

# Ontario Naturalist

MARCH 1973



The grey catalogue  
of environmental abuse has been well  
documented over the past ten years. The popular  
response to this documentation has been the seeking out  
of even more sophisticated technological solutions as the  
way out of our dilemma. Other observers however,  
have responded by examining those attitudes, values  
and perceptions which may permit a harmony  
of man with nature and with himself.

The Dunning Trust Lectures of Queen's University are  
dedicated to examining "the dignity, freedom and  
responsibility of the individual in human society".  
The 1972-1973 series examined the question of Western  
man's attitude to the natural world. We are pleased  
to depart from the traditional format of the  
*Ontario Naturalist* to publish the four main lectures  
of that series.

The procession of giant  
birds reproduced on the cover is a  
detail from a painting by Hieronymus Bosch  
(1450-1516) called "The Garden of Earthly Delights".  
The detail demonstrates how a new perception can  
alter one's reaction to even the most familiar  
subject. It suggests that paradise may be regained  
if we will only remember how prominent nature  
must be in our activities and reveals that a harmony  
of man with nature and with himself is in fact possible.  
As such, it will act as the metaphysical symbol for  
our inquiry into environmental ethics, the search  
for an ecological conscience.

# Ontario Naturalist

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# POPULATION

## THE SOLUTION IS IN OUR MINDS

BY GARRETT HARDIN

I want first to go over some elementary ideas and state the assumptions which this paper is based on. Briefly, I am assuming that zero population growth has to come ultimately, if not soon, simply because we live on a space ship and because anything else is intolerable on a space ship except for very brief periods of time. Over man's history, we have observed substantial zero population growth. If you were to calculate the rate of growth of the human population over the past million years on any reasonable assumption of what the population was a million years ago, you would discover that the average growth rate has been less than 1/1000 of 1% per year, which means a doubling time of 70 thousand years. Growth that slow cannot be detected, especially since the fluctuations were extreme due to disease and catastrophies of various sorts. Therefore, in most men's minds during most of man's life on earth, the basic impression has been one of fluctuation rather than of constancy and certainly not of growth. Growth took place too slow to observe.

Recently, the growth rate of the population has been 2% per year, which means a doubling every 35 years. This is absolutely fantastic and probably unprecedented in man's history. This cannot go on and it can be shown by very simple calculations: In 600 years, it will be standing room only on earth if this rate is continued; in 1600 years, the entire earth would be solid human flesh. This is preposterous of course, and what this shows is not that the arithmetic is wrong or that Malthus is wrong, but rather that ZPG has to come very soon.

How is it going to come about? Well, since the first thing one thinks of nowadays is birth control, let us

examine birth control and its recent history.

The history of the birth control movement in the Western world divides with surprising neatness into 50 year periods. It began in 1822 when Francis Place wrote a tiny pamphlet addressed to the working men of England in which he said, "there are ways to prevent having children that you don't want". He suggested a way which technically is not in favour now, but the important point is that he was suggesting a way to do this. I should say in passing that he did not invent birth control; there are recipes for birth control as far back as we have written records. But somehow, the idea of birth control had not been mentioned in the two centuries of written literature preceding Place and so it had been lost sight of to a certain extent. How much we do not know, but certainly not many people even knew about the crude methods available then. Place was pretty well ostracized for this. He had been a man of great political power before he wrote the pamphlet, but afterwards he lost most of it, as his friends had predicted and as he fully

expected.

The birth control movement then went underground for a period of 50 years, from 1822 to 1877, until Annie Basin and Charles Bradlaw joined up to test the English laws. Annie Basin was what we now call an emancipated woman: a woman who was not living with her husband and who wanted to make a better life for other women; Charles Bradlaw was a member of Parliament. Together they published a book by Dr. Nolton, an American, on birth control and were subsequently hauled into court. There was a great trial, with great publicity, but the trial ended with an ambivalent verdict. This was most unsatisfactory from a legal point of view but it did serve to get the publicity out and the birth control movement emerged in England at that time and somewhat later in the United States.

