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INTERNATIONAL LAW SYMPOSIUM

CHANGING SCIENCE AND TECHNOLOGY AND INTERNATIONAL LAW

EDWARD MCWHINNEY*

To speak of Science and Technology in juxtaposition to International Law is to imply some sort of more or less inevitable relation between general scientific and technological change and international legal change. Dicey, in his rightly celebrated *Law and Opinion in England*, and more generally the continental European and North American schools of sociological jurisprudence tended to preach, in an historically determinist way, of a symbiosis between law and society. By this, they implied not merely that there ought to be a conscious and continuing attempt by authoritative decision-makers to relate positive law rules to changing societal needs and expectations; but that, in a very real sense, the basic social facts automatically conditioned and controlled the positive law in the sense that any legal system, to be effective and therefore to continue to deserve the name of law, could not run too far in advance of, or more importantly lag too far behind, the society that it claimed to represent.

Sociological jurisprudence, as developed variously by continental European jurists like von Ihering, Stammler, Duguit, and Durkheim, and by Dean Roscoe Pound in North America, connoted, basically, legal relativism, with the implication that the test of "goodness" in law was the extent to which it gave effect to the aspirations and drives of the main contending groups in society, who were themselves, of course, reacting to the fundamental facts of life of the world around them. These community facts included, certainly, physical and environmental facts, and among these the availability and variety of food supplies; biological facts, and among these, importantly, population growth and its relation to

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available food and other natural resources; industrialization, and its effect upon traditional family and other forms of social identification and organization; and, not least, psychological facts, among which the reactions of individuals and social groups to rapid-scale industrialization and urbanization figured very largely.

The impact of the strictly scientific thinkers upon legal theory and legal development, at the time when the sociological schools of law were becoming dominant — in the late 19th and early 20th centuries in the case of continental Europe and in the first half of the 20th century in the case of North America, was considerable, even if not all-pervasive. Scientists like Darwin, with their teachings on the life struggle and the process of natural selection of those species best suited for survival, strongly influenced the "Social Statics" of Herbert Spencer; while Malthus' theories on the relation of what he conceived to be fixed or static sources of food supplies to a proliferating World population were known to, and influenced, legal as well as political thinkers throughout the 19th century. Beyond that, Comte's scientific positivism, in its deliberate rejection of the metaphysical approach in favor of rigorously empirical methods, argued that nature be viewed objectively in a value-neutral, non-ideological way. Implicit in Comte's approach, however, seems to be an assumption of the inevitability of human progress through use of the new scientific knowledge; and also a further, and far less warranted assumption, that such scientific empiricism is itself free from metaphysical elements and hidden value judgments.

The failure of the natural sciences and natural scientists to have a more decisive or pervasive influence on legal theory and on legal development, in spite of the 19th century optimism that mankind would learn to master natural forces and turn them to the general welfare, is due to several factors. Only one of these is the absence of any substantial degree of scientific sophistication on the part of jurists and of the political decision-makers whom they counselled. The more important explanations lie rather, I think, in the relative lack of development of the natural sciences themselves and of the natural scientists' own comprehension of their scientific facts, to the point where those scientific facts could begin to shape and really control political decision making. The Malthusian theories, for example, based as they were on the socially frightening hypothesis that human population growth multiplied in terms of a geometric progression, where food production, by comparison, proceeded in terms of an arithmetic progression only, were largely vitiated, in their logical implications or conclusions for political

and social decision-makers, by the radical improvements in agricultural yield through the rationalization of agricultural production, and by the development of new sources of supply of foodstuffs through the 19th century European wave of colonial development overseas. Any other, similarly-reasoned, scientific theses as to the finiteness of natural resources in relation to conceived non-finite demands and expectations of a rapidly augmenting human population, were largely disposed of by legally still licit late 19th and early 20th century patterns of state decision-making practices. These involved, where available, recourse to political or economic colonialism as a means of supplementing one's own scarce natural resources at home; or if need be, recourse to war against one's economically more richly-endowed, but militarily weaker, neighbors, as an instrument of national policy-making. The German political drive for *Lebensraum* in the 1930's, was, after all, a form of exercise of one policy option, among the several policy options presumably available to German national decision-makers, to correct the deficiencies in basic mineral resources and in agricultural production in the highly-industrialized rump German state of the post-Versailles Treaty era; just as the accompanying German government-sponsored racialist theories can be viewed as an application, albeit a highly perverted application, of Social Darwinism and theories of natural selection of the species. Imperial Japan's military expansionist drive to establish its own special South-East Asia "Co-Prosperity Sphere" is simply another application of the same basic thesis, though without quite the same pathologically racialist undertones as in Germany.

