* and his shorter work *A New Science of Politics*, and Thomas Molnar's *Utopia: The Perennial Heresy*. They analyze the historical forms of the heresy called the "immanentization of the eschaton", and the fusion of the two kingdoms of God and the world.

Secondly, the authors apparently presuppose a natural goodness in man, or would minimize the differences between Christians and non-Christians. The gospel is said to speak to all men, the natural inference being that all have ears and all hear the saving Word of God (contr. I Cor. 2:14). At another point Gedraitis

asserts that Christians sin as much as non-Christians (contr. I John 3:6). Their social critique is presented in terms that would have a greater appeal to non-evangelicals.

Thirdly, cultural relativism comes through strongly. We deal here with the vital matter of the authority of the Holy Scriptures. The authors deny that the Bible speaks for itself through the Holy Spirit, and insist on applying two extraneous tests to unlocking its message: (1) a personal commitment to their concept of social justice, and (2) cultural history. The former enables the authors to justify importing a political and economic ideology resembling socialism. By means of the latter Paul is made out to be a clever politician, and the supernatural power of the living God is reduced to a kind of naturalism. The Old Testament loses power, and the Bible becomes a fractured history book, losing its inerrancy.

Ironically, the Sisyphean efforts in these volumes to unite worship and politics may only succeed in driving them further apart. For if the human heart is as separated from "societal structurations" (*sic*) as these writers believe, worship of the living God would be replaced with worship of the State, and individual men would be regarded as expendables on its behalf. Such is the warning from Arthur Koestler in *Darkness at Noon*. Consistently, *Worship and Politics* is silent on worship.

This reviewer stays with the prescription for political health given in II Chronicles 7:14.

*Reviewed by H. Wesley Ward, Dept. of Political Science, Houghton College, Houghton, N. Y.*

**THE GREAT REVERSAL** by David O. Moberg. (New York: J. B. Lippincott Company, 1972)

Those familiar with Moberg's previous writings will find this latest book to be consistent with his major theme: any emphasis on evangelism or social concern to the exclusion of the other represents a false dichotomy. In fact, they should exist in a reciprocal relationship which is to be maintained.

Beginning with a historical approach, Moberg picks up where Timothy Smith and others who have traced the early union of evangelism and social concern in American history left off. It was the Great Reversal, that shift away from concern for social issues which occurred among evangelicals in the early decades of this century, which led to the polarization of these two trends. Moberg sketches the causes of the Great Reversal all too briefly but provides us, nevertheless, with a clear understanding of the reasons. It was an ingrown concern on the part of the church for its needs and parishioners which shifted the vision.

And what was the direction of this shift? Essentially, it was away from society and toward the individual. Referring to the credo of the early evangelists, Moberg is critical of the interpretation "that social reform begins with the individual". The result has been that evangelicals have left themselves open to well deserved criticism. Surveying the data, Moberg finds some justification for the claims that religious commitment may produce prejudice and a lack of social compassion. He is hopeful, however, that evidence suggesting a correlation between Christian com-

mitment and active social concern may reverse the trend.

Before such hope may be realized, it is necessary to recognize the complexity of the problem. Moberg provides help in this regard by suggesting some basic propositions about evangelism and by isolating some factors which divide churches on the issues. Even when dealt with on the church level, however, personal motives remain complex. Good intentions notwithstanding, welfare has been used as a means of evangelism and vice versa. The result has produced a distorted perspective on the problem.

All too often, what is overlooked is the social sin in society. Reluctant to label social problems as "sins", we don't recognize the real nature of the social world. What is needed, then, is a revolutionary position in which the body of Christians seek the restructuring of society. Since change is inevitable, it is necessary that it be guided by Christian purposes and objectives.

Pointing to some recent trends, Moberg is hopeful that the Great Reversal is being reversed. Nevertheless, progress will not be made unless some basic steps are taken. For one thing, the church must lead in determining what is right behavior for the Christian. Also, it must shift from the negative positions it held in the past to more positive ones. Rather than seeing faith as a source of personal gratification, one's religion must be seen as a basis for dealing with social wrongs.

While introducing the topic to the layman, Moberg also provides the scholar with the tools to pick up the continuing task. The thoroughness of his scholarship has now been established as a Moberg trademark. Coupled with a careful and responsible approach to the materials, the work provides a useful basis for future study.

