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Is Society Controllable?

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INTRODUCTION

CATHOLIC SOCIAL TEACHINGS STRESS THE NEED FOR SOCIETY TO DEFEND AND succor the poor, the weak, and all who, through no fault of their own, need help to live. Traditionally, this injunction has fallen to the Church, and has been carried out through the dedicated efforts of priests, nuns, members of religious orders, and lay men and women, through hospitals, churches, schools, hospices, and many other organizations. Emphasis has always been on person-person effort, with the caregivers ever mindful that they were helping individual people in a spirit of Christian giving, not functioning as cogs in some monolithic social welfare system. A guiding principle was to instill Christian values and attitudes into all people, whether in need or not, so as to give them a true sense of their own worth and their place in the world. If governmental intervention becomes necessary to correct injustice and secure the common good, as it sometimes does,[1] there must be no mistaking the ultimate goal: not materialism, but man's spiritual good.[2]

This approach worked well when the Church was the dominant social force in society, or in that portion of it composed of Catholic Christians. Modern secular democracies, however, have not opted to work through religious channels, and instead have embarked upon a different course to deal with the "social problems" of poverty, drug abuse, crime, medical care, and education, as well as other areas where behavior of the citizens leads to problems, such as perceived excessive energy consumption. The new approach involves legislation and the creation of social welfare "systems" to deal with social problems, staffed by bureaucracies composed of social science "professionals," who cannot or choose not to place any emphasis on religious instruction or the religious foundation of morality. What are the assumptions behind this approach, and can it be expected to work better or even as well as the Church's traditional methods?

In America, for example, we have committed ourselves to many large-scale social projects, and lavished considerable resources upon them, especially over the last thirty years. The goals of these projects are varied, but include improvement of economic conditions for the poor, elimination of racial imbalances, and reduction of crime. A typical program of this genre is Lyndon Johnson's War on Poverty, begun in 1964.[3] Since 1965, approximately $3.5 trillion has been spent on this and other welfare programs (more than the cost of World War II), with the amount increasing almost every year.[4] It is clear that the 'War' has not been won; and given the current state of the urban poor, it is questionable whether significant progress has been made.[5] Since the money, good will, and in many cases dedication of the people involved cannot be faulted, the following question naturally arises: Is there some fundamental reason why many social programs fail to achieve their objectives? May it not be the case, here as elsewhere, that if action is taken based on incorrect assumptions, the proposed solutions could exacerbate the situation by creating worse problems than those they were intended to solve?[6] This question must be addressed in light of the devastation that three

decades of Great Society programs have wrought on poor communities, families, and church membership, all reflected in the physical destruction of large parts of Los Angeles during May, 1992. Fifty years ago, in his famous and remarkably prescient Gifford *Lectures Religion and the Rise of Western Culture*, Christopher Dawson observed:

> Our generation has been forced to realize how fragile and unsubstantial are the barriers that separate civilization from the forces of destruction. We have learnt that barbarism is not a picturesque myth or a half-forgotten memory of a long-passed stage of history, but an ugly underlying reality which may erupt with shattering force whenever the moral authority of a civilization loses its control.[7]

It is important to stress at the outset that this study does not seek to impugn the goals of any social programs, many of whichderive from society's Judeo-Christian roots; rather, it examines the question of whether government action can realize those goals through the vehicles available to it: use of legislation (laws, prison sentences), economic coercion (fines, taxation), economic incentives (entitlements, credits), and to some extent, education (curriculum). In short, it questions the received wisdom that, in response to every problem, real or imagined, "There ought to be a government program!"

To be specific, some issues which must be raised include the following:

- Can any set of laws, prisons, and secular education, or drug interdiction activities, stem the tide of drug abuse and decay in our inner cities (as opposed to, say, Judeo-Christian moral training and inculcation of the worth of each person in God's sight)?

- Does a secular social welfare "system" have the capability to instill the values needed to enable recipients to lead fulfilling lives and break the cycle of poverty?

- Can a secular education system gut its Western heritage, replacing it with vague multicultural generalizations, and expect that there will be only benign consequences?

- Can laws and punishments alone achieve racial harmony and integration?

Definitive answers to all of these questions are beyond the scope of the present study; but hopefully it lays some key groundwork for answering them. The motivation for the study is that the time has come to carefully analyze the heretofore unasked question, "How do we know that the government can do it?", with respect to both traditional concerns of the Church toward the poor and oppressed, and other problems affecting our society. The study is based squarely on the realistic assumption that resources, both human and financial, are limited, and therefore that portion of them devoted to social action must actually be expected to solve or improve the problem addressed; programs that simply make their creators and supporters "feel good" are not and never have been acceptable as Catholic social action.