To recall Hitler and Imperial Japan, is, of course, to remind ourselves that natural scientists, as participants in the process of social decision-making, did not enjoy a particularly favorable public image in the immediate post-World War II years, when there was a tendency to link them to the excesses and outrages perpetrated in Germany and Japan by their immediate political superiors, in whose service and in the prosecution of whose war policies they had so ably and efficiently marshalled all the instruments of advanced scientific and technological knowledge. Yet the massive scientific and technological advances achieved in World War II and afterwards, in the area especially of nuclear power and nuclear weapon technology, have clearly changed, for the future, some of the basic societal elements or *données* that have militated against the full utilization of scientific teachings in terms of social decision-making. The alternative option so frequently available, in other years, to a national decision-maker when his technical and economic

advisers reported that the state was about to outrun its available natural resources in any area — namely, recourse to war, something vainly sought to be excluded from the range of legally permissible options by the ill-fated Kellogg-Briand Pact of 1928, is presumably now excluded as a practical political option, at least in the case of Big Power conflicts or confrontations. In such situations, we will no doubt continue to follow the models successfully worked out in the present era of the Soviet-Western *détente* beginning with the peaceful resolution of the Soviet-U.S. confrontation in the Cuban Missile Crisis of October, 1962, and first signalled, in positive law form, by the Moscow Test Ban Treaty of August, 1963. Following this approach, the in-put of scientific facts in the process of World Community decision-making and the translation of those facts into actual exercises of community options among alternative, competing policy options, will have to proceed on a basis of bilateral, Big Power (Soviet and U.S.) consensus, achieved through parallel Big Power identification of the relevant social and scientific *données*, and parallel Big Power classification of the competing interests involved, up to the moment of final negotiation and settlement upon a basis of Big Power reciprocal self-interest.

For other situations where no Big Power interests are directly involved, or where those Big Power interests are peripheral at best, the process of World Community decision-making inevitably becomes much more complex and diffuse, since lacking the concrete direction flowing from active Big Power involvement and leadership: the process of community decision-making, in such cases, ideally would follow the U.N. Charter-envisaged procedures, leading to an ultimate universal consensus obtained through debate and discussion in the U.N. General Assembly or in U.N.-sponsored international technical conferences. However, from recent World Community experience, the process in such cases is likely to be somewhat more anarchic, involving a plethora of unilaterally-asserted national claims and counter-claims that correspond more or less nakedly to various national special interests, with only token attempt to reconcile those individual national claims with more comprehensive and inclusive World Community perspectives.

The preferred operational methodology for international law-making in the era of Bipolarity, leading on to the Bipolar (Soviet-Western) *détente* has been direct bilateral negotiations between the two block leaders, preferably at Summit Meetings *à deux* far from the rhetorical exaggerations and the playing to the gallery so often attendant upon the usual public arenas in the United Nations.

These direct bilateral negotiations have invariably resulted in bilateral accords or formal agreements which have later been opened to adherence by the other, lesser or supporting, countries, but usually without any possibility of modification or amendment by those other countries. As a result of this essentially bilateral, Big Power, route to eventual multilateral international agreement, the feed-in of scientific and technical information to the actual decision-making process has usually been direct and unencumbered; and the national interest — befitting two super-powers at roughly the same level of industrialization and of general scientific and technological development — has usually been perceived in essentially identical terms. For example, in the case of the pressures leading to the successful Moscow Partial Test Ban Treaty of August, 1963, the problems created by radioactive fall-out from the various nuclear test explosions were largely the same for both the Soviet Union and the United States; both sides, the Soviet Union and the United States, had accumulated enough advanced scientific data from their various experiments above-ground — in the atmosphere, and on the ground, and under water — as to make further test probes above-ground easily dispensed with; and beyond this, both sides were under certain internal pressures to divert money and resources from further costly nuclear test probes to other competing community priorities. The conclusion of the Moscow Partial Test Ban Treaty was thus more or less inevitable, once the two main protagonists had been sufficiently persuaded as to each other's good faith to sit down together at the conference table. (It had been suggested from time to time, beyond this, that a further, supplemental agreement, extending the nuclear test ban on a comprehensive basis so as to apply also against under-ground test probes, would be achievable once either the parties (and here principally the Soviet Union) could be persuaded to agree to mutual on-the-spot inspection procedures as a guarantee of mutual observance of any such ban; or else, alternatively, once a scientific breakthrough should occur in terms of advanced seismic observation of under-ground explosions).

