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Special report from the Aspen Conference

## Technology, Man, and Nature Is there a Crisis?

by Nilo Lindgren

Western civilization has come to an interesting pass. There are cries for revolution everywhere without any clear images of where that revolution is to lead; there is the widespread feeling that man's technologies are hopelessly out of control, that man's whole world—his natural environment as well as the world he has made with his technology, typified by urban nexus—has become unbalanced to the point of disaster . . . total and complete. In the midst of this ferment men talk about how to manage technology—in the factories, in society, in the environment—for the betterment of mankind. But the suspicion grows that there is something "structurally wrong with the reality vision of *homo faber* (man the maker)."

Has technology brought about fundamental human change? Has man always lived as though he were in a crisis, or are we now, uniquely, at this point in the history of the world, approaching an apocalyptic situation? What, if anything, can be done about it, by us?

These are some of the questions posed to and by an illustrious gathering of men and women in Aspen, Colorado, a few weeks ago at a conference on "Technology: Social Goals and Cultural Options," sponsored jointly by the International Association for Cultural Freedom and by the Aspen Institute for Humanistic Studies.

The conference was significant for many reasons. For one thing, it was the first really serious attempt to bring a genuinely multidisciplinary as well as multinational group to think through the broadest environmental, social, and cultural consequences of twentieth-century technology. For another, it was the first serious attempt of a large group of leading intellectuals to forge new grounds for action in the present atmosphere of crisis—this Aspen conference was hoping for a real manifesto. In the ambition to get that manifesto, the conference nearly shattered its own consensus on its final day.

That near-breakdown of the conference itself on the final day, as the participants voted on which of their many recommendations were to be incorporated in the final Aspen Statement (part of which appears in the offset type on p. 62) reflected both the gravity of the issues facing civilization today and the gulfs that prevail between many individuals in their approaches to those problems.

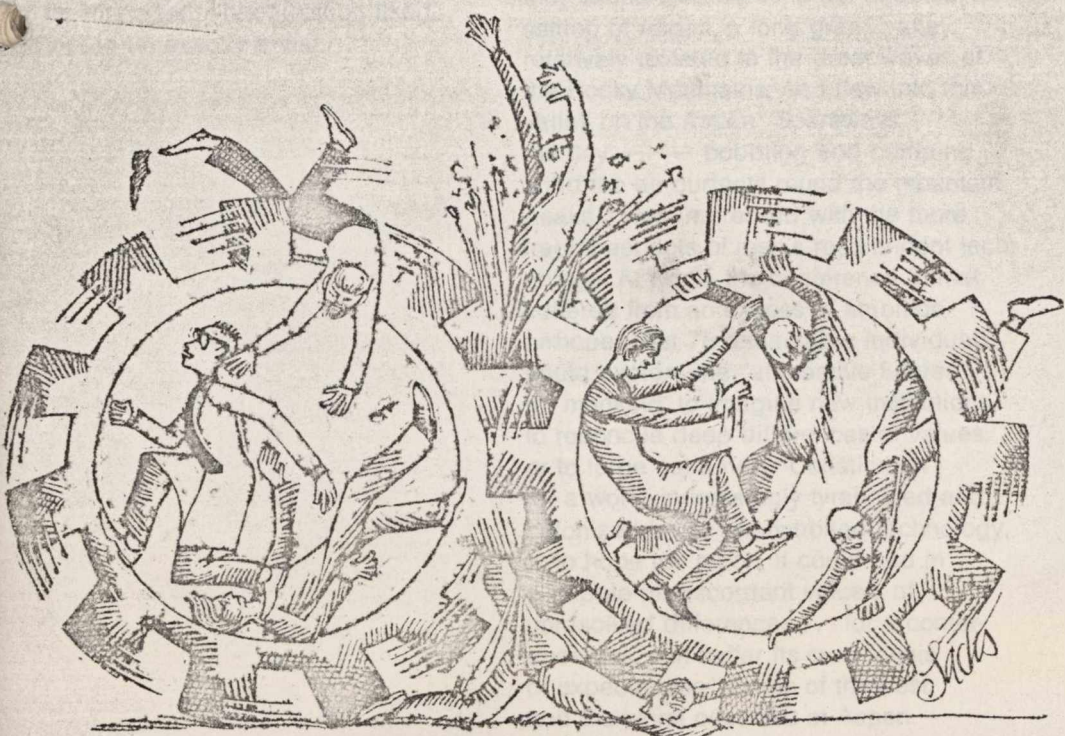
On the one hand, there were pleas for minimum planning and controls, exercised with prudence and modesty, to allow people the opportunity to live decent and free lives and, on the other, calls for ever more pervasive planning and rational management of man's resources, both those of his own and of his environment.