Indeed, enthusiasm and good intentions are never enough if one's basic ideas about human nature are incorrect (perfectible vs. fallen). In the heady days of the Great Society, however, this fact was overlooked by the zealots of the time:

> The recountings have the flavor of war stories - of all-night sessions preparing for crucial Senate hearings; of small, sweaty working groups designing new programs on impossibly short schedules; of meetings in Newark or Chicago or Biloxi where the people across the table were not mayors and city planners, but heads of tenants' associations and ghetto churches and street gangs.... Such [staff] people ... had no serious doubts that they would have an impact on the poverty problem. It seemed obvious to them (as it did to many observers at the time) that the only reason we continued to have poverty was that nobody had really been trying to get rid of it. Once the effort was made, so their assumption went, progress would surely follow.[8]

But is this in fact enough? From a strict engineering standpoint, the Great Society "social engineering" programs were very problematic because no one could claim to have knowledge of the dynamics of the relevant social systems, and hence no solution could be "engineered" in any sense in which that word is understood by the technical community. However great one's enthu-

siasm and confidence may be, they cannot contravene constraints arising from inherent system dynamics: a jet cannot fly to the moon, no matter how hard the pilot may try.[9]

The approach of the present study is to document the problems and pitfalls associated with any effort to transform or control social systems by means of legal, economic, and the other relatively imprecise tools at the disposal of the government, i.e., the secular solution methods. The key point is that in most cases, the desired high-level change (poverty reduction, elimination of injustice, etc.) must stem from or be accompanied by changes at the level of moral beliefs, from, if one wishes to use a New Testament term, *metanoia*. Attempts to make the high-level changes in other ways which ignore moral beliefs are frequently destined to fail, sometimes in quite predictable ways which are discussed below.

BACKGROUND AND TERMINOLOGY

The secular, liberal approach to social problems appears to assume that society is amorphous and can be moulded and manipulated at will. In fact, societies are extremely complex systems, with highly structured legal and property constraints, as well as human interaction protocols and a history which influences overall behavior. Collectively, these constitute the dynamics of the system, and in large measure determine the behavior which the system can display. These dynamics must be understood and taken into account when any social action is contemplated; yet this is rarely if ever done. In particular, government social programs have always assumed that society is controllable by government actions. To make the discussion of this assumption and its implications precise, some terminology and concepts need to be explained.

Consider, for a moment, the problem of driving an automobile. The reader is no doubt familiar with the basic operations required to control such a vehicle: accelerator to speed up, brakes to slow down and stop, steering wheel to turn. In engineering parlance, such a mechanism is said to be controllable,[10] which means loosely that the automobile can be made to behave in a manner desired by the driver. Now assume that a new automobile is presented in which the steering mechanism, regardless of how hard one turns on the wheel, only permits turns of 10°. Clearly such a vehicle would not be considered controllable by most drivers because they could not make it go where they might want. In more technical language, the automobile in the second case is said to be uncontrollable because the possible control inputs to it, i.e., the set of actions that can be taken to influence its behavior, cannot make it behave in the desired manner.

Before embarking on a further discussion of controllability with respect to social systems, it is necessary to examine several characteristics which any real system may possess, and which affect its behavior in a critical way. These characteristics apply to man-made systems such as spacecraft, as well as to natural systems, including social systems. These characteristics include: (1) Simple, controllable behavior; (2) Feedback stabilization; (3) Self-organization; (4) Hierarchical organization; and (5) Systemic failure.

Simple, controllable behavior

Systems such as automobiles and spacecraft are what might be termed "simple, controllable" systems; that is, their behavior or output is some fairly predictable function of their steering or input. This behavior is not in general dependent on the previous history of inputs: when the steering wheel is turned to the left by a certain degree, the auto moves to the left by a degree which the driver soon learns to anticipate. There are indeed many such systems which one encounters in daily life: rotation of the hot water knob to control water temperature from the shower; force exerted on a door to control its speed of closing; and depression of the accelerator to control the speed of a car. In general, these systems have fixed dynamics, and under normal circumstances, they are completely controllable. (When normal circumstances do not exist, this may not be so, e.g., when the road is icy and normal turning of the steering wheel produces little or no effect, an auto is much more difficult if not impossible to control.) If in addition the systems are linear, then the effect produced by some control action is proportional to the strength of that action. This makes such systems quite easy to use.

Clearly, if all systems in the world were of this type, including social systems, life, including politics, would be much simpler. Unfortunately, this is not the case.

Feedback stabilized systems

Feedback stabilization is a common technique used to regulate all types of systems: man-made, natural, and economic. It can be very effective and is quite

common. In such systems, the product or output of the system is measured and this measurement is then used to control the operation of the system so that a desired output level is maintained. Probably the most familiar example of feedback stabilization is the heating system found in homes and offices. The thermostat is set to a desired temperature, and a mechanism in the thermostat senses the actual room temperature. When that temperature is below the desired temperature, the furnace is turned on. Heat from the furnace causes air temperature to rise, and when that temperature reaches the desired value, a mechanism in the thermostat switches the furnace off. Someone who tried to lower the temperature in a house by, say, setting blocks of dry ice in each room, would find that the feedback stabilization in the heating system would largely defeat his efforts; someone else who wanted to cool the house, and had access to the thermostat, would succeed. If one does not have access to the control mechanism (the thermostat in this case), feedback stabilized systems can be difficult or impossible to control.