It is unnecessary, I think, to offer a similar demonstration either as to the obvious contribution of scientific and technological facts, or as to the even more obvious mutuality and reciprocity of Big Power — Soviet and U.S. — interest in the solution rendered logically inevitable or at least presupposed by those facts, in the case of the further Soviet and U.S.-sponsored accords like the agreement on non-orbiting of nuclear weapons in space vehicles of October, 1963; the Space Treaty of January, 1967; the Hot Line

Agreement as to mechanisms for exchange of vital information in crisis situations; the agreement on Non-Proliferation of Nuclear Weapons; and the multiple and many textured arrangements and understandings between the Soviet Union and the United States, in the area of nuclear and, even more, conventional disarmament, under the rubric of the so-called "politic of mutual example," inaugurated by Premier Khrushchev and Presidents Kennedy and Johnson. President Nixon's remarkably successful "Summit visit" to Moscow in May, 1972, and the wide range of Soviet-U.S. bilateral accords reached, covering the whole area of mutual security and nuclear and conventional disarmament, was eminently predictable on this basis, for it built upon ten years of well-established Soviet-U.S. bilateral exchanges and accords, and simply represented a substantial consolidation or completion of those earlier highly successful efforts.

These persuasive demonstrations as to the power of scientific and technological facts, by themselves, to produce rational decisions, granted only rationality or ordinary common-sense and humanity on the part of the national decision-makers involved are, we repeat, all drawn from essentially Big Power, bipolar configurations where the mutuality and reciprocity of interest of the two major nation-state participants have been clear. Not so clear and logical and inevitable, however, is the result in polypolar or, even more, multipolar situations where the very number and range of the participants militate both against the formation of any very substantial decision-making consensus and also against minimum agreement as to the range of scientific and technological facts upon which any rational decision-making must be predicated.

In the ensuing symposium discussions, we may illustrate this particular thesis by looking to the problem cited by Professor Dorsey, for example. Now, countries like the United States, under various popular pressures by various environmental protection lobby groups, are actively considering bans on overflights and landings in their territory of the new supersonic transport aircraft; and these particular countries, therefore, may choose to maximize the scientific data demonstrating the long-range dangers to the terrestrial atmosphere from such supersonic aircraft. On the other hand, those countries, like France and the Soviet Union, which have pressed ahead with the commercial manufacture and production of such aircraft in the interests of the national export and sales drives abroad, tend, somewhat inevitably, to play down and minimize any such scientific hazards created by the introduction of the supersonic aircraft, and to maximize, instead, the

positive contributions rendered thereby to the development and extension of international communications and to the promotion, in that special sense at least, of the international law principle of the "freedom of the air."

Again, with respect to the problem of birth control, on an international basis, two diametrically opposing conclusions are likely to be reached not merely as to the range of possible community solutions to the problem, but even as to the underlying societal facts and thus as to the very definition of the problem itself. In this regard, the contemporary neo-Malthusians point with alarm to the rapid proliferation of World population and to the comparative lag, by contrast, in development of new sources of food supply, leading to the more or less inevitable conclusion that an effective agreement on World population control is one of the main imperatives in international law in the years immediately ahead—perhaps the number one priority today, as the risk of all-out nuclear war recedes with the attainment of the Big Power (Soviet-Western) nuclear stalemate and the concomitant bipolar, Big Power (Soviet-Western) *détente*. Yet, one can hardly avoid to notice that the main spokesmen in this behalf are drawn almost exclusively from the fully developed, highly industrialized countries which have relatively static population growth anyway. The examples of Japan as a non-white (whether Communist or Capitalist) country in achieving an internal national consensus on a levelling off of population growth at one hundred million people, and the valiant efforts of Madame Gandhi's government in India to encourage restraint in Indian population growth notwithstanding, it is only too evident that many of the developing countries still see a political advantage in their very numbers, in the absence on their part of other, more affirmative, or economically more immediately realizable, assets; and in any case, the developing countries as a whole do not seem to view the issue of the population-food balance with quite the same sense of urgency as the developed countries. How do we reach international agreement under these circumstances, and what sort of effective international agreement can it reasonably be expected to be, going beyond the publicizing and encouragement of purely voluntary, facultative measures?

