

UNITY OR DISUNITY OF THE SCIENCES --

IRRELEVANT FOR ABSOLUTE VALUES

The impact of the Sciences on our Being on the Road  
Toward Unification

Hans-Martin Sass  
Professor of Philosophy  
Ruhr-Universitaet, Bochum  
Federal Republic of Germany  
Senior Research Scholar  
Kennedy Institute of Ethics  
Georgetown University  
Washington, D. C.

XIIth ICUS Conference, Nov. 24-27, 1983, Chicago, Illinois  
Committee I: The Unity of the Sciences

We humans prefer unity to disunity, comfortability to uncomfotability, beautiful things to ugly ones. We cherish love and friendship more than hate or betrayal. Tensions challenge us to overcome conflicts. Most achievements by individuals, groups or societies may be understood as solving, decreasing, diminishing or otherwise managing conflicts. The technologies and the sciences play an important role in analyzing and assessing problems or risks and in shaping the tools to manage risks or overcome problems.

Different challenges require different tools. The dentist has quite a different selection of differently designed pliers to be used for extracting human teeth while a handyman's tool box is quite well equipped with one standard pliers which serves dozens of functions in a non-specialized way. The sciences serve as tools for analyzing and comprehending previously not understood or insufficiently understood phenomena and are in their most developed form highly specialized. Even if some of them address the same object, they use different methods; and <sup>as</sup> ~~if~~ they address different issues they come up with different data<sup>s</sup> or concepts of reality. <sup>1</sup> The human body, for example, can be analyzed by various different tests designed to further our understanding of its functions: Anatomy will tell us how and where muscles and bones are located and interconnected and how they will contract and move; biochemistry will tell us about chemical macroprocesses and microprocesses in highly complex warm-blooded mammals; neurology specializes in the information networks of bodies. Then there are the applied tools

developed elsewhere but redesigned to be used in diagnosis or therapy of human bodies such as X-ray, electroencephlogram, organ substitution, renal dialysis, genetic screening of spermline or somatic cells, recombining plasmids in genes, counting ingredients in blood tests or growing cultures of viruses.

All these various highly specialized tools had to be developed and shaped to their actual states and are still in the process of development.<sup>2</sup> We call this process of tool design and tool development research. Sometimes research builds on the basis of existing formulae, extending them or combining or recombining them with others. Sometimes we do randomized trials into new adventures without a map ~~as~~<sup>or</sup> proven supply. Sometimes we have a framework concept first and get the data later. Sometimes we have the data first and find the concepts later which make the data comprehensible.<sup>3</sup>

None of the various sciences which tell us something about the human body, however, will be directly instrumental when my body has fallen in love with another body, when I have lost a loved one, or when my body is experiencing various forms of disability such as cancer or anxiety. One or the other of these sciences or a combination of them may give indirect help or relief. I might want to see the doctor if I do not get well. I definitely should see an expert in any situation which requires professional advice or treatment. I might give informed consent to undergo intensive care or go to court, assisted by my lawyer, for what I feel are my rights. But no doctor will tell me how to cope with the situation of facing

death. No attorney will make the decision on my behalf in regard to the absolute or relative values of justice. If I feel homesick or love sick, I might take a tranquilizer, but the pill is no direct answer in regard to what I want to do with my life, what values I want to live for, how I cherish human dignity, love, beneficence, justice, etc. No story about a coherent world, nor any single one of the scientific formulae can tell the story of evolution in nature or morals or the unity of the sciences will be directly instrumental in addressing and in managing the most crucial problems in my life, those of existential importance, those of social commitment, those of religion or metaphysical relevance. Who am I, who is my brother, what is my relationship to the Thou, what motives do I want to trade in in favor of other values, how are cultural or political or personal values interrelated and how are they related to the absolute values, to the Being<sup>4</sup> of beings?

These reflections lead me to the formulation of three theses in regard to the issue "Unity of the Sciences and Absolute values" which I will comment on briefly:

(1) The question of unity or disunity of the sciences is <sup>relatively</sup> irrelevant for addressing absolute values.

