TECHNOLOGY, INSTITUTIONS, GLOBAL ECONOMY AND WORLD PEACE

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It seems quite natural for creative human beings to invent or modify techniques for satisfying their changing needs and wants. In this process and over time, the concept of what constitutes a natural resource changes with changing human aims, objectives and ambitions. What constitutes a resource in human terms is indeed a function of knowledge and technique. Only a little more than a century ago petroleum near the surface was considered a nuisance; today it is referred to as black gold. The moon was a romantic symbol and outer space a void throughout most of history; today both are becoming highly prized resources. The changing view of resources brought about by new knowledge, new techniques and new wants often leads to conflict. New or modified human institutions are required to manage these conflicts and to keep them from destroying the community.

Changing techniques and scientifically advanced technologies, like new resources, often require a redefinition of the political unit that makes public policy. In the more or less self-sufficient Wisconsin farming communities of 100 years ago, where the major source of power and transport was the horse, local communities could set the rules. But with the coming of the automobile, a hodgepodge of local rules and regulations proved chaotic. The building of roads, the registration and licensing of both vehicles and drivers, the handling and sale of gasoline, the responsible and safe use of these powerful "horse-less carriages," etc., required a new set of institutions and a larger political unit to make public rules. The State of Wisconsin had to get involved in these policies. Neighboring states had to coordinate their policies on a number of issues and still other policies had to be set at the national (federal) level. The airplane created still more complex problems, and commercial air travel could not function today without at least minimal international rules and procedures—for example a common language for international air traffic controllers and common safety and security procedures.

As I look at our national experience over the past 50 years or so, within my own lifetime, it seems that our policy response to problems created by ever changing technologies and new resources has moved from local to state to federal levels. I think this shift has been mostly the result of three factors: (1) Technology made the local community an inappropriate political unit for policy, thus the regulatory powers of government have shifted from the states to the federal level. One good example is in the regulation and control of the increasing number of complex chemical compounds used in many production processes. (2) Our large internal common market made policy at the state level an ineffective instrument for various forms of market intervention—e.g. farm policy, product safety, labor legislation, setting and monitoring standards, etc. These too are related to technological innovation resulting in an ever increasing labor mobility and a changing market structure of the economy. (3) Institutions at the state and local level have at times failed to protect equally the individual rights guaranteed by the federal constitution and so various questions of social, economic, and civil rights were appealed at the federal level.

The role of the federal government and our interpretation of appropriate action under the constitution also gets re-defined, especially in times of crisis. Our view of the appropriate role of the federal government in economic planning and intervention in the economy of the 1930s, or its role in defining and protecting the civil rights of all citizens in the 1950s and 1960s, are good examples of such re-definition.

I wish to emphasize that it is the level at which policy is *formulated* that has shifted to the more comprehensive political unit. Managing the consequences of powerful technology and avoiding chaos through relative uniformity of rules must be addressed by policy at this higher level. Implementation, of course, may remain at the local level. And I certainly do not minimize the very important, creative and experimental nature of state and local governments in tackling problems and setting patterns for action later taken and made applicable at the federal level. This has been a common pattern throughout our history. One of the areas in which we see this local experimentation operating today is in the variety of community land trusts, public development corporations and collective property rights institutions. I also admit to the likelihood of decentralization in the private economy and even new prospects of cottage industry based on the computer as suggested by Alan Toeffler in *The Third Wave.* Yet while this may be one impact of computers, their increasing power and complexity and potential for misuse is also bringing more federal concern and control.

This interacting process outlined earlier—new wants, new knowledge, new techniques, new resources, new conflicts, new policies, new institutions, and yet additional new wants, etc.—is not new. What has changed and *what is relatively new* is the power and scope of our modern technologies. The consequences of many modern technologies cannot be confined to local communities, and in many cases cannot even be confined to the political units called nations. Ours is a world, says Harlan Cleveland,

> "where science, which has always been transitional, keeps inventing inherently global technologies—for weather observations, military reconnaissance, telecommunications, data processing, resource sensing, and orbital industry. As a result . . . we find ourselves moving beyond concepts of national ownership, sovereignty and citizenship to ideas such as the global commons, the international monitoring of global risks, and 'the common heritage of mankind'" (Cleveland, 1985).

We live now in a world of increasing economic interdependence among nations whose institutions remain geared to addressing problems within their own national boundaries. But the scope and reach of global technology has consequences beyond the control of these national institutions. Despite the size of its economy and its sophisticated science, the United States is tied into this web of interdependence just as other nations are. We can no longer withdraw from the world and return to the isolationist ideology of a century ago, nor can we dominate the world, a role more or less dictated to us by circumstances for 20 years after World War II.

