

Social Engineering

The idea of social engineering reasonably follows from the integration of cybernetics, mathematics, and ethics. From the synthesis of these disciplines, the evolution of ethical systems can theoretically be shown to be a highly organized process. However, methodically uncovering this organization would likely involve a time-consuming process of research and experimentation, following a path similar to that which science took to uncover the basic principles of engineering.

A comparison can be made between the evolution of engineering principles in the field of structural engineering and the as-yet undefined engineering principles of human societies. If a building is constructed in conformity with prudent engineering principles, it obviously will withstand the effects of an earthquake more successfully than a building that is not. Societies can also be said to have structure. Structure is ordinarily thought of in terms of economic or political arrangements, but there is a deeper structuring of laws, traditions, and customs that form the backbone of a thriving society. When people abide by the rules of their culture, they reinforce and add to its structural integrity. Integral systems, whether mechanical or social, can clearly survive uncommon stresses and strains better than poorly constructed ones.

A building's ability to survive in an earthquake is a function of its conformity to basic engineering principles. Similarly, a person's ability to assimilate into a culture and derive benefit from it can be said to be a function of conformity to certain laws, customs, manners, and moral traditions. Not all poorly constructed buildings will fall in an earthquake, nor will all people's lives be harmed if they do not conform to social standards. However, when people do not want to leave their future to chance, they tend to follow more conservative path-making decisions. For instance, property owners often have considerable investments in their buildings and thus may not want to put those investments at risk. Likewise, people who have carefully built their careers may not want to get involved in questionable practices that jeopardize the product of years of hard work. Therefore, to insure that problems are held to a minimum, people adopt practices that are known for their beneficial effects. In both structural and social engineering the object of good design work should be to make events (mechanical and human) both predictable and functional.

A society builds structure when it evolves in an organized way. Likewise, people build structure when they adopt certain rules of order. If the way people structure their lives is poorly defined, the relationships they establish with others will lack definition and integrity. The bonds such relationships create will not always be strong enough to withstand the intense ups and downs of conflict and stress that often occur between people in stressful times. Therefore, it is possible to make a comparison between the effects of stresses and strains on the integral construction of a building, and the effects of uncommon stress on the integral construction (emotional and physical stability) of a person's life. In an orderly society, certain behaviors are discouraged because they undermine the integrity of a person's thoughts and actions. Likewise, in structural engineering, the use of certain materials and

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the implementation of certain construction practices are discouraged because they weaken the structural integrity of a building.

In human cultures, the evolution of ethical systems is facilitated by the remembrance of the many human actions that undermine the integrity of a person's thoughts and actions. These remembrances are recorded in the cultural lore, research, technical writings, and literature accrued over many centuries. The remembrance of human actions in this way may not be an exact science, but it does have scientific characteristics. Both the scientific approach and the more informal accumulation of human knowledge evident in social rule sets manifest ever higher levels of social organization. At some point, however, the pace of social evolution will increase to such a level that the traditional method of determining ethical behavior must move from an informally evolving system of knowledge to a formally evolving one. Social engineering is an ideal way to meet the high level of responsiveness to change that a highly dynamic social system demands.

Social engineering cannot become a respectable science if it cannot define certain forces and principles of action that lie at the foundations of cultural growth. The discovery of precisely which principles of human action extend the survivability of the species, and which do not, can only follow from a thorough analysis of human behavior. A survey of laws, customs, manners, and beliefs that have survived for thousands of years might be an appropriate starting point for such an inquiry. If an immense number of behaviors have been tried over centuries of social construction, then those behaviors that have prevailed will begin to form an outline of the hidden forces that sustain them. And, if there are forces hidden from direct experience, and those forces ultimately influence the survival of organisms, animals, and humans, then evolutionary biology takes on a whole new meaning. Survival thus becomes a function of acting in parity with fundamental principles of organic action, and extinction becomes a function of falling below a threshold of sensitivity sufficient to survive and adapt to the environment.

An example of this might be seen in structural engineering. Investigation into the nature of the physical properties of materials uncovered a series of clues and information that led to the formation of the engineering sciences. As more became known about the different kinds of structural material, the more clearly an outline of the principles of materials science emerged. Physical materials have very real limits and characteristics. If these limits are not considered in structural designs, the buildings they produce may eventually fail from uncommon stresses and strains.