Self-Organization

Self-organizing systems were first studied in connection with chemical and biological processes by the Belgian physical chemist Ilya Prigogine, who received the Nobel Prize in 1977 for his work.[11] Current research indicates that such systems are essential for life itself.[12]

The behavior of systems exhibiting self-organization is significantly different and more complex than that of the simple controllable systems. Self-organizing systems *change their internal dynamics* or structure in response to inputs, so that the effect of a given input cannot always be predicted; indeed, *the system may change its internal structure in such a way as to counteract or effectively neutralize the input.* Or the input may change the system's behavior in totally unanticipated (and often undesirable) ways. A simple example is a bacterial colony, whose members over several generations are able to mutate in such a way as to counteract drugs intended to destroy it. Human societies frequently exhibit self-organizing behavior, and an example is worth considering here.

In the case of transportation systems, the following situation has been studied,[13] though it will doubtless be familiar to suburban residents of most large cities: Politicians and transportation planners are faced with traffic congestion on a particular road, say some superhighway. This congestion causes long commute times and prompts complaints from constituents. The politicians and planners assume a system with fixed dynamics, and take the obvious remedial action: widen the road. For a short time, this alleviates the congestion problem. But then the self-organizing behavior begins to manifest itself. Other people observe that the road is better, so they are willing to move further out in the suburbs since their overall commute time will not change as compared to what it was with the old road. Soon there are more commuters using the road, which then becomes just as congested as before. Furthermore, merchants and businessmen observe the additional traffic, and decided to take advantage of the increased presence of potential customers by erecting a new shopping center and office park in the vicinity of the road. The net effect of widening the road, then, turns out not to be reduced congestion but changed land use in the vicinity of the road - a totally different effect than that which was intended.

As with feedback stabilization, systems which exhibit self-organizing behavior can be extremely difficult to control.

Hierarchical organization

Complex systems are usually organized hierarchically for the reason that it is difficult to assure their stability otherwise.[14] Hierarchical organization can be found in living things, which comprise components organized into cells (ganglion, dendrite), cells organized into tissues (nerve, muscles, epidermal), tissues into organs (heart, stomach, liver), organs into subsystems (circulation, digestive), and these subsystems finally into the total living being. Each of these levels can, in turn, be broken down further. Society is also organized hierarchically, both politically and socially. For example, there are individual people comprising local political entities such as wards, districts, and precincts, which make up cities and/or counties, and these in turn make up states, and the states constitute a nation. Action or responsibility appropriate at one political level, such as maintenance of an army for national defense at the national level, would be unsuitable at a lower level, such as the county or city level. On the other hand, many responsibilities are much better handled locally, such as organizing snow removal crews, where detailed knowledge of the local environment and needs is paramount. Control of a hierarchically organized system must take into account the fact that certain types of control inputs are only appropriate at certain levels; and if the range of control inputs is limited, the system may be partially or totally uncontrollable.

The problems which may arise from attempting to control a hierarchically organized system at the wrong level are rather graphically illustrated by a piece of medical history. Prior to development of the germ theory of disease by Pasteur and others, there were many hypotheses as to the origin and causes of disease;[15] it was regarded physiologically as an imbalance of humors, thickening of the blood, or an effect of "epidemic constitutions" in the air, among others. The treatments prescribed included administration of various potions, bleeding the patient, purging, and scalding hot baths. In the case of bacterial or viral infections, none of them worked well, nor could they, since the problem lay several levels below that at which any of these methods could act, at the cellular and sub-cellular level.

And until a theory was developed which recognized the need to attack the problem at the cellular level, little progress could be made. Once the germ theory had been developed and verified, however, the development of drugs such as antibiotics was just a matter of time since the theoretical basis for their action was understood. Curiously, in Pasteur's time, many rejected the germ theory because they did not believe that something as small as a microorganism could kill a man. That is, they did not recognize that a hierarchically organized system can be destabilized by actions occurring at the lowest levels. There may be a possible analogy today, in view of government policies for the last thirty years, which have favored transfer payments as a means to improve the condition of the poor. Many policymakers do not seem to believe that something like a set of moral beliefs (or the lack of them), at the lowest level of society - individual people - can make a critical difference to the behavior of the society as a whole.