This work is a welcome extension of *Inasmuch*, a well known earlier work of the author. In pointing to the past, we are reminded that the definitive study of the Great Reversal is still to be written. Perhaps that is because the reversal is still in process. Looking to the future, Moberg assures us that the corner has been turned but that serious and concerted effort is needed. With this book, Moberg shows again his leadership in the field.

*Reviewed by Russell Heddendorf, Geneva College, Beaver Falls, Pennsylvania.*

**BLACK JARGON IN WHITE AMERICA** by David Claerbaut. Eerdmans, Grand Rapids, Michigan (1972), 89 pp. (\$1.95 Paperback ISBN 0-8028-1458-1)

*Black Jargon in White America* is a concisely written communication reference by a white American for white Americans. It is "not intended for Black Americans . . ." writes Dr. Gregory Morris in the "Foreword," but rather "addresses itself to those white Americans who spend some part of their lives working with Black Americans, but who rarely take time to find out who the Black American really is. He concludes, therefore, that "white teachers and other professionals . . . should find this book particularly helpful."

In the "Preface" the author, David Claerbaut, states his central purpose as being ". . . to demonstrate that effective verbal communication is fundamental to any success in race relations." Immediately following this

purpose statement, he pronounces a *crucial* characteristic of the *process* of communication: "... this communication must be truly two-way." (The "two-way" characteristic of the communication process is so described in *Oral Communication: Message and Response* by L. A. Samover and J. Mills, second edition (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1972), pp. 3-4.) Thus in this process "white people must come to learn and appreciate" what the author ambiguously calls "the jargon of black America." I fear that this ambiguous classification may aid in perpetuating stereotyped thinking by certain "educated" and "uneducated" white supremacists. Probably if the author had used the synonym "language" as he did on the first page of the "Preface" and had included the qualifications of the first page of chapter three, my fear of this possibly infectious appellation might be relieved.

The four untitled chapters, the appending "Dictionary of Black Jargon" and "Bibliography" are rather abbreviated: ten pages of "Jargon" and one and one-half pages of "Bibliography."

Claerbaut, in chapter one, describes honestly and unmonotonously his initial interest in "black culture" as a student teacher "in a virtually all-black urban school." (p. 15)

In chapter two the author continues relating his discovery of "layer after layer" of his "liberal veneer" manifested, for example in making unintentional "sub-conscious judgments" and in being "unable to appreciate" the "students' cultural differences." (p.28) He also parenthetically gives some general information about the uniqueness of the structure and function of "the black family throughout history" (p. 29), "the black society [being] . . . physically oriented," the children's "awareness of death," "soul food," "the black church," "black styles and approaches," and finally concerning "the major areas of cultural expression . . ." (pp. 32-35)

Chapter three on "black vocabulary" is undoubtedly the most meticulously documented chapter of the entire book. Perhaps this is as it should be according to the specific and practical purpose of this abbreviated book which may even be described as a reference—or handbook. At the end of this chapter the author is most wise in his observations and appeals to teachers *in particular*, but they can be extended to *other professionals in general*; here for example are two essential observations:

- (1) Teachers who do not carefully consider "the language they use with Negro students . . . can become offensive." (p. 45)
- (2) Although "verbal rapport" is not a panacea for the elimination of "racial disharmony," it is nevertheless "a vital step" [emphasis mine]. (p. 45)

Chapter four discusses the historical and current motivations for the origin and perpetuation of what the author calls "black jargon." As in chapter three, the author again deduces and appeals from his evidence, that "learning black jargon can, as we have seen, bring great cultural interest, and most of all, improved communication . . . between the races [which] is so desperately needed . . ." (p. 55)

Following chapter four, the author appends "A Dictionary of Black Jargon" from A to Z on thirty pages. This glossary, as can be imagined, is rather limited and some of the entries are already out-of-date

due to the dynamism and mutability of the language (as the author observes on pages 46 and 56). The "Dictionary" nevertheless does "present the interested reader with an adequate example . . . with which to work." (p. 56)

Claerbaut concludes his book with a short bibliography of sixteen references with the date of the latest one being 1970. As a reviewer I therefore recommend other later references that can add to the information and insight of the person to whom the author refers as "the interested reader":

Dillard, J. L. *Black English: Its History and Usage in United States*. New York: Random House, 1972.