The US now depends on foreign sources for more than half of its supply of 15 minerals crucial for our industrial and post-industrial technologies. For 8 of these minerals, import dependence runs between 80 and 100 percent. Oil production within the US is not likely to see a major spurt and we will probably become increasingly dependent on oil imports. Our agriculture and parts of our manufacturing industry depend heavily on foreign markets.

One important change in the world economy has been the dramatic increase in world wide trade. The dependence of the US economy on international trade tripled in the period 1965-1979. A corollary of this increased trade is an economy less amenable

to direction by domestic economic policies. These last twenty years, concludes G. Edward Schuh,

> "have been a period in which the economic integration of the international economy has far outdistanced its political integration. In fact, we have witnessed a successive breakdown and growing irrelevance of international institutions at the very time that our respective economies have become increasingly integrated. Domestic economic policies have less and less relevance in today's world, and do little more than create suspicion and lack of confidence in national governments since their policies do less and less what they say they will" (Schuh, 1985).

"No nation," concludes Harlan Cleveland, "controls even that central symbol of national independence, the value of its money; inflation and recession are both transnational."

Perhaps the closest we have come to a really transnational institution with power to enforce its decisions is the increasingly complex multi-national corporation. Although they have been much criticized for some of their international practices, often appropriately, it is almost impossible to conceive of the world economy functioning without them. One-fifth of the world's gross product is created by these multi-nationals—more of them based in the US than anywhere else. In many commodities, world trade is dominated by the multi-nationals, and a large part of registered international trade is indeed the internal transactions of these international companies. With cheap and rapid transportation and instant communication, these large multi-national corporations have the capacity quickly to shift capital, technology and management all over the world. Is it any wonder that national policies do less and less of what they say they will?

Strong *economic* interdependencies, however, are not the only global ties among nations. Another major consequence of modern technologies is their environmental impact. More and more species are threatened with extinction. The burning of greater amounts of fossil fuels and widespread deforestation in various parts of the world raises the CO_2 content of the atmosphere. Acid rain and dying forests are not confined to the areas where the sulfur compounds enter the atmosphere.

Of course, the most powerful and potentially destructive technologies of all are nuclear weapons. This has led many to reevaluate the meaning of "national security"—concluding that such security is not likely to be found in more weaponry of increasingly devastating power. There is, says Thomas Wilson,

> "an unavoidable nexus between the security of a nation and the state of the planet; there is a connecting link between the peace of nations and the integrity of natural systems; there is a critical relationship between international order and ecological balance. Indeed, the threat to the security of nations today is much more easily comprehended from an ecological than from a military perspective. This point is made with great force by the . . . 'Nuclear Winter Study'" (Wilson, 1985).

Modern science and technology have brought new possibilities for global (and indeed extra-global) actions and impacts. The reach and power of some of these technologies have consequences that cannot be contained in national decision-making systems. The human drive to "control nature for human purposes" must itself be controlled to avoid the potential widespread destruction of natural systems, without which human life would be impossible. The international institutions thus far created are not yet capable of dealing constructively with the global problems that modern science and technology have borne.

My comments should not be interpreted as being in any way anti-science or anti-technology. The earth's 4-5 billion people and the many yet to be added before world population levels off (even with the best of efforts and the use of new technologies) cannot be fed without continued developments in science and technology. Nor can

critical soils and fragile environments be protected and preserved without new scientific knowledge and its well-designed technological application. These must be selective developments, to be sure. All that is new and all that is possible is not necessarily desirable. We must by all means give as much public policy and institutional attention to alleviating the negative socio-economic and environmental consequences of technological developments as we do to the fostering and the diffusion of new technologies. Science and technology have negative consequences as well as positive ones. But those negative consequences are likely to call for more research, new knowledge and additional developments in technology.

In view of these urgent global problems, national policies often seem petty and contradictory. Said Saudi Prince Sultan Saud as he looked out the window of the space shuttle Discovery, "Looking at it from here, the troubles all over the world and not just the Middle East look very strange as you see the boundaries and borderlines disappearing. I think lots of people who are involved in causing most of these problems ought to come up here and take a look."

Must we wait for world government before any progress can be made in controlling these potentially destructive trends? We should recognize that some progress has been made on a variety of issues. International need not always be global and involve all nation states. In several areas nations in a particular region are working together on common problems. In other regions, of course, adjoining nations are at war. We are not very far along the path of creating appropriate institutions and enforcement powers to control some of the threatening consequences of the new technologies. In a view that's probably over optimistic, Thomas Wilson (1985) concludes:

> "If national security is dependent upon world security . . . if there is no other way to save our own outstretched necks—then the imperative drive of national interest in national security impels governments not toward divisive and hostile behavior but toward cooperative and collaborative behavior in world affairs, whether they like each other or not."