On top of such conceivably irreconcilable philosophies, the institutional priorities of pushing through a formal statement from the conference had the unfortunate effect of taking precedence over "matters of substance."

Brought together to think together were some of the best minds and ardent spirits—artists, social critics, environmentalists, economists, biologists, diplomats, journalists, scientists, architects, planners, novelists, composers, sociologists, administrators, revolutionaries—of our professional elites . . . the *older* elites . . . because, as older intellectuals complained, the younger people, with a couple of exceptions, were missing from the proceedings.

Nilo Lindgren  
Senior editor

Innovation  
Journal of  
the Innovation  
Group  
Technology  
Communication, Inc.  
265 Madison Ave.  
New York, N.Y. 10016  
(212) 679-8005



Cochairing the conference were Murray Gell-Mann, Nobel prize physicist from California Institute of Technology, and Alexander King, the Director-General for Scientific Affairs, OECD, the author of many papers on management and science policy.

Among the distinguished participants were: Victor Ferkiss, professor of government and author of *Technological Man*; Mathias Goeritz, designer for Mexico's 1968 Olympics; Paul Goodman, social critic, author of many books, and Fellow of Institute for Policy Studies, Washington; Ivan Illich, director of the Center of Intercultural Documentation, Mexico; Carl Kaysen, director of the Institute for Advanced Study, Princeton; Hans Landsberg, economist and director of its resources for the Future, Washington; Salvador Luria, biologist and coreipient Nobel prize for medicine, 1969; Mary McCarthy, well-known novelist; I. I. Rabi, another Nobel prize physicist; Roger Revelle, former head of the "White House Interior Panel"; Jonas Salk, director of the Salk Institute; James Reston, vice president and columnist of *The New York Times*; S. Soedjatmoko, Ambassador of Indonesia to the U.S.; and about 70 others.

With such an array of intellectual talents, and with the multileveled array of problems and processes posed by our technologies in their impact on social, economic, and political institutions and values, the first question was how the discussion about such questions was to be managed. This question itself proved not to be exactly trivial.

The approach adopted for this conference consisted of an opening day plenary session in which the chairman, Alexander King and Murray Geli-Mann, engaged in a morning-long dialogue during which they both tried to give an overview of the extent of the territory to be covered in four days as well as to provide some form of structural basis on which specific issues could be explored. The dialogue was then to be thrown open to the entire plenary gathering. On the second day, the participants divided into five closed working panels, which were to concentrate on hammering out specific ideas and recommendations as, for instance, in the areas of Human Values and the Quality of the Environment and Participatory Democracy and Technological Control. Reporters from these five working panels then were to deliver reports to the plenary session on the third day, so that their conclusions could be argued further by the entire assembly. On the fourth day, the participants were to divide into three major panels, one on ethical and cultural questions, a second on social and economic questions, and a third on institutional questions. Out of these, there was to emerge, presumably on the final afternoon, the consensus, a set of recommendations that the thinkers at Aspen then could issue to the world about Technology, Man, and Nature.

At best, the conference format gave the participants an opportunity for prolonged and intimate encounters as they exchanged ideas in the beautiful setting of Aspen, a long green valley relatively isolated in the great waves of the Rocky Mountains. As I flew into this valley on the Aspen "Scareways," the tiny — bobbling and bumping amid the air currents round the mountain peaks, I was impressed with the more fragile aspects of man's resplendent technology. At worst, the conference format suffered from an excess of ambition or hope. That 75 remarkable individuals could explore the "alternative futures" for mankind, to imagine new institutions, to reconcile deep differences of values, or to forge out a new "Constitution" for a world increasingly tyrannized and colonized by an uncontrolled technology, is to hope too much. It could end in a babble of discordant voices, of unresolved differences . . . for a conference, too, can suffer its own "crisis of expectations." Some of the best and the worst occurred at Aspen.