In fairness to those who advocated the Great Society programs, it should be stated that they seemed to be animated by a great moral imperative - to reform society and root out injustice and inequality. But this moral imperative, often flaunted as moral superiority, traded on the guilt of a basically Christian society. Their moral imperative, such as it was, functioned as a type of latter-day Confucianism - an ethical system with vague religious overtones. Perhaps the secular liberals thought that their vision could transform enough lives to assure the triumph of their ideals. But Confucianism or any similar ethical system is not a religious system; as such, it cannot tap the deep moral and spiritual roots accessible to the great monotheistic religions, for example. Moreover, Confucianism has never found a wide audience outside of China, and few if any other non-religious ethical systems have been notably successful in directing the conduct of large populations over extended time periods. Hence, to assume that some such ethical system could really substitute for a true religious value system was, at best, highly problematic; and when the stakes are considered, it was a foolhardy if not criminal gamble.[16]

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Systemic Failure

"Systemic failure" is a system theory term used to describe the following state of affairs: all parts of a system are functioning properly, or in accordance with specifications, but the overall products or behavior of the system are poor, inadequate, or failing. As an example, consider the case of an entrepreneur who sets up a factory to make 1950's type black-and-white television sets. His sets - complete with vacuum tubes - might function exactly according to the specifications for television sets of that age, and his factory might work as well as the best of those days, with every worker doing the best possible job. But the venture would fail because no one would want to buy the sets: their price would be extremely high, and their performance hopelessly inadequate by 1990's standards. This example may seem laughable, because the problem is rather obvious: obsolete technology. But systemic failure is widespread and often not recognized just because all individual parts of the overall system appear to be functioning perfectly, or as well as can be expected. A prime example is the U.S. education system, which will be discussed further below. The collapse of communism in Eastern Europe (and in the Soviet Union itself) has all the hallmarks of systemic failure as well, including the use of obsolete technology to produce products no one wants.

WHY SOCIAL SYSTEMS MAY FAIL TO BE CONTROLLABLE

In comparison with automobiles and spacecraft, social systems are extremely complex, involving as they do large numbers of interacting human beings, together with property, legal constraints, and a history which may influence system behavior, as discussed above. It cannot in general be assumed that such systems may be reduced to simple dynamical models, although that is sometimes possible. Nonetheless, because they are systems which can be acted upon and which have certain behavior in response to those actions, the notion of controllability still applies. In particular, the question of controllability becomes that of whether a social system can be made to behave in some desired way, given the means available to influence or act upon it. The problems which may arise and cause a system to be uncontrollable can be readily understood with reference to the foregoing discussion and the following examples.

Case Study: School Integration

School integration by means of forced busing was one of the "social engineering" projects begun in the 1960's. The theory behind forced busing apparently was that by putting blacks and whites in the same classes in proportions reflecting local population, educational opportunities for blacks would become equal immediately, and eventually the general educational performance level of the blacks would improve to equal that of the whites.

There were also other motivations, among them the belief that through working and playing together in the school environment, racial animosities learned from the culture would be dissipated or greatly reduced, and a new generation would emerge free of the biases of their parents and willing to live in an integrated world. Apparently it was believed that moral injunctions, at least of the traditional religious type, were unnecessary, irrelevant, or inadequate.

To be sure, the nobility of all of these goals cannot be called into question; but in the event, they have not materialized due in large measure to the fact that society is not the simple, controllable system the legislators and judges implicitly assumed.[17] Rather, we have a classic case of self-organization acting to thwart government efforts to control an aspect of society's behavior.

What happened in many cities is so well known that it has a name: "white flight."[18] The majority of parents of children in cities with substantial black populations - or at least those who could afford to do so - simply packed up and moved their families to the suburbs, where there were few blacks. Others took their children out of public schools and put them into private schools. That is, the social system reorganized itself to neutralize the intended control. The net result was that schools became more segregated, and in many cases, educational quality deteriorated - exactly the opposite of the intended effect. The statistics in Table 119, for Washington, DC schools, tell the story. Thus we have the first reason society may be uncontrollable by means at the disposal of secular governments: self-organization acting to neutralize attempted control.

Case Study: The Drug Problem

The War on Drugs is a national effort incorporating action in diverse areas such as stepped-up enforcement, treatment of addicts, prevention programs, and education. The primary expenditure in this effort, and the most visible one, is drug interdiction. The theory behind this effort appears to be that increased interdiction will reduce availability of drugs on the street, thus encouraging addicts to seek treatment and discouraging others from adopting the drug habit. 'Mat is, the government seeks to control an undesirable behavior - drug addiction - by one method at its disposal, use of force to thwart and/or capture drug smugglers.