By 1920, almost 50 years after the trial, an American named Margaret Sanger first voiced the phrase "birth control". It was her invention. For instance, Dr. Nolton's book on birth control had been called "Fruits of Philosophy". How can anyone know what that is about? Margaret Sanger thought we ought to be a little more blunt than that, so she invented the term birth control and really got the movement off the ground in the United States. At the same time, Marie Stokes in England was doing much the same thing for the English people. She had a lot of trouble too.

I should go back a little to the 1870's. At the same time the English trial was taking place, an American named Anthony Comstock was badgering Congress into passing all sorts of extremely restrictive laws aimed at morality. For example, he had them include in the laws, definitions of all



The Rake's Progress, Arrested For Debt (1735), by William Hogarth: the British Museum.





The Election, Canvassing for Votes (1757), by William Hogarth: the British Museum.



the obscene things that could not be sent in the mail, which included objects that might be used for the prevention of the birth of children or information on where one could obtain such objects. These notorious laws, first passed by Congress and then imitated by many of the States, became known collectively as the Comstock laws.

Fifty years later, Margaret Sanger began fighting against the laws and of course she and a lot of people were thrown in jail. Finally in 1938, the United States purchased one package of contraceptives. Since no person showed up in Court, the package of contraceptives stood trial alone, but as the minister had a few good words to say for it, it got off. That marked the start of a turning point because now the Comstock Laws in this regard became "blue laws". But it was not until 1971, 50 years after Margaret Sanger's first protest, that Congress finally passed a law repealing them. Finally, almost 100 years after the passage of these restrictive laws, we have seen the end of this repression concerning birth control. In the United States there is now virtually no repression of birth control, either the practice of it, or the distribution of information. There are a few minor exceptions here and there, but essentially none.

So that battle is won. Unfortunately however, we now have many people expecting too much of birth control, partly because people have not been very careful about the way they use words. This is an old, old habit when people are discussing things that they are a bit afraid of, or things that are under taboo; for example, the whole birth control area. In the 1920's when the Comstock laws were still in effect, there was a problem of how to advertise birth control. For the most part it was not advertised but there was one company, the Lysol Company, which had material which they recommended as a douche. Now my own opinion is that this is a fearful thing to use for a douche, but people were desperate then, so they were selling it for a douche. How were they going to tell women about this? Well, they invented the term, "feminine hygiene". There-



The Rake's Progress, Mad House (1735), by William Hogarth: the British Museum.

fore, they did not sell birth control; they sold feminine hygiene. To make it worse, they spoke in their ads of the necessity for daintiness in marriage. The wife had to be dainty, or her husband might leave her. But what does this mean, 'daintiness in marriage'? Nonetheless, women took this seriously; it was clever advertising and so they used Lysol. The result was that the physicians discovered that they were frequently running into couples who would come to them for consultation. They wanted to have a baby, but could not and wanted to know why not. So he would start exploring and asking questions, making physical measurements to try to find out what was wrong. Finally, if he was clever enough, he would discover that the wife used a douche and would then ask, "why did you use that?" Well, she used "that" to be dainty because she had seen in the ads that you are supposed to be dainty to keep your husband. He would then have to illuminate her mind and point out that, "that", was a euphemism, that if she wanted to have a baby, then she should not be using Lysol.

That is the trouble with euphemisms: either people see through them, in which case you might as well be blunt; or they do not see through them, in which case you deceive them. In either case, you do some harm. The Birth Control Movement has itself coined a euphemism. In the late 1930's, the American Birth Control League, (I believe that was the title of it then), felt that they had taken so much flack because of their title that some thought: wouldn't life be easier if there were a more acceptable term? Someone then coined the term "Family Planning" with the result that the American Birth Control League presently became something like "Council for Family Planning". It has gone through several changes of title since then, but its successors have the term 'Family Planning' in their title now.