In engineering, the sum total of all turning, deflecting, and stressing forces on a structural member at a particular point is calculated as its moment. In social engineering, the same type of calculation is possible. An ethical moment might be calculated as the sum total of all influences and conditions under which a person decides to act on a problem that is inherently risky or stressful. Since human relationships are complex, many stresses and strains can suddenly converge, putting a person's emotions to a severe test. The negative effects of many questionable behaviors overlaid on one another in the same moment can accumulate to produce stresses and emotions that go out of control and invite disaster. Social morality, in the main, has always reflected a conservative estimation of which activities are healthy and should

be pursued, and which can cause problems if one is not prudent in the entire management of one's life system.

Encouraging the evolution of moral science is inherently risky. There is a certain elegance to human deceptions that justifies wrongdoing. In this respect, the idea of an ethical moment is itself questionable. It is an interesting idea, but can it really produce ethical understanding over extended periods of social evolution? Thus, there is, in theory, a certain priority to classical moral thinking that takes precedent over newer ideas a moral science may attempt to assert.

Part of the risk inherent in using a new science to further self-serving political causes can be offset by the way it is broken down into separate categories of description. A theoretical model thus can be verified from several scientific viewpoints. Some of these have already been discussed. Other more specialized areas might include dynamic equilibrium, social equilibrium, flow, systemic efficiency, synchronization, dynamic balance, and systemic interface. In all these categories, subtle reasons for the evolution of ethical systems become apparent. These influences may not seem as important as larger moral concerns such as lying, cheating, stealing, and killing, but they do have an important influence on the fostering of higher and higher levels of civilization.

Social Equilibrium

Even though dynamic systems are in motion, they experience a form of equilibrium. Music has motion, yet it also establishes a familiar theme, defining a sense of dynamic equilibrium. Once a fairly predictable system of variations on a theme is presented, notes falling outside the norm can create a dissonance in the listener's ear.

Life in process is much like a symphony. While there is a wide spectrum of variation in human behaviors, there are, in theory, boundaries of equilibrium that cannot be crossed without causing dissonance. When cultures have experienced what can be called boundary problems for generations, certain moral views are likely to have evolved that assign a certain degree of moral value to a particular behavior. Social engineering, in this light, becomes a science concerned with discerning limits and boundaries across an immense spectrum of possible human behaviors.

Social equilibrium can be either of the positive or negative type. Positive social equilibrium is highly tolerant of extremes. It accepts a wide diversity of talents in order to gain the maximum social benefit. Negative social equilibrium does not tolerate a wide diversity of ideas and talents, particularly if they come from outside a closed circle of authorities. In such a tightly closed system, peace and tranquility are maximized at the expense of diversity. This yields a certain uninspired peace, but undermines long-term survival, as outside competition will, given the opportunity, throw off the authority of an ingrown power structure.

Both types of equilibrium possess desirable qualities. Evolving systems may experience times when they close, in much the same way humans need sleep to regain their focus and energy. Tolerance of diversity creates certain discomforts that are eventually overcome by the benefits which tolerance inspires. If nothing good comes of it, the system moves from a positive to a

negative state in defense of its energies.

In either case, exceeding certain levels of disruption engenders societal disequilibrium which in turn inspires a response to curtail such activity. In this way, certain moral practices are encouraged or denied on the basis of their effects on the social equilibrium. The established equilibrium becomes a reference point by which subsequent behaviors are gauged. While the moral nature of certain activities remains more or less fixed, behavior in general is determined in a flux of systemic changes that can be estimated in the conceptualization of an ethical moment.

Flow

Social engineering has been an integral part of society for countless generations. Its influence can be seen, for example, in the construction of a vast highway system. With highways, many rules have evolved to govern the traffic. The primary focus of these rules relates to a necessary flow of traffic uninterrupted by accidents. Once traffic rules are implemented, there is greater systemic efficiency, reduced risk to health and welfare, and the synchronization of the policies of many communities into a single unified system.

The ideas of flow and equilibrium have some common characteristics. In both instances, the outcome of good social flow, or social equilibrium, is a greater predictability of events. Once a certain amount of flow is established in a society, people can plan for the future in ways that they could not if such predictability were not present. For example, if there were no predictable patterns of flow on the highways, it would be very difficult to plan a long trip. Good flow allows for planning, and planning facilitates a higher level of systemic efficiency through the synchronization of activities, which results in good flow.

Good flow is something many businesses, such as banks, are interested in. Take, for example, a person's credit rating. If a man repays all his debts on time, without reminders or coercion, he receives the highest credit rating. If he must be prompted to repay what is owed, this fact is recorded in a personal credit history. Large financial institutions, which process immense numbers of loans, are under pressure to take only those applicants whose credit record is the very best. If it is not as good as it could be, the lender will charge a higher interest rate to offset the potential cost of the slight risk and of having to occasionally remind the borrower that he has a debt to be paid. If his credit record reveals many problems, he will not be loaned the money at all. Lending done on an immense scale, at low interest rates, requires a certain predictable flow of revenues from interest and principle payments. Borrowers who are constantly late in their payments incur costs that disrupt the flow of business. When this happens, banking begins to move from being a lending process to being a collection agency. Those with bad credit must then seek out the more marginal lending institutions that charge considerably more for their services and are better positioned to deal with the disruptiveness of troublesome clients.