Johnson, K. R. and H. D. Simons, "Black Children and Reading: What Teachers Need to Know," *Kappan*, LIII (January 1972), 288-290. This entire issue focuses on "The Imperatives of Ethnic Education," and this article in particular pleads "for teachers willing to study and respect black culture and black dialect."

Mitchell, Henry J. "Black English," *Black Preaching*, H. H. Mitchell. New York: J. B. Lippincott Company, 1970, 148-161.

Seymour, Dorothy Z. "Black Children, Black Speech," *Commonweal* (November 1971), 175-178. The author discovered that "It is hard for most teachers and middle-class Negro parents to accept the idea that Black English is not just 'sloppy talk' but a dialect with a form and structure . . ."

Taylor, Orlando L. "Some Sociolinguistic Concepts of Black Language," *Today's Speech*, 19 (Spring 1971), 19-26. Following a concise review of the major points of his paper, Dr. Taylor claims that they "suggest a reevaluation of how the field of speech can meet the linguistic and educational needs of black children; [and] they imply a number of revisions for the field, including university training, philosophy, research, curriculum. . . ."

Reviewed by Abraham Davis, Jr., Professor of Speech, Houghton College, Houghton, N.Y. 14744.

**WHERE DO I GO TO BUY HAPPINESS?** by Elizabeth Skoglund. Downers Grove, Illinois: Inter Varsity Press, 1972, 157 pp., \$3.95.

Women counselors are having their day in the publishing field. This book is one of a continuing stream of books on counseling written by women now coming from the presses. The author of this book, Elizabeth Skoglund, is a counselor with the Glendale Family Service and has a private practice in Burbank. She has been greatly influenced in her views on counseling by William Glasser's Reality Therapy. The foreword is written by an associate from the Institute of Reality Therapy.

Subtitled "Insights of a Christian Counselor," this book is a retelling of a series of personal encounters between Elizabeth Skoglund and young people she has counseled. The author tells of her attempts to help youth who are frustrated by life to become what they are capable of becoming.

Skoglund stresses man's unity. She illustrates it by an interesting story about a Chicano who was converted but backslid due to his failure to comprehend the implications of this unity. She thinks insight into causes is not essential in helping someone through his problem.

In Joan Fassler's fascinating book, *The Boy With a Problem*, the reader is led to see that sometimes the greatest problem little boys can have is no one to listen to them. Skoglund skillfully shows that sometimes



big boys (and girls) have the same problem. She recounts the stories of youth who have no one to listen and consequently often have hangups which lead to trouble.

Skoglund comes across as a warm, dedicated, concerned counselor. She is the kind of person most people would like to have around if they ever need a listener. She counsels young people in class, in her office, at her home, and over the telephone in the middle of the night.

At first blush, it seems that Skoglund has greater faith in psychotherapy than is warranted. However, as the narrative progresses, it becomes apparent that she is quite aware of therapy's shortcomings and of the care needed in choosing a therapist. She believes that intuition is needed for choosing the "right" therapist.

The book is a series of interpersonal relationships in the counseling setting with some astute observations about the whole process. Among the more pungent comments are the following:

Self acceptance and self-esteem are not anti-Christian. There is no virtue in thinking you are ugly when you are not . . . stupid when you are intelligent.

Somehow, if he (Jesus) were once again walking on this earth, I doubt that he would be majoring in debates over sideburns, beards and pantsuits. Or long hair and skirt lengths.

Young people sometimes slip into an idealism which is misguided and contradictory . . . Their desire for peace in Vietnam was phony if here in their school they were unable to show consideration for another human being.

This book is short in length but long on insight. It is quite captivating, has much human interest, is not technical and is therefore easily understood. It is worth reading for all Christians and highly recommended.

*Reviewed by Richard Ruble, Professor of Psychology and Biblical Studies, John Brown University, Silvan Springs, Arkansas.*

**ROMANS: A LETTER TO NON-CONFORMISTS,** by Robert Baylis, Downers Grove, Ill.: InterVarsity Press, 1972, 70 pp., \$1.25.

One of the latest Bible study guides to come from a press distinguished for its excellent aids to biblical study is Baylis' title on Romans. Using a different format and aiming at a broader audience than its other publications, InterVarsity Press has charted a new, perhaps experimental, course with this volume.

In his brief introduction the author lays out well the pressures upon Christians to become phony pretenders and a mockery of their profession. "It is patently true that the most vehement disclaimers of the Christian gospel are those who at one time had a kind of faith." Confrontation with the real issues of Christianity in Romans and commitment to the truths encountered there, the author contends, brings one well along the path of rejecting superficiality of all kinds.