I think this change probably won them more support, but it also won them some misunderstanding. For example, in the ghetto areas of the United States, social workers have found that many of the women think that family planning means how to

arrange the family budget, time payments and groceries. Nonetheless, family planning became successful and now, new equivalents have taken place in people's minds. Many of them now think that family planning equals birth control, equals population control. This misconception is supported and furthered by many people who ought to know better. I think many of the family planning people are at least passive partners to this misunderstanding as well as many branches of the Government. The idea being that if only enough effort could be put into family planning, then somehow the population problem would automatically be solved. Further, since everybody approves of family planning, then obviously the population problem would get solved painlessly.

The table reproduced below is designed to show the fact that birth control is not population control. A simple way to do this is to break down the whole process of population control, or measures that might produce population control, into various cate-



# People expect too much from birth control

gories. By focusing on women, I am not playing favourites, but simply recognizing that they are the only ones who can bear babies. So the primary person to look at here is the woman because what she does is crucial.

You can think of there being a message which is broadcast towards, and received by, women and that women perform in a certain way. Now to make this simple, I am going to assume that she receives the message perfectly and that her performance is perfect too; i.e., she performs entirely according to the message she has received; no internal resistance; she hears the message and is 100% suggestible. But what are the various messages that society might transmit to women?

First of all, society might transmit the message that "one is enough". Now, if all women receive this and if all of them behave perfectly in accordance with this idea, then the result would be that each woman would have one child. Now the column says, 'approximate average of children per family'. It is necessary to put in the 'approximate' because accidents do happen, twins and triplets do show up now and then, but substantially only one child per woman. This means that for each succeeding generation, the population will be cut in half because one wo-

man leads to only one offspring. Or to put it another way, a woman and her spouse leads to only one offspring, two people only one child. If this went on forever, the long run consequence would be de-population and ultimately extinction rather than population control.

The second message might be: "I must have an heir". Since she cannot control the sex of her offspring, she has to produce two children on the average to produce one male. (I am assuming the word "heir" is used in the strict legal sense to mean a male descendant.) So on the average, women will produce two children per woman per family and the factor of increase will be one. This means that there is no increase or decrease, in which case there is genuine population control and dignity is possible.

Another message might be: "stop at two". This also would lead to two children on the average, but would be slightly different in that the number of children would be precisely two. Again I am neglecting twins and all things like that.

However, "I must have an heir" would actually lead to some people having one child and then stopping with a boy; others having two children and stopping with a boy; others 3:

girl, girl, boy; others 4: girl, girl, girl, boy. If you work that out as a probability problem, you find out that the average is two. So the difference in those two categories is the variation shown, but finally, they both average two children. But except for those two messages, all of the other messages here lead to indefinite population growth and ultimate ruin of the society. There is a song in a recently revised musical, "No, No, Nanette", which has a phrase, 'A boy for you, a girl for me'. Now that sounds very fair, but if you work that out as a probability problem, you discover that on the average, families will have three children each. If they intend to have a boy for you and a girl for me before they stop, then this message would lead to runaway population growth.

The last one I will dispose of very quickly, I mean this obscenity 'cheaper by the dozen'. Obviously you will have a dozen children if you believe that slogan, and that means utter ruin for the society, and probably for the woman as well. But the one just before it deserves more comment because I think this is a very common message in many parts of the world. I know it is the predominant message in India where I spent some time a couple of years ago and I want to examine this

## A SYSTEMS ANALYSIS OF POPULATION GROWTH

Reproduced from Garrett Hardin's "Exploring New Ethics for Survival", Viking Press, New York, 1972. The analysis shows the pure effects of various beliefs taken one at a time. Cultural uniformity is assumed: if tribalism exists, then the competitive exclusion principle becomes applicable and the lowest motive in the table replaces the rest. These topics are discussed in Garret Hardin's "Stalking the Wild Taboo", expected in late 1972 from Kaufmann, Los Altos, California.