Fall of Year	Percent of White Students	Percent of Black Students	Percent of Whites in City	%White Students/% Whites in City
1950	49.3	50.7	64.3	0.77
1952	45.8	54.2	61.9	0.74
1954	39.2	60.8	58.3	0.67
1956	32.0	68.0	51.9	0.62
1958	25.9	74.1	47.9	0.54
1960	20.3	79.7	44.8	0.45
1962	16.6	83.4	42.9	0.39
1964	12.4	86.6	39.3	0.32
1966	9.2	90.8	36.9	0.25
1980	7.0*	93.0	29.7*	0.24

Table 1
School integration Data for Washington, DC

*Includes Hispanics and Asians

Is this action likely to yield the desired goal, as opposed to, say, instilling moral and spiritual values in ghetto children, and others affected? The author has analyzed this question elsewhere[20] by means of a mathematical model of the drug "business." The model is based on observations and studies of drug manufacturing, smuggling, and distribution. The key observation is that drug addicts and users form part of a feedback system which spans continents and involves large quantities of both substances (drugs) and money. Drug barons in Columbia and elsewhere must move the amount of drugs necessary to supply users, and to do this they hire smugglers who use planes, ships, and other means to get the drugs into the United States. A certain portion is interdicted; the remainder is distributed by regional and local groups to the end users, who pay a "street price" for the drugs. The various distributors receive a portion of the proceeds for their efforts; the remainder of the money flows back to the drug barons.

The operation of the model may be envisioned as follows: Demand on the part of drug users can be assumed to be fairly inelastic, at least for the highly addictive drugs of interest. Hence if there is increased interdiction, street price goes up sharply due to reduced supply, to the point that drug barons have more net money and can then pay more to hire additional smugglers so that more drugs will be imported, thus increasing the supply and counteracting the increased interdiction. Under fairly general assumptions, it can be shown mathematically that this results in a tight feedback loop which tends to maintain constant supply and prices in the face of interdiction, and that in order to reduce street supplies of drugs appreciably, amounts of money will have to be spent on interdiction which are orders of magnitude greater than that currently appropriated.

The War on Drugs, or at least that part of it devoted to interdiction, may turn out to be a classic case of a government program which fails due to the fact that internal dynamics are operating to effectively counteract

Problem Area	Remidial Action
Inadequate Raw Material:	Money
Poorly pprepared students	Technology
Inadequate student motivation	Parental Involvement
Poorly trained teachers	Community Action
Incompetant teachers	Government Action
Poor or outdated instructional material	Other
Defective Plant:	
Insufficient classroom time	
Inadequate facilities	
School atmosphere not conductive	
Student/teacher ration too high	
Lack of high standards	
Too little homework assigned	
Wrong courses taught or taken	
Poorly designed courses	
Poorly designed curriculum	
Local feedback loop breakdown:	
Homework not thoroughly done	
Insufficient or inadequate support (parental, peer group)	
Home atmosphere not conductive	
Externatl distractions (jobs, social events, etc.)	
Overall feedback loop breakdown:	
Academic performance uncorrelated with job oppourtunities	
Employers will hire illiterate or poorly trained graduates	

Table 2
Factors Affecting Educational System Performance and Possible Remedial Action

the government action; i.e., the system is not controllable by government action due to the presence of a feedback loop. This constitutes the second reason why a system may be uncontrollable by high-level government action. In fact, control can probably be achieved only by changing the society dynamics, and that would mean changing values so as to reduce dependence on drugs - a task for religion rather than government.

Case Study: Reducing Street Crime Through Law Enforcement

No one in the U.S. needs to be told about the epidemic of crime. This problem is variously attributed to poverty, racism, breakdown of families, poor neighborhood environment, and a host of other factors. The relevance of these factors is not of interest here. Rather, the question is whether a jurisdiction can control crime (or its symptoms, at least), by increasing the number of police on duty in crime-prone areas. Or has the situation been reached where the number of lawless individuals is so large that not enough police can be fielded? The answer to this question is not known in any theoretical sense; but in view of the May, 1992 Los Angeles riots, and the fact that the strategy has not been implemented in any large high-crime cities such as New York, Detroit, or Los Angeles, there is probably a good reason. And that reason may well have to do with the inability of the resources of the jurisdiction to support the required load; that is, a sufficiently large control (law enforcement) cannot be generated to reduce the level of criminal activity. How such a state of affairs may come about is readily understood: larger numbers of police require larger expenditures, which in turn entails higher taxes. Higher taxes tend to make a jurisdiction less affordable since they raise the costs of doing business and effectively lower the value of real estate. If real estate prices fall, and businesses and residents are driven out - at least those who pay the most taxes -, the tax base erodes, requiring still higher tax rates to sustain the revenues. Thus a vicious cycle, technically known as a positive feedback loop,[21] is created. In actuality, high-crime areas tend to have many problems in addition to law enforcement which require expenditure of a jurisdiction's money: drug treatment, remedial education, public health, incarceration, and welfare. All of these, of course, will tend to exacerbate the problem of taxes and revenues. Thus, for financial reasons, once criminal activity and associated social pathologies reach a certain critical stage, it may no longer be controllable by government law-enforcement efforts. This, then illustrates a third reason why a society may be uncontrolable at a high level: control cannot be made sufficiently powerful. Once again, the root of the problem, and the failure to solve it, both lie with the inability of government action to operate effectively at the level of morality and values.