The text is a sort of self-teaching study guide. Omitting chapters 9-11, Romans is divided into 23 segments and grouped in three sections (chapters 1-5, 6-8, and 12-15:13) conveniently making three nine-week quarters, allowing for weekly sessions of less than an hour. Whether chapters 9-11 "can be left out without destroying the continuity of the major part

of the letter" may be a question for those of the Reformed tradition. Why nearly 50 verses at the end of the epistle are ignored without explanation may raise questions about biblical portions that may be jettisoned at will for the sake of economy.

For each of the segments, which consist of two pages opening flat, 18 to 20 verses of the RSV Romans text appears in unnumbered paragraph form on the left and a series of 4 to 6 inductively oriented questions appear on the right, with ample space to jot down responses. The answers to some of the questions will not be as apparent to readers as they were to Baylis, but the approach does stimulate personal investigation. A list of 23 questions (one for each lesson) at the end of the study is provided for further reflection and later discussion on the main issue raised in the passage. Each of the three major sections is followed by a half-dozen questions which may be used for review purposes. To make sure that students have grappled with the main message of the book as a whole the author has concluded his guide with 10 comprehensive "Key Questions in Romans." Finally, a unique feature of the guide is a three and a half page glossary of nearly 50 terms and names found in Romans. Greek and Latin roots are noted and some lengthy explanations are included, many of which are excerpted from the *New Bible Dictionary*.

Author Robert Baylis, a successful high school English teacher in Orinda, California, and a former IVCF staff worker, has given a great deal of his life to creative Bible study and is interested in the educational ramifications of teaching the "Bible as Literature." Owner and operator of the Logos Bookstore in nearby Berkeley, Baylis has kept in touch with the person hungering for spiritual reality—be he high school or college youth or middle-aged adult.

The idea of a self-contained, easily transportable study guide is a good one; the value of using a single good standard Bible text is apparent. Though the leader will want to be familiar with the passage ahead of time, the studies do not require advance preparation by group members—a fact that should evoke wide appeal! The flexibility of the study manual is its strength. This reviewer recommends it for broad usage. If one really grasps the message of the book of Romans he will begin "to step out of line with the present age and to begin to be a real nonconformist—a person transformed in mind-set and life-style and conformed to the image of God's Son."

*Reviewed by Donald G. Davis, Jr., Graduate School of Library Science, The University of Texas at Austin.*

**PERSONAL LIVING: An Introduction to Paul Tournier** by Monroe Peaston. New York: Harper & Row, 1972.

Peaston, a theologian at McGill's Montreal Diocesan Theological College, offers a platter of Tournier *hors d'oeuvres* in this 107 page book. Sampling from more than 15 works, he says, "I have tried here to expound the salient ideas which are to be found in Dr. Tournier's books and to relate these to his life and practice." His intent is "to encourage the reader to undertake his own exploration," and not to produce a definitive or even a critical review. We must presume that he succeeded in capturing the essence of his subject's life

and thought, for Tournier himself wrote the foreword and says sometime a man "feels himself understood, a totally intuitive feeling, primitive and direct. This is precisely what I felt when Professor Peaston came to see me in Geneva. I had at the onset the certitude of being understood . . . because of (a) link of mutual faith which is the first condition of understanding."

Two chapters present the man, Tournier. The first concerns his orphaned childhood which led him into medicine: "Yet within his mind, even at this early age, a resolve was taking shape: He would defeat that monster, death, that had taken his mother from him," (p. 3). The second chapter tells of Tournier's spiritual awakening. The son of a Calvinistic minister, Tournier was committed to Christianity with only his intellect. In 1932, at age 34, the young physician was introduced to the Oxford movement, a revival then sweeping Europe. The movement stressed the need for a personal rebirth in Christ, a warm Christian experience, daily meditation for guidance and group confession of sin.