MESSAGE	RECEPTION	PERFORMANCE	FERTILITY	INCREASE	CONSEQUENCES
Society's Directives Implicit or Explicit	Precision Assumed	Effectiveness of Control	Approximate Average Number of Children per Family	Factor of Increase per Generation	Long Run
"One is enough"	Perfect	Perfect	1	0.5	Depopulation and extinction
"I must have an heir"	Perfect	Perfect	2	1	Dignity possible
"Stop at two"	Perfect	Perfect	2	1	Dignity possible
"A boy for you and a girl for me"	Perfect	Perfect	3	1.5	Ruin
"An heir and a spare"	Perfect	Perfect	4	2	Ruin
"Cheaper by the dozen"	Perfect	Perfect	12	6	Ruin

# An heir and a spare...

in detail, not to pick on India, but to take it as an example. Many countries show a very similar population growth pattern as far as the results are concerned, and this pattern suggests that they are responding to the message, "I must have an heir and a spare". That is, if I must have an heir, then just to be safe I had better have a spare. Or put differently, a woman would have two boys before she dares to stop. This is going to mean, on the average, four children per family or a doubling of the population each generation and this is just about exactly what India is doing. India's growth rate is now 2.5% per year which means a doubling every 25 years, which is just about a generation. So India is behaving as if this were the predominant message.

Now the point of this is that birth control is not population control. All birth control is, is a method which enables a woman to have the number of children she wants to have. If she wants to have a few children, then she will have a few. If she wants to have too many, then she will have too many. If she wants to have the right number, then she will have the right number. But this does not solve the population problem. The problem is what she wants to do and what the message is that she receives. Birth control through conception is already so nearly perfect that women are close to having what they want. If you include with contraception, abortion as a backstop measure for contraceptive failure, then you have a perfect system of birth control. Contraception may not be a perfect method by itself, but contraception plus abortion is a perfect system. So it is already within our power to have perfect birth control but that does not mean we have perfect population control.

The system in India is rather illuminating, partly because it is a little bit exaggerated compared with ours, and that exaggeration highlights the essentials of the trouble. It was mentioned earlier that in India a woman wants to have an heir and a spare. But why does she want to do that? Well, there is a complex of reasons why she wants to do that. I am only going to outline some of them because these will be enough to indicate the magnitude of

the social problem and why so far, nobody has any idea how to solve this problem. First of all, I daresay you have heard before how important it is for a Hindu to have a son to light his funeral pyre. This happens to be for religious reasons a very important thing to do, something only a son can do properly. The Hindu man therefore, wants to have a son but to be safe, since accidents do happen, he wants to have two sons.

When I went to India, I found out that this is not the whole story. The other half of the story has not received much publicity, although I have since found out that you can find it in the literature. But somehow, most Westerners have not heard the other half. The other half is that the woman wants every bit as much as the man to have two children although her reasons are somewhat different. In India, a woman has a very subservient position compared with men. She passes from her father's household, where she is subservient, to her husband's household, where she is subservient not only to her husband, but also to her husband's mother, her mother-in-law. Furthermore, she cannot escape from this subserviency until she has had several children, and cannot fully escape until she has had a male child or two. Only then can she start holding up her head with pride and start talking back to her mother-in-law.

What is even more important is that she needs these male children as insurance in case her husband should die. If her husband dies and she has only girl children, then she has a very hard time making another life with any sort of dignity. She will be taken over by some relative, begrudgingly, and be given the lowest duties in the household and become essentially a household drudge, a role from which she will never escape for the rest of her life. I am talking here about the vast majority of the Indians who are poor. The wealthy class is something else, but there are very few of those. So for a poor Indian woman, the thought of her husband dying when she has no male children is terrible. However, if she has male children, then she is the regent, so to speak, for the male children and the

arrangements are made differently and more in her favour. Not only that, but she can look forward to the day when she can achieve that happiest state possible for an Indian woman; namely she will become a mother-in-law. Eventually her son will get married, her son's wife will move into the household, and then she will have somebody to push around and mistreat. This is one of the basic things she lives for, since she has taken it from her mother-in-law, and now she wants to give it to her daughter-in-law and thus get hers back in the end.