Much of the character of today's crises was already enunciated in memoranda circulated to the participants before they convened. There is a great gulf today between the needs of an individual to live out his life as he will — living by his own judgment and accepting his own fate — and the needs of a society which cannot and which (by general agreement) should not stop the fructifying aspects of the technologies it has created by fits and starts across the centuries and in an undammed torrent in recent decades.

Individuals still want to live out lives that are meaningful and that participate in the life of the whole society. The plea for men to "do their own thing," for instance, is heard in the voices of Ivan Illich and Paul Goodman.

There is today a deep disjunction between the culture and the social structure, the one being devoted to apocalyptic attitudes, the other to technocratic decision making. Ivan Illich suggests that individuals tolerate the disjunctions and conflicts through cloaking them behind rituals; he analyzes how schools have in our time become the principal institutions of a universal initiation ritual from which we need to be freed. "De-schooling," he asserts now, "is at the root of any movement for human liberation."

He writes: "A man who has been schooled down to size lets unmeasured experience slip out of his hands. He does not have to be robbed of his creativity. Under instruction, he has *unlearned* to 'do' his thing or 'be' himself and values only what has been made or could be made. He has learned that his value rises because he rises in a hierarchy.

"Once a man has the idea schooled into him that values can be produced and measured, he tends to accept all kinds of rankings. There is a scale for the development of nations, another for the intelligence of babies, and even progress toward peace can be calculated according to body count. In a schooled world, the road to happiness is lined with a consumer index."

Aspen, Colorado  
September 6, 1970

### TECHNOLOGY, MAN, AND NATURE

We have come together from many parts of the world -- scientists and artists, scholars and philosophers, public officials and citizens -- to consider how societies can make better use of modern technology for the needs of man. This is one of the most pressing of all the issues facing humanity today. Even if man succeeds in the supreme task of avoiding annihilation by nuclear warfare, the consequences for society and for the natural environment of the uncontrolled peaceful uses of technology could bring disaster within the foreseeable future. This is one of the crucial concerns of our age.

Men have from the beginning used technology to alter the physical and social environment. One should not underestimate that accomplishment. Technology has eliminated hunger and misery in many countries, and it can do so in many more. It has helped to halt malaria, polio, famines, and floods. It has provided unprecedented opportunities for education and for the development of individuality.

Yet technology has also served the interests of suppression, genocide, saturation bombings, and economic exploitation. In other words, technology can become the tool of mindless, selfish, or malign governments or industries that overlook human ends. Today, moreover, technologies are so powerful that they can threaten radical and irreversible changes in the entire planet, in the quality of human life, and even in the biological nature of man. The root of the problem is not in technology as such, but in its generation, its management, its use, and in the difficulty of controlling it.

We are concerned both about the sense of defeat shown by many young people and poor people and about the complacency of large sections of the public in all countries. We are also concerned about the continuing deterioration of many parts of our natural environment.

We are all agreed that the problems of poverty and human deprivation are the most pressing we now face, but we are also unanimous in the belief that there will be an environmental crisis if we do not take deliberate and timely steps to prevent it.

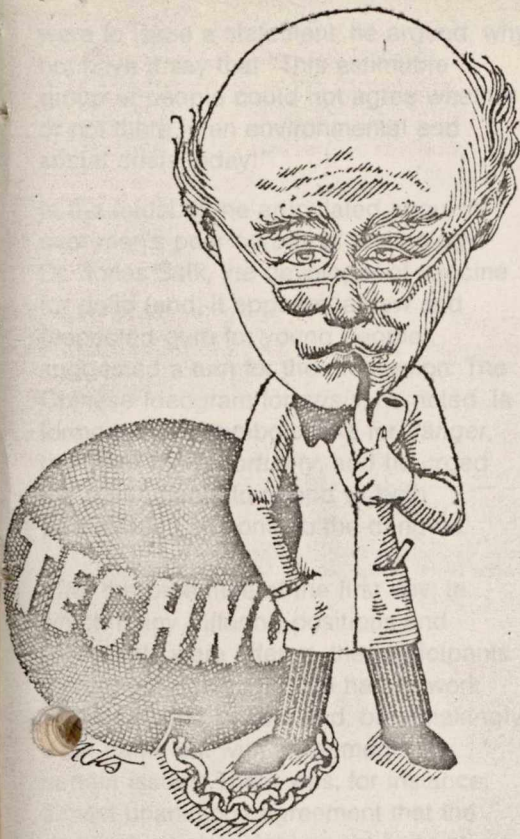
The delicate relationship between the arts and society has been stressed by developments in technology. Artists have always had a unique power to clarify human experience. Their work has had the dual function of defining the character of contemporary reality and of imagining alternatives. The most gifted artists have responded with prescience to the impact of technological change. As the rate of change accelerates, however, the public often has more difficulty in understanding what artists have perceived. Society must recognize that the contributions of its artists will take surprising and disturbing forms. In this situation, we reaffirm that the artist's primary responsibility is to his own work, and that society in turn must encourage him and leave him free.