Tournier has made these tenets the discipline of his own life and his professional practice. He expects his patients to follow these principles, too. First, he can lead a person to rebirth: "Beyond his skills and outward understanding, (the Christian therapist) may bring about a personal encounter between his patient and the living Christ," (pp 24-25), although purely psychological treatment may be required before such an encounter is possible. Fearless confession is needed for the healing of the total person: "'A bad conscience can . . . strangle a person's life. . . . It can be the root of psychosomatic affections. It is like a stopper which can be pulled out by confession so that life begins at once to flow again.'" (p 56). Meditation also becomes a therapeutic method: "Meditation enlarges the field of consciousness and reveals the hidden undercurrents of the mind in a way that is very similar to psychoanalysis," (p 79). Finally, Tournier's personal style is described as warm, open, intuitive; his writing is anecdotal rather than systematic: "'I have not the mind of a professor,'" he told Peaston.

Seven chapters summarize the main ideas of Tournier's writings. The chief of these is his view of his profession, the "medicine of the person." For Tournier, medicine includes whatever will promote healing, be it a physical treatment, a psychological technique or a spiritual exhortation. Atomistic medical specialization is rejected: "'Man . . . is a unity: body, mind, and spirit. . . . To treat a man is to treat him, therefore, in his entirety,'" (p 19). A *Doctor's Casebook in the Light of the Bible* (originally *Bible et Medecine*, 1951) gives the most detailed picture of Tournier's biblical thinking, but *The Meaning of Persons* (1957), his best known book in this country, reflects an expanded and more integrative version. Peaston's other chapters, based upon particular books, deal with loneliness, fear, guilt, the reborn person in a disintegrating world, and ways to find goals and a sense of belongingness.

Tournier's psychology is basically Freudian; neo-Freudian, perhaps, for the conceptual parallels to Adler, Allport and especially C. G. Jung are striking. The words, ". . . the medicine man is also the priest; he is the savior of the body as well as of the soul . . ." could have come from any page of Peaston's book but, in fact, came from Jung's *Modern Man in Search of a Soul* (1933, p 240). Hypocratic temperament types are a part of Tournier's view of man, though they are

not prominent in Peaston's review. In many ways Tournier's views could be criticized as being ". . . the same old (psychiatric) eclecticism with a Christian coating," in the words of Jay Adams' *Competent to Counsel* (1970). I read Peaston's book at the same time as parts of Adams', and found myself amazed that two men, both evangelical Christians who heal and counsel on biblical bases, could sound so different. Surely we see God's image, man, in a mirror very darkly.

Tournier's psychology may not be new and will be unacceptable to many. His insistence that man be treated as a whole will refresh and encourage those who are intellectually oppressed at modern medicine's tendency to look no farther into man than his molecules. There is probably a need for a good primer to Tournier: I note that in the five "Psychology and the Christian" articles carried in the December 1972 issue of the *Journal ASA* Tournier's works were not cited once. Peaston's book should fill the gap.

*Reviewed by Mack Goldsmith, Department of Psychology, California State College, Stanislaus, California.*

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### THE CHRISTIAN PSYCHOLOGY OF PAUL TOURNIER by Gary R. Collins, Baker Book House, Grand Rapids, Michigan (1973) 222 pages. \$4.95.

In addition to being a member of the Executive Council of the ASA, Gary Collins is Professor and Chairman of the Division of Pastoral Psychology at Trinity Evangelical Divinity School at Deerfield, Illinois. Recently he spent a 6-month sabbatical in Switzerland, studying the works of Paul Tournier (see *Journal ASA* 25, June (1973)) and entering into personal conversations and interviews with this distinguished Christian psychologist who celebrated his 75th birthday in 1973. This book is one of the products of that unique and in depth experience of the personality and work of Tournier.

In eight chapters Dr. Collins discusses Tournier as a man, his life and work, and his psychology, theology, methodology, practical wisdom and integration of psychology and religion. The book concludes with a Bibliography of selected works of Tournier from 1941's *The Healing of Persons* to a chapter on "My Religious Vocation as a Physician" written in 1972.

Here is an admirable introduction to the thought and goals of Dr. Paul Tournier, a medical man who believes that medicine involves not just a person's biochemistry but "the whole man," a man who would apply a consistent Christian approach to life not only to the individual but to society, who "understands the dissatisfactions of hippies," but "wants to join those who are building up the society instead of tearing it down."

Each of the points made in the book are well documented with references to Tournier's many writings. Although Dr. Collins portrays a warm and sympathetic picture of Tournier and his thought, he does not hesitate to indicate on occasion weaknesses and incompletenesses in that thought, nor areas where he would not be in total agreement with Tournier. The book should encourage the reader to explore Tournier for himself.