Case Study: Education Reform

George Bush wanted to be known as the "Education President," and he wanted America to be number one in science and mathematics by the end of the century, as measured by standardized tests.[22] Given that American students currently rank near the bottom in most such tests administered in the developed countries,[23] the inherent resistance to change of the education bureaucracy, the poor esteem in which educators are held, and the often poor attitude toward intellectual matters on the part of students and parents, is there any action which the federal government can take which will move society toward this goal, i.e., is educational performance controllable by federal government action?

Viewing the education process as a system, with inputs (the students, teachers, instructional material), a "plant" or process (the sum total of activities in schools) with feedback (homework, etc.), and an output or product (the partially or mal-educated students), it appears that we are dealing with a systemic failure in that the system is functioning, i.e., everyone is doing his job, but the end product is defective. What may be the causes for this failure? Consider the items shown in Table 2. The left column contains some factors which may explain the failure of the education system, and the right column possible sources of remedial action. It is likely that most if not all of the factors are involved; there may indeed be many more. Determination of the precise causal relations between each of these factors and education failure would be a major research project; nonetheless, even a cursory examination shows that only for a relatively few is federal government action likely to be significant.[24]

Frequently, money - or rather the lack of it - is cited as the primary reason for educational failure, and the government (local, state, federal) disperses the cash.[25] But if there is a causal connection between money spent and educational performance, it is not obvious; studies indicate that expenditure of funds may be uncorrelated with educational performance.[26] It is indeed true that many wealthy areas of the country, such as Montgomery and Fairfax counties around Washington, have education systems that are considered among the best; but it is by no means clear that the money lavished on these systems accounts for the relatively high level of achievement by students in them. That performance may be primarily due to the social infrastructure of the counties: intact families which stress the importance of education and reinforce good student behavior. If this is the case, then control of student educational performance will not be achievable by means of expenditure of government money; rather, the control must once again be done *at a level or in a way not accessible to government action*, viz. changes in social values, specifically, family values. One especially frightening thought is that the set of social conditions and values which the United States currently possesses *may render a successful universal educational system impossible*. In such a case, the student educational performance would be said to be partially or totally uncontrollable.

Case Study: Public Health, A Success Story

Government action can be extremely successful when the type of control required is suited to that action. Many examples could be cited, but the following is of interest as one of the first clearly successful examples of control by appropriate government action. In 1854, a cholera epidemic was raging in London. At that time, of course, the physiological basis for cholera was not understood. Various remedies were tried by Londoners to stop the epidemic, including the splashing about of vinegar and nitric acid, distribution of hot bricks, and burning of pitch. Then an investigator, William Farr, began looking for statistical correlations between mortality rates and other factors. Such techniques, though common enough today, were virtually unknown at the time. He eventually discovered that incidence of cholera was correlated with distance from the Thames, with higher levels of disease associated with proximity to the river. A British physician, John Snow, related this to sources of drinking water, in particular a single pump, and that led to the discovery that polluted water from the river was propagating the disease (the Thames was used as an open sewer at the time). Government action forced purveyors of drinking water to use clean sources, and the epidemic abated. The difference between this case and that of the germ theory of disease, cited above, lies in the fact that the relevant changes needed in society were at a level directly accessible to government action and were readily carried out, requiring no knowledge of the mechanisms by which the disease operated. Nor was there any feedback mechanism or self-organization operating to thwart the government control action.

Other examples could be cited as well: the success of public health efforts to eliminate infectious childhood diseases, for example. Such successes contrast with partial or total failures in areas complicated by moral and political factors, where controllability of society by governmental action is more problematic: elimination of venereal disease, AIDS, and in some regions of the country, infant mortality.

SUMMARY OF REASONS WHY A SOCIAL SYSTEM MAY BE UNCONTROLLABLE BY SECULAR GOVERNMENT ACTION

The reasons discussed in the foregoing sections may be summarized as follows:

- *The system is self-organizing and can partially or totally neutralize govemment action*. Example: school integration by forced busing.

- *The system is feedback stabilized to any control available to the government*. Example: the drug war.

- *It is not possible to use a sufficiently large control signal or input*. Example: control of street crime by use of extra police.

- *The system cannot be controlled at any level accessible to government action*. Example: education reform. The other reasons may have their ultimate roots in this as well; but in the case of education reform, the problem appears directly as the fundamental reason for failure of control.

- *The correct type or level of control is unknown*. In addition to the education example given in the text, one could argue that we do not know how to control events so as to achieve world peace.

- *System is partially or completely uncontrollable by any means*. In addition to the example of education in

the text, it appears that in totalitarian systems, it is not possible to control the thoughts of the people so that they no longer desire freedom (cf. collapse of communism in eastern Europe).