worldwide scale; the social critic and author Paul Goodman asking, "Wouldn't it be less immoral to cut down the affluence difference?" and attacking the optimistic tone and arrogance of the technologists and scientists about their "synergistic possibilities" as being "extremely counter-productive" -- "the human situation is more difficult than you imagine!" -- and to the would-be planners, he admonishes, "You can't *will* the future!"

On the question of whether or not there is now an environmental and social and cultural crisis, or if there is an incipient crisis, Prof. Harvey Brooks of Harvard University presses the importance of the time scale of such a crisis. "Is it 20 years ahead, 30 years ahead? How much time do we have?" And, quietly, the Indonesian Ambassador to the U.S., S. Soedjatmoko, warns of the conference turning into a discussion of "rich men's dreams and rich men's problems." Sociologist K. E. de Graft-Johnson from Ghana points out that often the people of the developing nations become the "prisoners of the mistakes the West makes." Yet while the "rich men" of the advanced countries bemoan the loss of the former agrarian peacefulness and simplicity, the Yugoslav Ernst Petric, a Minister of Science in Slovenia, argues that the young people in his country do not want "peaceful valleys," they want the progress of technology.

With the expression of such views from the Third World, some of the assumptions of the Western participants begin to be drawn into view. Observes Aurelio Peccei, the vice chairman of Olivetti, "a characteristic feature of the advanced countries is that even the intellectuals talk like big industrialists!"

Yet, on that first day, even though the tone of the discussion was individual and apocalyptic, there was no consensus of whether we are really in a crisis or not. "Is it," asked King, "an apocalyptic situation or just a steadily worsening one?" Or, as the biologist Cyrus Levinthal of Columbia broached, "a crisis of expectations?" To give the discussion more "historical perspective," the English editor of *Nature* magazine, John Maddox, offered the fact that "People in Victorian England were discussing these problems." One of the most forthright suggestions came from Prof. Leo Marx of Amherst College. If the conference



It is not so clear, however, how the present-day "multiple major world crises" have sprung from common origins and how they manifest analogous characteristics. These crises, as structured in a special report to the conference and prepared by Thomas W. Wilson, Jr. (who is on the planning committee for a World Conference on The Human Environment to be held under United Nations auspices in Stockholm in 1972), show a clear and concatenating relationship. All these crises, Wilson writes, "have begun with significant achievements of the human intellect; all are the by-products of human success; all began as amoral and apolitical events which were to have side effects rarely foreseen and seldom even recognized until now."

Wilson cites five major "revolutions": one in medical technology, leading to increased life expectancy and largely creating the population explosion; the successive industrial revolutions, raising material standards of living and also leading to a prodigal exploitation of nature's resources; the revolution in agricultural technology, which sparked a mass migration of people from the farms to the cities; a further revolution in communication and transport which peaked at the moment when 100 million people were being released from colonial status, which also led to the preoccupation of leaders in a hundred or more countries to "develop" along the lines of the industrial West; the conversion of matter to energy, opening up new sources of power and, more dreadfully, the capacity for mutual destruction on the part of the two most powerful nations in the world.

Although the technologists and the technocratic decision makers have all been keenly aware of all the stages of these revolutionary changes, they certainly have not understood all aspects of the social and cultural fallout. Nor, perhaps, have they clearly seen the cumulative effect of these technological waves. As Wilson asserts, it is in a fundamental sense "all the same crisis: in its population dimension, in its urban dimension, in its nuclear weapons dimension, in its ecological dimension—the overall crisis represents the social fallout of modern science."