Dynamic Balance

The flow of information reaches its theoretical maximum in balanced systems. When a large system approaches a state of balance, the

subsystems that comprise its construction are reasonably in balance. In this efficient state, feedback and information cross systemic boundaries, freely and unobstructed.

Another meaning of the word balance has to do with the emotional and economic exchanges that operate between people, their friends, and the community. In close relationships, actions spontaneously arise and information flows unobstructed. In these relationships, the participants strike a balance, and with effort, maintain it. This is necessary in a fast-paced, dynamic system that, like a rapidly spinning wheel, can fly apart from vibrations set up by imbalance. The fluidity of communications in balanced systems facilitates immediate feedback so a problem can be immediately remedied.

Systemic Efficiency

If the evolution of rule systems can be shown to be linked to the survival of humans as individuals or as a species, then systemic efficiency becomes an important element in the construction of those rule systems. In a highly competitive world where humans not only compete with each other for scarce resources, but also with other organisms in the environment, the efficiency of each competitor's actions may determine who prevails.

The evolution of human moral systems appears to be a highly efficient method of maximizing human potential and minimizing conflicts and inefficiency. In a society in which people are defined by their moral characteristics, the economics of operating a large social system becomes much easier. In order for business, government, and education to run smoothly, efficiently, and productively, the many parts that make up their construction must be interchangeable. For example, a person's work habits and reputation as an honest, diligent, and methodical worker are important considerations in hiring new employees. Employers do not always have time to train new employees. Thus, behavioral characteristics, as well as occupational characteristics, allow a greater efficiency to be manifest in a society as there is an increase in the interchangeability of its parts.

Another aspect of morality implied in consideration of systemic efficiency is time and place constraints on certain types of human activities. A female bank teller who goes to work in attire more appropriate for a nightclub will invariably disrupt the tranquility and flow of business. Since it is more appropriate and profitable for banks to focus on aspects of business rather than sex, behaviors that profit the bank will naturally prevail over all other considerations, reinforcing and perpetuating a social custom that separates all activities by their times and places.

Simply because a certain activity is not wholly efficient does not mean it is automatically out of place in the construction of a harmonious society. Efficiency done for efficiency's sake creates a tyranny of efficiency that diminishes the spirit of human endeavor. Deoptimization is sometimes necessary to sustain other, more important considerations.

In theory, the interaction between culture and biology results in societies moving to higher levels of order and efficiency, which then results in finer distinctions of law and morality. The original human impulse to make rules may be traced to the need to survive. But as societies have become more

sophisticated, efficiencies of societal organization have begun to dictate what the rules will be. As the world becomes more complex, an increase in the synchronization of its many parts becomes vital to its long-term survival. Societal efficiency is achieved by organizing activities congruent with the priority and appropriateness to their time and place. Customs and manners, therefore, evolve as an extension of the social morality to further distinguish between behaviors that are good and bad, efficient and counterproductive.

If there is not a concomitant increase in synchronization, the social frictions and inefficiencies that follow will invariably affect the quality of life and the ability of that culture to compete militarily and economically with other nations. These results occur because in a highly dynamic system reliant on a high degree of systemic coordination, small disruptions can have an exaggerated effect on the peace, prosperity, and productivity of the larger society. Morality thus evolves to another level of complexity when viewed as a function of societal efficiency. What follows, in ethical terms, are time and place constraints on a multitude of human behaviors to increase social synchronization.

Communications and Systemic Interface

Verbal and written communications are highly refined and efficient forms of social feedback. When problems arise, there is cultural feedback by way of verbal, nonverbal, and written communication. Over centuries, an accumulative remembrance of these feedbacks begins to define those human actions that work and those that do not. This knowledge in turn becomes part of the foundation of a culture's formal educational system.

Learning to communicate, and learning about the society, is not all that a person must do to cope effectively in a highly competitive environment. One must be able to interface a personal world of ideas, skills, and desires with an external world that may have considerably different ideas, skills, and desires. As a person matures, he or she becomes part of an increasingly complex system of relationships, obligations, and hierarchies of authority. As society evolves more rapidly, a person's ability to assimilate into it with ease becomes more difficult. Failure to communicate well, or failure to acknowledge simple manners, customs, and laws, can lead to violent conflicts between people. Therefore, communicating and assimilating in a dynamic social system require ever more complex and sophisticated educational techniques.