What are you going to do with a system like this? Many people looking at the Indian situation have proposed various things such as: "they are having all these children because they are poor, and poor people don't know anything else so they just have children. All we have to do is just make them rich enough, and when they're rich then they won't have many children. They'll be just like rich Europeans who don't have many children." Nothing could be more wrong. It simply is not the case. When you see what the Indian situation is, you realize that it makes perfectly good sense why an Indian woman does not want to stop until she has had two sons, which means on the average four children. Birth control is making magnificent strides in India. Over the last twenty years it has done wonders, extending out into the farthest reaches of the country. Or at any rate, the propaganda, the practice is something else. There are no compunctions about birth control. There are no religious scruples, no moral scruples of any sort. The children know about it just as well as the adults, absolutely no trouble. The only trouble is in the practice. They think of birth control as something to use after you have had four children.

About a year ago in one of the areas south of Bombay, there was a magnificent government supported sterilization fair or fiesta. The people were gathered together for a month at a time, and had all sorts of circuses, shows, and so on. The whole point of this was that fifty-thousand men came out to be sterilized during that fiesta. Every man who was sterilized was given a number of things: a plastic bucket, a

plastic bottle and fifty-thousand rupees. They did not get a transistor radio, that was too expensive, but all together it added up. However, when they were asked, "How many children have you had?" it turned out that the average number of children that these men had had before they got sterilized was almost  $4\frac{1}{2}$ . As we would say, that is like locking the barn door after the horse has escaped. It is too late and that is the problem. There is going to be no change made in this by technology and this is what I mean when I say technology is not the answer to the population control problem. Perfect technology merely makes it possible for people to have the number of children they want. But, if they want too many, then there is no population control. If they want too many, then you have got to get at their wants and find out what you can do about

them.

In the case of a country like India, I have no idea how you will get at this, because this means social revolution, at least to change those wants to where they will settle for having fewer children. It means, I am sure, that Indian family life would have to be reconstituted on another basis, and how would you do that? Because every daughter-in-law who is now taking it from her mother-in-law, will not feel that justice has been had until she becomes a mother-in-law. If you want to change it today with her generation, I am sure she would object because she wants to keep the system going until she can be a mother-in-law.

What can you do without interfering in other people's lives? How can a government interfere in people's lives? How can the people themselves change? How do we know why people

want what they do? What can we do about changing those wants so that they will fit in better with national aims? Looking at it from the point of view of the Western world, I do not think the situation is hopeless. The gratifying thing is that we are making immense progress. If you look over the last ten or twenty years, we have made immense progress, and I think we will continue to make immense progress. We may in fact succeed in solving the problem of population control in time to prevent the worst of the diseases that result from controlling it.

I would say that as far as we are concerned, in our part of the world, the population control problem divides itself into three stages, overlapping in time.

The first stage is the delivery of birth control service: to see to it that every-

The Enraged Musician (1741) by William Hogarth: the British Museum.



# Birth control is not population control

body in the society knows about birth control; knows how to accomplish it; knows where the materials can be gotten and can get them. That means if necessary that they should be free. It also means that they need to be readily available and not in some distant place. The birth control clinic needs to be around the corner, so to speak, and not at two hours automobile drive away. So, the delivery of services; seeing to it that even the poorest of women know of these materials and have them available, is the first stage. We are well started on it now, but we are not yet through with it. But there has been no essential opposition to it, not at any rate in the United States.