To the man involved in the management of technology, the conclusion is manifest. As Wilson states it, "There can be little doubt that the nations of the world are about to start up an enterprise which ultimately should lead to global management of Earth's environment—a task for which their experience has not prepared them and their institutions are not adequate." Though he sees cause for hope in the possibility of international cooperation based on "technological imperatives and mutual needs," he warns, "ideology, tradition, mistrust, rivalry, secrecy, inexperience: all stand in the way of success for a common enterprise of such scale and ramification that it would force an historic break in the way nation traditionally has related to nation."

And, in a kind of fateful statement on which the true dialogue of the conference (and of the world society) begins, he says, "It is not yet clear exactly what the term 'environmental management' will turn out to mean."

Certainly, there was great substance in the discussions, and of such a richness and diversity that no single report could hope to contain a fraction of it. As I run over my notes, even from the opening session, these points come up in montage: cochairman Alexander King pleading for the participants to look at the effects of technology beyond the narrow environmental ones, to look at its interconnected social and ethical effects, and postulating the ethical question involved in the fact that 200,000 people were saved for every one injured by the introduction of DDT during the war (King being one of the men responsible for its coming into use); Gell-Mann arguing for a diversity of technologies, letting many flourish, and then "happily cutting the throat of those technologies that prove inappropriate," and weighing the interaction of the sciences with the arts with "we don't know how much the arts contribute"; King, asking about the prospects of coming to constructive multidisciplinary approaches when one considers the "narrowness and arrogance of the economists on one hand, joined to the naivete of the natural scientists on the other, with the bloody-mindedness of the administrator and the ignorance of the politician"; the French economist Pierre Kende asserting that the problems between the developed and the developing nations are not one of poverty alone, but because the world is now unified, the poverty of so many has become a "scandal" of a

Yet learning, Illich points out, is a personal activity for which each man has his own responsibility. "As a matter of fact, learning is the human activity which least needs manipulation by others. Most learning is not the result of instruction. It is rather the result of unhampered participation in a meaningful context. Most people learn best by being 'with it,' yet school makes man identify his personal, cognitive growth with elaborate planning and manipulation."

But how does one reconcile such dreams of personal freedom and growth, uninhibited learning and excitement, and the personal tragedy of one's own life with the needs of the great systems of technologies and institutions that man has raised in the Western World, and that are now equally rapidly being raised, in nearly strict emulation, in the Third World of the developing nations?

Although the school manipulation of man and his values is only now being raised, and although, as Illich admits, "most people are still unaware of it," the destruction and degradation of the physical environment of man by technology and by our present production methods is only too evident to nearly everyone.

were to issue a statement, he argued, why not have it say that "This estimable group of people could not agree whether or not there is an environmental and social crisis today!"

In the midst of the articulated anguish over man's poor control of technology, Dr. Jonas Salk, the developer of vaccine for polio (and, it appears, a new and respected guru for young people), suggested a turn for the discussion. The Chinese ideogram for *crisis*, he noted, is formed of two symbols, one for *danger*, the other for *opportunity*, and he urged the participants to attend to both possibilities, not only to the dangers.

After the preamble of the first day, in which many differing positions and viewpoints were offered, the participants clearly got down to much harder work in their closed panels and, breathtakingly, soon came out with agreements on certain issues. There was, for instance, almost unanimous agreement that the post-industrial society would become increasingly a multivalued society, and that much work must be done toward the time when many types of different values could be allowed to coexist. Perhaps the conference came out most strongly on this point than on any other.

The discussions of the panel on Human Values and the Quality of the Environment, as reported by Emmanuel Mesthene, pursued in the resume of its deliberations the following kind of argument, for instance: Powerful technologies in conjunction with great population densities mean that private actions have increasingly unintended consequences for third parties, thus multiplying the situations in which individual good and social good come into conflict. Thus, to protect society at large, there will need to be more public, as distinct from private, decision making, and more planning. But the need to plan will

bring to the fore preexisting value differences among groups likely to be affected. These differences must be made explicit, confronted, and possibly adjudicated during planning. But the need for more planning puts a strain on traditional values inherited from a simpler and more individualistic age, giving rise to the feeling that human values basically are being destroyed by the modern technological world. Then the resulting temptation to protect our values against the effects of technology often takes the form of attempts at consensus as to what fundamental human values really are and attempts to preserve these values in society. The fact that there are genuine value differences and value conflicts in every society, however, generally dooms all such attempts.