The problem discussed in the current special symposium issue by Professor Chayes at first sight seems a little more promising in terms of reaching a binding international accord or consensus that really does have some teeth in it. Professor Chayes' problem area, perhaps because of the substantial intellectual investment involved in technical mastery of the subject as a condition

precedent to intelligent international negotiation, and because also of the certain degree of financial outlay involved in getting into the telecommunications satellites business anyway, will normally tend to have a somewhat limited number of participants taking part in the community decision-making process, and this even though the problem itself is clearly a general one. With a highly technical subject, the dangers of purely irrational or capricious interventions into the consensus-producing process should normally be minimized; and with a limited number of effective state participants the mathematical possibilities of reaching a consensus seem correspondingly much improved in comparison to the normal international problem-solving.

Again, to take another major problem area, at first sight we may agree that everyone is against marine pollution, and that therefore everyone is in favor of international legal control of such dangers. Yet the unhappy history of the attempts, to date, to regulate the problem of marine pollution by legal means suggests that the ship-owning countries operating the large tanker fleets, and also the major oil-importing countries to whose defense and other related security or industrial needs a free and unimpeded flow of oil supplies is vital, will join together in effectively moderating any proposed controls on oil pollution at sea that are likely to impose extra economic or other burdens upon marine transport of oil, either in terms of costly additional security and strengthening devices on the tankers themselves, or else in terms of time-delaying restrictions on the navigational course and marine passage followed by those tankers. The interests of the littoral states having large coastlines to protect from marine pollution hazards, and having no large tanker fleets themselves, are of course clear, and their pressures for an international convention with stern penalties and enforcement measures are perfectly understandable in this light. In the absence, up to date, of a genuine international consensus in the World Community itself either as to the exact nature of the problem revealed by the scientific facts or as to the most appropriate control measures resulting therefrom, we are likely to be left to the anarchy of individual national attempts at control measures on a purely unilateral basis, with a strong suspicion, as in the case of the Arctic Waters Pollution Control measures recently proclaimed by Canada, that the control measures may be multi-purpose in character, and designed, among other things, covertly to promote national economic special interests at the same time as the announced pious, pollution control objective.

When we reach the area of general community protection of

the environment, we come up against, once more, the ultimate truth that the price, in community terms, of absolute protection against environmental damage caused by industrialization may be for the community concerned voluntarily to forego the economic and social benefits of living in an advanced industrial society. It is not surprising, in this light, that for certain of the "developing" countries of Africa, Asia, and Latin America, and even for certain already-developed but still capital-importing countries, it may be considered worthwhile, in community decision-making terms, to play down the issue of preservation of an ecological balance in one's own society, lest the fear of too stringent national governmental controls in protection of the environment may drive away the potential foreign investor ready to supply much needed foreign capital for industrial development projects. Stringent environmental protection controls may, in this sense, to many of the less developed countries, often seem to be a luxury that only the highly industrialized and capital-rich countries can really afford at the present time. There would seem, in this regard, to be a need for more research and public education as to the possibilities of usefully combining environmental protection with industrial development, without unduly adding to the cost factor for the developing countries.

All this, of course, simply confirms the truth that while full knowledge of scientific and technological facts is an indispensable aid to rational community decision-making, these facts will not necessarily be identified and appraised by national decision-makers in quite the same way, except in the case of countries at approximately the same level of social and economic development and with, in consequence, the same relative degree of scientific and technological sophistication. In these terms, it is hardly likely that we will see, as yet, general acceptance of any one, universally valid "truth" in particular areas of scientific inquiry; or general consensus on any one, scientifically valid community solution as flowing logically from the "facts" of that inquiry. Instead, the process of community decision-making is likely to involve the same process of balancing competing national interests that we see in any other area of international decision-making, with the interests concerned covering, with varying degrees of national emphasis, the whole spectrum of military-strategic, ethnic-cultural, economic and other considerations that we invariably see mixed up in those other areas of decision-making. The additional factor, however, may be that the natural scientist does seem to speak with an augmented or at least renewed degree of public authority and prestige, today, in comparison to the military commander, the political nationalist or

the industrial manager; and when the natural scientist uses that prestige to base recommended control measures assertedly going to the survival of mankind, he can, as we have seen already in the case of the Moscow Partial Test Ban Treaty and the ensuing and related, nuclear and general disarmament and collective security measures, call up heavy battalions in his aid that outweigh those of the conventional governmental advisers.