(2) Generalizations of scientific findings, i.e., metasciences or metaphysics, might be of indirect supportive or reinforcing relevance for all of us in striving for a better world and for implementing more of our moral and cultural values into reality. Among

these generalizations are the ideas of the unity of the sciences and of evolution.

(3) Because of the inherent and proven dangers of generalizations we may not want to base absolute values on scientific beliefs. Rather they should be based either on freely contracting on public and constitutional values among free men and women or on dialoguing ~~and on, the~~ interpreting of, and praying for revelational truth.

Vincenzo Cappelletti<sup>5</sup> has described how much the very idea of a unity among the sciences and how much our human hunger for harmony and for the quest for unifying theories and a unified understanding has promoted scholarly debate, cultural development and scientific progress. ~~As presented by him,~~ Identifying the human quest for unification as a driving force in scientific progress, indeed, is a major contribution to the contemporary theory and history of scientific discussion on the issue of how precisely scientific progress is achieved and how it can be planned or supported. We would not have a unified field theory of the universe if Albert Einstein in his human quest for unity and harmony had not felt uncomfortable with two competitive theories, both of which worked excellently on their own grounds. The aesthetic and intellectual satisfaction of Einstein's formulae subsequently was most influential in promoting research in various areas of modern physics. This is one side of the story; the other side of the story is that scientific progress is made and becomes important for technological or societal use only in highly specialized areas

and ever increasing specialization.

Specializations in newly established scientific areas such as processing information digitally or genetic screening are the battlefields of progress. No soldier or commander in these fields cares about the theoretical or aesthetic consequences of the unity or disunity of ~~the~~<sup>these</sup> sciences. The increasing herds of sciences give us multifaceted insights into a reality which we hope is a single one in itself, but which we know is a single one united in our understanding of it in the scientific community and in the community of citizens.<sup>6</sup> The general views of the scientific community and those of the community of citizens may or may not be identical. It is comforting in such situations of conflicting sets of reality interpretation to have the idea of the unity of the sciences.

But more important is the unity among scientists in attitudes, in standards of calculation, argumentation, and design. If we did not have the unity of the attitude of scientists regarding accuracy, verification and application, we would not have the rich properties of the plenitude of sciences. Only this unity of attitude, which I shall call the scientific ethos, protects us against the "temptations of the devil", against scientifically unjustifiable and morally impermissible generalizations, against cheap generalizations of any one of the scientific methods or data. Economic methods and data have led into an enslaving and exploiting metascience, e.g. ~~the~~<sup>into</sup> metaphysics of political economy ~~ala~~ Marxism-Leninism. So have the data of biological evolution led into misleading orientation systems of social Darwinism (while the same data

led to the more appreciable Weltanschauung of anarchism à la Kropotkin and the idea of Mutual Aid), ~~and~~ Organizational and managerial theories have led to fascism and the technocracy movement, while concepts of emancipation have led to totalitarian forms of Weltanschauung in critical theory and indiscriminating schools of protest movements. The Nazis and other racists have made genetic data the basis for racism and discrimination. There is not one single general scientific truth which presents the unity of the sciences and which can serve as a key to solving all problems. There are plenty of keys, and we have to promote progress in the sciences even further in order to develop even more specialized keys for other doors to be opened. Whoever talks about one single key in science can only talk about the prison key to the intellectual concentration camp which in turn is the key to the political concentration camp.

While we cannot rest ~~on~~ moral, or even more, absolute values, ~~neither~~ <sup>on</sup> ~~nor~~ the sciences nor on-isms ~~for~~ metasciences, we may decide, however, to use ~~also~~ some ideas which we have used to understand data <sup>as</sup> ~~on~~ guiding parameters, or travel companions, in our personal, social, political, moral and religious endeavors. The very ideas of unity and progress are those orientational tools like the stars in the firmament which tell us about the directions of north, south, east and west. Immanuel Kant <sup>8</sup> made God, liberty and immortality such a system of reference and orientation in our travel toward <sup>the</sup> ~~our~~ embodiment of meta-scientific values, of culture, morality, peace, and meta-