Thus, the panel urged that the fundamental question deserving attention is not that of deciding what social values should be, but of how the institutional structures of society can be made more responsive and supportive of the many values we wish preserved. The panelists saw not defects in values but defects of political, economic, and other social structures. Moreover, the panel further urged that intellectuals of all stripes (humanists, social scientists, and scientists) concentrate on understanding the broadly *political* implications of the impact of technology on values, and contribute that understanding to efforts at social and political innovation. Moreover, the panel urged educators of all stripes (teachers, writers, and mass media) to seek to enhance the understanding — among youth particularly and the public generally — of how technology impinges on our values, and of the fact that value differences and value conflicts are an unalterable condition of social living.

From another panel, that on Problems of Economic and Demographic Growth (which worried over the problem of leveling off the world population), journalist Marc Ullmann reported that there was the confirming additional thought that a multivalued approach in the developed countries would prove fruitful in their dealings with the less developed countries. For instance, this panel stated, as American society learns to cope with the challenge of the young and of the Blacks, the majority of people here might become more tolerant of the various ways and means of the pursuit of happiness in other countries.

There were many other specific proposals which cannot be reported here, but it should be noted that there was a general concurrence with the report from the panel on Science Policy and Technological Assessment that up until now technology has made a major contribution to the welfare of mankind, far outweighing its deleterious consequences, including those of environmental deterioration. But the key of many discussions, as reported by John Oakes of *The New York Times* from the panel on Participatory Democracy and Technological Control was "*the control of technology by man.*" If any single phrase were to sum up the conference, it could be this.

Perhaps overall, the most ambiguous question, or the least resolved, was the role of the artist in technological society. Author Mary McCarthy and others offered the position that the artist has no social responsibility, a position that was misunderstood by some of the participants. Precisely, it was subsequently proposed, the artist's responsibility is to be irresponsible and thus provide disorienting and fresh experiences for those who feel that technology has given them a world totally made and complete, a world in which there seem to be no further alternatives for action or life. Prof. Morse Peckham of the University of South Carolina proposes the theory or distinction that in the undeveloped countries, where there is already great disorientation, the arts bring some coherence, whereas in the technologically developed countries where there is such *seeming* coherence, the artist takes his role as that of disorienting people so they see the raw reality afresh.

However one prefers to look at the artists, it is clear that their creative role vis-a-vis our technologies has only begun to be felt, and that their experimental ventures into the technological territory should be encouraged in every way (see the callout from the Aspen statement).

Of the final day of the conference, during which an attempt was made to capture all the richness and diversity of the deliberations in a single document, it should only be said that the institution of the meeting virtually broke apart over its own many "value differences" and over what some heatedly regarded as a highhanded and undemocratic method of proceeding.


For the spectator it was a considerable circus, full of sound and fury, deep honest differences, at times incredibly comic, painful and boring, as the participants voted on recommendations and ideas to appear in the final statement. Many participants simply drifted away never to return, others rose to argue in hot rage, others left in obvious despair and incredulity, while others remained to plead their causes.

If it had been a theater, one would have said the comic interludes were the best; if it had been a model for a new Constitution-making assembly, one would have said it echoed some of one's worst fears.

At the repeated complaint that the Aspen statement was getting too abstract and bland, one observer quipped "Let's not vulgarize this document with actual details." As to the prolonged debate over whether or not youth would read the statement, a famous author cried, "I certainly hope they *don't* read it!"

Yet the serious debate was not irrelevant. It was, I believe, an incomparable episode in a process that must continue to be pushed forward, as men from all professions, groups, classes, countries, work to resolve some of the enormous dilemmas that the technologies of this century have thrust upon us all.

For there was a large affirmation in the intensity of the dialogue. A statement was issued from Aspen on how these men and women do regard the multiple crises in the world today (see illustration). Though it is watered down, the statement is certainly worthy of consideration. A majority voted on its adoption; and though people like Paul Goodman and Mary McCarthy formally dissociated themselves from it, they did not hesitate to affirm quietly that much that was positive and constructive had transpired.

The real import of a meeting such as this one at Aspen is typified in the scene of a professional revolutionary emerging from one of the meeting rooms, his arm around the shoulders of an American biologist, saying, "Now that we understand each other better, we can really work together!" 

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