**ABORTION: *The Personal Dilemma*** by R. F. R. Gardner, Wm. B. Eerdmans, Grand Rapids, Michigan (1972). 288 pages. \$5.95

The issues surrounding abortion (see, for example, June and September 1973 issues of *Journal ASA*) bring together in a complex and challenging way scientific and Christian descriptions of life. This book by the Consultant Obstetrician and Gynaecologist at Sunderland Hospitals in England, and also an ordained Christian minister, is a masterpiece that is essential reading for anyone concerned about arriving at informed and Christian responses to the problems of abortion. The author writes with a depth of historical, professional, personal and above all Christian involvement that cannot fail to leave the reader with a far better intellectual, theological and emotional understanding. Thirty one chapters are divided into four principal sections: I. The Abortion Scene Before and After Liberalizing Legislation. II. The Ethical Question: Is Abortion Ever Justified? III. The Medical and Social Question: Is Abortion Justified in This Case? IV. Epilogue on the Christian as patient and confidant. The book concludes with a Reading List, and indices of subjects, authors and Scripture. (As an aside, I believe it is important to point out the failure of many American Christian book publishers to include an index. I hope that more and more will realize that an index is an essential supplement to a thoughtful piece of writing.)

Although Dr. Gardner is convinced that abortion is justified in some cases and under some conditions, he is strongly convinced that it is not a solution for all or even one which is applicable to the majority of women applying for abortion today. He lists a quotation from a letter to *The Times* (London) by Professor John Stallworthy of Oxford, who also wrote a foreword for this book, "Every induced abortion whether legal or criminal, is an expression of failure of one form or another—failed contraceptive technique, irresponsibility by one or both partners, ignorance, betrayal of trust or denial of human dignity." This quotation heads

Chapter 28, "The Better Way: Prevention of Extra-Marital Conception."

The book is so rich with detail, factual information, actual case histories, and personal involvement and experience that it defies review in any brief space. Theologically minded Christians will quickly seek out Chapter 13 on "The Spiritual Status of the Fetus." Dr. Gardner states as his own personal conviction that "while the fetus is to be cherished increasingly as it develops, we should regard its first breath at birth as the moment when God gives it not only life, but the offer of Life," and he is quick to point out, "that we may deny to the fetus the attribute of a soul, or the full status of life, does not in the least denigrate its worth." He cites three pieces of evidence that make it for him "impossible to believe that the soul is present in the early embryo—that is if 'soul' is to have any real content": (1) As conflicting with the hypothesis that the soul is infused at conception, is the actuality of identical twins who become differentiated from a common cell mass only after conception, and indeed often even only after implantation. (2) Half of all conceptions end in spontaneous miscarriage, usually quite early. If all of these miscarried fetuses possessed souls, heaven will be peopled by a majority who have never even reached "the stage of being organized into fetal human shape." Although this is not an impossibility, it does not appear to be consistent with "the doctrine of Man." (3) "Human eggs have now been successfully fertilized outside the body, and have gone on to divide at least up to the sixteen-cell stage. . . . When the experiment is over and the material is tipped down the sluice, is a soul being destroyed? To think so requires in my judgment a trivialization of the meaning of the soul."

Whether or not one agrees with all of Dr. Gardner's conclusions, his book is must reading at least for every reader of this review.

*Review by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California.*



### Abortion Cases

As a member of the medical profession, I am grateful for the public discussion of abortion, euthanasia, informed consent, when a fetus is a living person, and when a person is medico-legally dead.

In turn, the State legislatures can write acceptable laws for society in general and the medical and legal professions in particular. Each state has its own laws covering these topics.

In Illinois today, Case No. 4, the heart patient (*Journal ASA*, 25, 118 (1973)). would get two obstetrician specialists' approval and a medical therapeutic abortion would be legal, but done in a non-Catholic hospital, which can set its own additional rules.

The heart of the matter is: when is the fetus a living being? Our Roman Catholic friends say at the time of conception; our Jewish friends say at the time of delivery. Medically, a fetus over 5 months has a good chance (50-50) of surviving outside the womb. When these differences are resolved, then additional legislation will be forthcoming.

Abortions in the other cases described in the same issue of the *Journal ASA* would not be possible in Illinois, but can be done in New York.