Politicians and the public have to face the fact that there are constraints on what can be achieved given the organization and dynamics of their society, and that some cherished goals may not be attainable at all or attainable only with radical restructuring of society, a restructuring along lines other than those envisioned by architects of the secular welfare state. As George Bush remarked at the University of Michigan on May 4, 1991, almost a year to the day before the Los Angeles riots:

> Government programs have tried to assume roles once reserved for families and schools and churches. This is understandable, but dangerous. When government tries to serve as a parent or a teacher or a moral guide, individuals may be tempted to discard their own sense of responsibility, to argue that only government must help people in need.... Gradually we got to the point of equating dollars with commitment, and when programs failed to produce progress, we demanded more money.[27]

It may be possible that by a combination of government actions different than those used to date, improvement in problems such as poverty and crime can be achieved. On the other hand, it may very well be the case that the social infrastructure of the people and areas involved, such as urban slums, may make the desired improvements impossible through government action; in that sense, the systems are uncontrollable. If such is indeed the case, changes to the social infrastructure itself will be required. To accomplish this, means not accessible to the government, such as inculcation of values through religious and moral training, will almost certainly be required.

CONCLUSION

Characteristics of social systems, such as self-organization and feedback stabilization, may render them uncontrollable by government action. Attempts to treat these systems as simple, controllable systems may yield totally unexpected and quite possibly undesired outcomes.28 Changing society may require control to be applied at levels or in ways not accessible to the government. In particular, it may require changes that can only be brought about by reinstilling moral and spiritual values into all segments of society, but especially those most affected by social problems, and where there has been the most breakdown of those values. The experiment of replacing church-related social programs and Judeo-Christian values and morality with secular welfare and education should be declared over and pronounced a failure before any more harm is done.

Notes

1Pope Leo XIII, *Rerum Novarum*, 29 (1891).

2*Rerum Novarum*, 36; Pope Pius XI, *Quadragesimo Anno* (1931). The following is most noteworthy in this context: ". . . Man, endowed with a social nature, is placed here on earth in order that he may spend his life in society, and under an authority ordained by God, that he may develop and evolve to the full all his faculties to the praise and glory of his Creator; and that, by fulfilling faithfully the duties of his station, he may attain to temporal and eternal happiness. Socialism, on the contrary, entirely ignorant of or unconcerned about this sublime end of both individuals and society, affirms that living in community was instituted merely for the sake of advantages it brings to mankind."

3Technically, the "War on Poverty" was not one program but the informal name given to a collection of social welfare programs that began with the Office of Economic Opportunity (OEO).

4Amount is constant dollars, based on data in "How 'Poor' are America's Poor?," *Backgrounder* No. 791, Heritage Foundation, Washington, DC, 1990, p. 6, and "'Great Society' not so great, critics say," *Washington Times*, 10 May 1992. The data in the report from congressional committee reports and the Congressional Budget Office.

5One can argue, of course, that matters would be worse than they are if the War on Poverty and other "Great Society" programs had not been implemented. And disputes rage as to just how many poor people there are in America. Heritage Foundation (see reference below) claims that the number of poor in America is overstated by census figures, and that there has in fact been a decline, though one Heritage seems to attribute to increased productivity rather than to government programs. But whether one agrees or disagrees with Charles Murray's marshalling of statistical evidence in his *Losing Ground* (Basic, 1984), the goal of eliminating or substantially reducing poverty as a social condition (as opposed to a statistical condition) has not been achieved. And one can argue that the state of the hard-core poverty areas, with their levels of crime, substance abuse, and family disintegration, may actually be worse now than in 1960.

6Dr. J. Forrester, of MIT's Sloan School of Management, has studied urban planning and determined that one of the standard responses to city problems, construction of low-income housing, is actually the worst thing that can be done, because it encourages low-income people to stay in cities when in fact cities are nowadays very poor at creating the entry level jobs these people need. The land could be better used for other purposes which would generate revenue for the city rather than consume resources. The people in question would be better off if the housing were built in the suburbs, where factories and other job opportunities exist. (Lecture given at the MITRE Corporation, Bedford, Massachusetts, 1991).

7Christopher Dawson, *Religion and the Rise of Western Culture* (New York: Sheed and Ward, 1950), p. 18.

8Charles Murray, *Losing Ground* (New York: Basic Books, 1984), p. 34.

9The situation has been analyzed from a somewhat different perspective by W. L. Livingston in his book *The New Plague* (Bayside, NY: F.E.S. Publishing, 1986). Livingston points out that many of the problems our society faces - not just in the political arena - have proved intractable because we train people to solve problems that can be understood and solved by one person, but not how to deal with highly complex problems which require coordinated efforts of many people interacting in the right way.

10Formal definitions of controllability may be found in Ogata, *State Space Analysis of Control Systems* (Englewood Cliffs: Prentice Hall, 1967), p. 372, and in Kalman, Ho, and Narendra, "Controllability of Linear Dynamical Systems," Contrib. *Differential Equations*, 1961, vol. 1, pp. 189-213.

11Prigogine, From Being to Becoming (San Francisco: Freeman, 1980); Prigogine & Stengers, Order Out of Chaos (New York: Bantam, 1984).