The second stage, just barely beginning but also making some progress, is the education stage. This means getting at the message in this system and changing the message. Zero Population Growth, Inc. has made a lot of good propaganda which so far has affected mostly only the college-age population. But, if it follows the pattern of new ideas generally, it probably will percolate down to other groups with the passage of time. At any rate, it is making progress, and more and more young people are seriously considering the possibility of living a life, a satisfactory life, by either having very few children, or even none. Many of them are recognizing after looking at their own situations that parenthood is not for them. Society is becoming more accepting of this, not as much as it should be but at least to the extent of accepting the fact that a girl can say, "I don't want to be a mother" without meaning that she is a monster. Maybe she has correctly estimated what happiness is for her in life: to have a career, to work at other things, but not to be a mother. This educational stage, although just beginning, will I think continue and will grow in force and importance.

Together, these two stages: the improvement in the delivery of services and the improvements in the education, will give us some breathing time. I do not think the two together will solve the problem, but they will slow down population growth and give us a little longer to face the real essential difficulties. Why do I say that they

will not solve the problem? Why do they give us only breathing time? Well, here we are up against a very awkward situation which I like to discuss under the term of "tribalism". I will illustrate this problem by using examples from the other side of the world where it is crystal clear what the situation is and where we have no emotional involvement with either of the tribes so we can see what the problem is.

In Ceylon, which is a big island off the southern tip of India, the government actively supported the birth control programme during the 1960's because it knew there was a serious population problem. At the very end of the 1960's, the government withdrew its support completely from the programme. Why? Well, it was not because Ceylon is now under-populated because if anything Ceylon is even more populated than India, which is terribly over-populated by anybody's standards. But yet the government withdrew its support. Why did it do it? The reason was this. In Ceylon, the dominant group are the Singhalese who constitute some 70% of the population. They control most of the government jobs. They are the educated group. They are the wealthy group. One of the minority groups are the Tamils from the south of India, who are johnny-come-latelys, who have only been around for 200 years and are looked on as something in the way of foreigners. The Tamils are poor and lacking in power. Now the Singhalese, looking over the situation after a decade of birth control propaganda, came to the conclusion that only the Singhalese were paying any attention to this message. They said, "The Tamils aren't listening to it. They aren't receiving the message." Now, I do not know if their perception of the situation was correct or not, that is not important. The important thing is that this is what the Singhalese thought. Right or wrong, they thought this. Because they thought this they said, "If we keep up with this birth control message with only the Singhalese paying attention, then pretty soon no more Singhalese, all Tamils, because the Tamils who are only 11% of the population now, will soon be 12%,

then 13%, then 14%, and bit by bit they will replace us Singhalese. So it would be suicide for us to continue with this propaganda."

Now what the results of their drawing out of this support of birth control are I do not know, but the Government no doubt was hoping that the Singhalese would start producing more children. Based on the experience elsewhere in the world, I bet they do not. If you think of this example not in terms of the competition of these two tribes, but rather in terms of the future of population control, then it becomes evident that whenever there are tribal differences of this sort, population control is not possible. It is not possible because if one group accepts the message and stops growing, and the other group does not accept the message and continues to grow, then pretty soon the population consists only of those non-receivers of the message, and the population has grown out of control. So, it is this deeply disturbing fact about the consequences of tribal competition, when competition takes the form of reproductive competition, that leads me to say that in the long run, voluntary birth control is not the answer because it will not achieve population control.

For some of the poor, wretched countries of the world, it may be that their moment of decision is now and that they will have to do something very soon about their situation. But for the wealthier nations of the world, I think no immediate action is called for. We do not have to go off half-cocked with actions that have not been sufficiently considered and which may have other dangers. Although we do not have to do anything immediately, we should not forget this basic fact: that birth control is not population control. Therefore, when we are pushing for more effective birth control, and when we are pushing for more education in the desirability of small families, we must keep in the back of our minds that we are buying time. We ultimately will have to use other measures, so let us not waste this time by not thinking about this deeper problem, because some day we will have to come back to it. ■