There is an urgent need for new institutional forms to deal with the complex issues threatening the global economy and environment. Fashioning such transnational institutions would be more easily accomplished in a world at peace rather than a world of suspicious and warring nations. Individual nations, especially the biggest and the most powerful, must seek cooperation and accommodation rather than threats and confrontation, dialogue and debate rather than accusations and denunciations.

As educators, we must recognize that many issues can no longer be kept in separate compartments for domestic and international solution. Most major domestic policies of the United States have significant effects on almost every other nation. What the United States is able to do, or wants to do, also depends increasingly on the acts and policies of other countries. That is what interdependence means. Educators at all levels must be aware of the fact that in a democratic system where people are the ultimate policy makers, individual citizens must be taught to understand these complexities. And elected officials must be able to comprehend these issues so they can help educate the public and provide the informed judgments required for sound policies.

In analyzing the need for institutional change to resolve domestic conflicts and attempt to make private, individual action consistent with the larger public purpose, the late John R. Commons, Wisconsin's great institutional economist, suggested that it is quite reasonable to expect that individual action is intended to serve individual goals and purposes. The real question, however, is whether individual action also furthers, or at least does not conflict with, the larger public purposes, or whether it serves *only* private purposes (Commons, 1924). We might paraphrase Commons and suggest that individual

nations today must see their own policies in a similar light: it is not a question of whether their policies should serve their own national purposes, that must be taken for granted. But the real question is whether national policies also advance, or at least do not conflict with, the broader international public purposes. In our increasingly interdependent world, self interest must be reevaluated constantly. Following a course of narrow self interest, whether at the individual level or that of the nation state can be self defeating and destructive.

We must learn to extend our sense of community to peoples in far away places with customs and beliefs quite different from our own. Extending and identifying our self-interest within ever-widening contexts is a basic ingredient of human history. For most people the nation state was the latest of these extensions. But these urgent global issues now require that we extend our empathy to other people around the world. Achieving this is the fundamental role of new institutions. This, of course, requires a positive effort on all our parts to understand other peoples and their cultures, their languages, their history and their aspirations.

We are born into a world of going concerns and established institutions. We essentially inherit a system and take its governing institutions pretty much for granted. Most of us do not get involved in creating new institutions. At best we help to reshape the ones we inherited, and then usually only marginally. Creating new transnational institutions to deal with truly global issues, whose rules and procedures provide mutual benefits and mutual restraints for the weak as well as for the powerful will be an immense task. We must not underestimate the difficulties involved. But neither can we withdraw and fail to address these issues—in our schools, at our universities, in political debates.

It does, perhaps, call for a new type of citizenship, where the responsibilities of citizenship are defined in a broader context. We must be ever conscious not only of the lives and the needs of other humans on this space ship earth—this global village. We must also be increasingly sensitive to the protection of the natural systems which sustain us. In closing, I should like to quote from a 1922 book by L. P. Jacks entitled *Constructive Citizenship.*

> We human beings are apt to think our race the only object in creation that really matters. We have developed a kind of class-consciousness in presence of the universe. The human race is all-important in its own eyes: nature is there to be ruled by us; her forces are meant to turn our wheels; her materials to be exploited for our enrichment; her laws to provide for our comfort; and the very stars in their courses must be yoked to our wagons. We have still to learn that the human race is tolerated in the universe only on strict conditions of good behavior. If we neglect our citizenship there, or think that we can play fast and loose with the laws that are written there, laws that were not voted into existence by us, those other citizenships will come to grief. This human class-consciousness in presence of the rest of the universe is not a good thing. It is a dangerous thing. Unless we bear that in mind, our study of the rights and duties of the citizen is not worthwhile (Jacks, 1922).

References

Cleveland, Harlan (1985), "The Passing of Remoteness," HHH Institute Newsletter, University of Minnesota, May, Volume 8, No. 1.

Commons, John R. (1924). *Legal Foundations of Capitalism,* MacMillin Company (republished in 1957 by University of Wisconsin Press).

Jacks, L. P. (1922). *Constructive Citizenship,* London: Hodder and Stoughton, Ltd.

Schuh, G. Edward (1985). "The International Capital Market as a Source of Instability in International Commodity Markets," paper given at the XIX International Conference of Agricultural Economists, August 26-September 4, 1985, Malaga Spain.

Wilson, Thomas W. Jr. (1985). "The Global Environment and The Quest for Peace: A Revolution In The Scale of Things," *Social Education,* March.