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## Healing, Mysticism and TM

Has the *Journal ASA* ever grappled with the crucial subject of healing, or can you suggest any other outstanding sources of ideas on it? Of course, if one does not believe in any "miraculous" or "spiritual" healings today, there is no problem. But if as a Christian one believes that such healings are occurring today, one has to face the fact that some are occurring in non-Christian settings. One can attribute all extraordinary healings either to Christ or to Satan and be done with it, I suppose, but those of us with a scientific bent need to come to grips with the whole subject.

In the article by Denton in *Journal ASA* 25, 99 (1973) he lists eight mystical experiences known to drug users. Does he mean to differentiate these states from those experienced without drugs? On page 104 he said that "there are better and more lasting ways to experience the potential depth, variety richness, ecstasy and meaning of life than by chemicals." The most obvious means that comes to mind today is Transcendental Meditation, which is scientifically demonstrated to be healthful for the body. Is Denton for it or against it?

On page 101 Denton said that some thirsty young people (thirsty for euphoria/ecstasy or identity, meaning, transcendence, or personalization) drink from "drug induced springs filled with waters of deception." What does he make of mysticism that is not drug-induced; is it also deception? Does he mean that the eight states listed on page 100 are deceptions of Satan? I am not just nit-picking; I am eager to learn what he means and what the position of your organization is on these topics.

Have you yet offered a serious analysis of Transcendental Meditation as a meditative technique of proven therapeutic value? This week the University of California at Irvine began a course on this topic and some closely related topics, taught by an instructor in their school of medicine. As you may have heard, our state legislature recently passed a recommendation that the public schools of California should begin to offer courses in TM. As the parent of a hyperkinetic child with learning disabilities, I am interested in the possibility of this calming exercise for school children, but as a Christian I fear the possibility of inflicting some subtle spiritual danger upon school children in the guise of an innocent and healthful influence.

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## Tree Ring Dating

In a review by Clarence Menninga of the books *Why Not Creation?* and *Scientific Studies in Special Creation*, in the September 1973 *Journal ASA*, tree ring dating seems to be accepted as quite valid, and in good agreement with historical and Carbon-14 dating.

I am wondering if Menninga or some other ASA members might be interested in doing some research for publication on tree ring dating. Several papers published recently suggest some fallacies regarding the "agreement" between Carbon-14, tree ring dating, and historically established dates. These papers appear in the Spring-Summer 1973 issue of *Pensee* (published at Box 414, Portland, Oregon).

Thomas Mowles of the Lawrence Berkeley Laboratory ("Radiocarbon Dating and Velikovskian Catastrophism," page 22), states that "it is well known that both the Egyptian and bristlecone pine calibrations drift substantially before the late centuries B.C."

Dr. Herbert C. Sorenson, a chemist, charges ("The Ages of Bristlecone Pine," page 18), that "the construction of the bristlecone pine chronology is at least partially dependent on radiocarbon dating." He says that "... radiocarbon dating influences the dating of bristlecone pine specimens and then these specimens are used to calibrate radiocarbon dating." He points out that Pine Alpha is the only one of the bristlecone pines for which ring indices have been published. Only the master chronology has been published; no correlations between one sample and another are available. He writes: "Since no ring width data is available it is not possible to independently check the published conclusions. Requests to obtain such data have met with refusal:

"There were strong reasons why I published the chronology

as a filtered series; thus, I would not be able to release the index values to you'."

Dr. Sorenson concludes that "there are stronger reasons" why a careful and detailed investigation of the bristlecone pine chronology should be made, and that at this time there are no compelling reasons to accept the bristlecone pine chronology as valid.

In the same issue, Dr. W. F. Libby, originator of the Carbon-14 method, writes ("The Radiocarbon Dating Method" page 9f.), that the bristlecone pine tree ring dating has made possible the determination of the extent of C-14 deviations, and that "we are driven back to the bristlecone pine method to extend the chronology backward to glacial times about 11,000 years ago." But if, as Sorenson holds, there is serious reason to question the correlation of successively overlapping distinctive ring patterns, we may be left with inaccurate radiocarbon dates. Sorenson writes:

"... samples with a high proportion of missing rings will exhibit complacent ring patterns. It is not surprising, then, to find that nearly 50 percent of the bristlecone pine samples used as components in the 7104-year master chronology have mean sensitivities of less than 0.30 (5). Such low sensitivities are suggestive of complacent samples that would cross match about the same regardless of where they were placed in the chronology" (pages 17, 18).

I think the time is ripe for a careful evaluation of tree ring dating so we can know whether it has a valid chronology or not.

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