A comparison can be made between educating a child and programming a computer to function. A computer's behavior is defined by its operating system. A child's behavior is determined by education, cultural climate, and genetic variables. Before a computer can begin to function, it must have its operating system installed. Before children can fully assimilate into their culture, they must have a working knowledge of their culture's operating system by way of an understanding of its history, morals, laws, and customs. A person can gain such knowledge through direct experience or formal education. Since the number of experiences needed to assimilate well is immense, the more efficient route is by way of formal education. In other words, a person must know something about the world if he or she expects to function well. While learning history, language, and literature may sometimes seem useless, these studies are a complex and sometimes subtle means by which powerful behavioral abstractions are conveyed to young

people, allowing them to participate in, and enjoy, a civilized world without having to repeat the mistakes of the past.

On each level of human experience, there are many people who have worked for years to establish themselves as a political, social, or intellectual force within a particular group. This means that a young person who is attempting to assimilate into a particular social system must first accommodate its power structure. Consequently, gaining acceptance in society requires the use of good assimilative techniques. A person must not only learn how to communicate well, but also to interface well morally, culturally, and intellectually.

In theory, social growth is maximized under conditions in which social assimilation occurs with the least amount of friction. The socializing dynamic is like an opening and closing circle of life that relies on the energies of more and more people to sustain its high degree of harmony and productivity. At some point, there is a triple point, (a chemistry term) where the socializing process, the communicative process, and the systemic interface processes merge as one. In this highly efficient state, dissemination and comprehension of societal feedbacks are at their maximum. But in order for people to attain a high degree of integration with social and political power structures, they must overcome a certain degree of selfishness. Thus, the price of admission to society must begin with the genuine recognition that there are other people in it. And this fact must be learned repeatedly on every social and economic level.

Recognizing that other people exist in a society, and have rights and considerations owed to them, is also part of the moralizing process. It is a process that begins in early educational training. Since students must learn to cope with a wide spectrum of behaviors and cultural backgrounds early in their lives, they are learning not only assimilation skills, but communication skills as well. If, in this process, people lose sight of the virtues of the rules of the society in which they are growing up, they will be at a disadvantage in being able to fully assimilate later on.

Society is a highly compartmentalized structure. A person may wish to migrate through the society either horizontally or vertically. In either case there are certain matching requirements that must be met in order to move much distance socially. A person cannot force himself or herself from one system to another. Each level of aspiration can be thought of as a separate system. To move easily from one system to another, an effective interface must exist or be built to facilitate the journey. A computer does not simply download binary bits of information directly into a telephone line to communicate with another computer. It must first establish recognizable protocols with the other computer. It does so through modems that provide an interface between the two computers. Similarly, it is refined communications that ultimately pave the way for effective social assimilation. This takes place by means of the construction of a workable interface between people in all social systems.

If a person has moved from one system to another by way of good matching characteristics, staying in that newer system is another matter. Movement between systems requires not only a knowledge of protocols, but also an acceptable way of behaving. For instance, if a woman enters an elegant and well-maintained mansion with dirt on her shoes, it does not take much

awareness to see that she does not belong in that house. In the interfacing process, subtle feedbacks will illuminate the indiscretion of such insensitivity. If the woman responds, she moves forward to the next task of learning the subtle proprieties of being in elegant houses. If she does not respond, she is not invited back and therefore fails to interface with this particular system. It is a process that goes on continuously as a person matures and learns to integrate with society as a recognized social member. Sensitivity to a vast array of morals and manners is an essential ingredient in the interface process, as well as respect for the structure of its authorities.

In the final analysis, it is difficult to regard morals as relativistic notions of right and wrong that, after all, are only people's opinions. There simply is no way to maximize the potential of a nation or a person without pursuing and instilling a sense of propriety in the smallest detail. Civilization today, while theoretically only in its infancy, is an immense and powerful structure composed of thousands of highly refined subsystems. The refined areas of knowledge and cultural experience form the foundation of a conceptually stable universe. While some moral prohibitions that evolve from this knowledge may seem prudish and out of place, they are, nevertheless, the end product of thousands of years of careful civilization-building that have wisely used certain information implicit in environmental feedbacks to guide the future. In this light, when cybernetics is incorporated into the idea of ethical evolution, grasping the notion that reason (or reasons) lies at the foundation of ethics becomes both clear and necessary. And once the idea of reason is discerned, the notion that first principles of ethics do in fact exist becomes that much easier to understand.

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