12Nicolis & Prigogine, Self-*Organization in Nonequilibrium Systems* (New York: Wiley & Sons, 1977).

13Peter Allen, "Modelling the Self-Organization of Human Systems," from Proc. IFIP-WG 7/1 Working Conference on Global Modelling, Dubrovnik, Yugoslavia, 1980, Lecture Notes in Control and Information Sciences, #35 (Berlin: Springer-Verlag, 1981), pp. 138-171, and also lecture by the same author presented at the MITRE Corporation, 1990.

14 Herbert Simon, *The Sciences of the Artificial*, second edition (Cambridge: MIT Press, 1981).

15Diego Gracia, "Cuatro actitudes del hombre ante la enfermedad infectocontagiosa," *Estudios dedicados a Juan Peset Aleixandre,* University of Valencia, 1982; H. Ackerknecht, *A Short History of Medicine*, revised edition (Baltimore: Johns Hopkins Press, 1982).

16The environmental or "Green" movement, as it is sometimes called, appears to be the successor to the Great Society as a rallying point for secular liberals, and the heir to its quasi-religious elements. Invocations to nature like "The Earth is our mother" give the game away, as do admissions by scientists and environmental activists that "the facts are irrelevant."

17School integration has succeeded in eliminating most of the de jure segregation which existed prior to 1954. But resegregation patterns have emerged in many areas by virtue of demographic trends and the simple fact that parents have removed their children from public schools. See Table 1 for the Washington, DC case. Even Gary Orfield, who does not believe that busing significantly affected desegregation, admits that one sixth of the students in the U.S. are in school systems which are de facto segregated because there aren't enough white students in the systems to integrate them. See his *Public School Desegregation in the United States, 1968-1980*, Joint Center for Political Studies, Washington, DC, 1983, p. 39. Some of the statistical data in Orfield's study do not make sense. In one table (20, p. 26-27), Washington, DC is said to have only 4% white students. In another table (24, p. 41), the percentage of whites in a school attended by a typical black student is given as 24.7 (data as of 1980).

18Gerald Jaynes and Robin Williams, ed., *A Common Destiny, Blacks and American Society* (Washington, DC: National Academy Press, 1989), pp. 83-84. Statistics quoted in this study, sponsored by the National Academy of Sciences, indicate that white opposition to busing remains high, 75% as of 1986 (p. 128). White flight was also the result of desegregation efforts other than busing, and there were probably unrelated trends which contributed, including the decline in industry in cities and the desire for more affordable housing. See R. Rist and G. Orfield, *School Desegregation and White Flight* (Cambridge: MIT Press, 1976).

19Adopted, with additional calculations, from Thornell Kenly Page, *A Study of the District of Columbia Public Schools Desegregation Policies, 1954-1967*, Doctoral dissertation, Virginia Polytechnic Institute and State University, 1978, p. 73; Orfield, op. cit., p. 26; Statistical Abstract of the United States, 1990, p. 36.

20Thomas Fowler, "Winning the War on Drugs: Can We Get There From Here?," *Journal of Social, Political, and Economic Studies*, vol. 15, #4, pp. 403-422 (Winter, 1990).

21This type of feedback loop, where the feedback is positive, behaves differently than the feedback discussed earlier in the article. That type of feedback is negative, and such feedback loops tend to stabilize a quantity. The feedback here, being positive, leads to destabilization and a runaway of some quantity, either to a very large or very small value. In this case, real estate values and business would both tend to go sharply down.

22By the Year 2000, *Federal Coordinating Council for Science, Engineering, and Technology* (FCCSET), 1991. The publication boasts of increased federal spending to achieve the goal, with no explanation as to why, with all the current federal expenditure on education, present achievement levels are so low.

23See, for example, the *Wall Street Journal* education supplement, 9 February 1990, p. R5.

24Some empirical work has been done to try to pin down the characteristics and requirements of effective schools, and also why blacks and other minorities have experienced difficulty in the education area. But the kind of general research effort needed has not been made; and many of the individual projects appear to have problems of scope and depth. Unfortunately, the outcome of such a study may be at variance with the prevailing education paradigm, which will limit its effectiveness. See Jaynes and Williams, op. cit., p. 356ff and the references therein for further information.

25That the federal government is still committed to achieving Bush's goals by expenditure of federal money was explicitly stated by Energy Secretary James Watkins in an address to the American Association for the Advancement of Science on 19 February 1991.

26 "Money fails to improve education's report card," *Washington Times*, 3 May 1990.

27Quoted in "Getting away from the program," *Washington Times*, 8 May 1992.

28Murray (op. cit., p. 156ff) gives an excellent example of this point with his game theory analysis of the strategy to be followed by a young, poor couple in pre- and post-welfare reform times. However, Murray's own proposed remedies (p. 219ff) may suffer from a set of problems no less serious than those he has criticized; the fact is that we just don't know because the crucial analyses have not been done.