physical religious self-understanding, self-finding and self-development. The fathers of Western philosophy set forth the landmarks of cardinal virtues in wisdom, brevity, prudence and temper to which the Christian tradition added faith, love and hope. The Eastern tradition, in contrast, has more or less only one orientational tool, the vision of Harmony, from which various forms of harmony derive.<sup>9</sup> It was Hegel who made the point that the infinite material of history does not allow us to combine all the available data for understanding the course of history scientifically, but that, if philosophers were asked what the course of history might be, they indeed would be willing, eager and able to give an answer. As philosophers are preoccupied with the idea of freedom as being their roots, their milieu and their goal, there would only be one philosophical key to open the door of history: understanding history as "the progress in the conscience of freedom."<sup>10</sup> And he, indeed, wrote a Philosophy of History underlining the factors which supported his goal, neglecting the facts which would not have done so, thus rearranging the material of history as documentation for a hidden power in history which dialectically promoted and embodied the theory and practice of freedom and liberty. In doing so he used the matter of history to reinforce our desire for more freedom, harmony and peace, strengthening our desires and capacities to try even harder, and giving us encouragement not to give up even when faced with hardships or defeat.<sup>11</sup>

I understand the concepts of evolution and of the unity of the sciences in the same way as most precious regulative ideas



supporting our moral and other value-related activities, not as verifiable facts which would allow us to rest upon them the established dwelling of reliable structure and stability. So unity is not the issue. Rather the issue is unification, our quest for unification of competitive scientific positions, our quest for unification of scientific data, personal goals and attitudes and social or absolute values, our quest for unification in bridging the gap between classes or positions in society, between political systems and cultural traditions, and importantly, between I and Thou <sup>12</sup> -- not unity as a scientifically or otherwise fundamentally to-be-claimed fact, but unification toward..., unification toward befriending, toward communicating, toward cultivating, toward loving.

We are in urgent need of such a unification principle precisely because the sciences (plural!) do not and shall not provide us with a master key for solving the most crucial problems we, ~~and not the~~ <sup>of the</sup> other generation before us, are facing: What shall we do with our knowledge? May we apply each and any of the scientific knowledges for any purpose? Ought we to do all we can do? Ought we to clone humans? Ought we to do whatever we can technically to prolong intensively human life? Ought we to use technologies or weaponry which might or definitely will have an impact on following generations? Ought we to genetically engineer animals, humans, plants?

In general, I see the relationship between absolute values and the sciences not as a problem of whether or not there is unity or disunity among the sciences, but as one of how we cope

with the results of sciences, technologies and high-technologies in regard to the implementation or violation of values of various kinds, among them absolute values.

The progress in the sciences and technologies does not solve or answer any of our value problems. On the contrary, technological and scientific progress only multiplies the plenitude of moral choices, of value trade offs and trade ins, and of further developing, or at least reaffirming, traditional systems of values. The history of science and technology is an ever increasing process of challenging established systems of values, of furthering the process of unifying the sciences and scientific outcomes and applications with cultural, moral, personal and other relative values as well as with absolute values. It is a process of permanently unifying, by means of reaffirming traditional values, the individual with society, educated citizens with the scientific and technological order and, if you will, permanently reaffirming our relationships to absolute values or to God caused by various reasons, among them most prominently the progress of the sciences, the increase of possibilities regarding which we want to know what are our responsibilities. <sup>or</sup> Absolute values are related to responsibilities not to possibilities. 13

The history and the prospective future of the sciences make us aware of how heavy the burden of responsibility is ~~is~~. The benefits and challenges of the interrelationship of human beings to values is as the Centaur is to his horse. Jumping off would be suicide by intention; confusing the sciences or other instru-

mental tools with <sup>absolute</sup> values would be suicide by mistake. A careful use of regulating ideas which encourage us to stay the course even in cases of setback or defeat is most appreciable and helpful; among those supportive visions are the idea of a scientific ethos toward being true and the idea of implementing biological evolution by moral, cultural and absolute evolution. It is not existing unity but the quest for unification as a never finished endeavor which forms our challenge for absolute and other values.

There are wonderful examples of how this unification principle works in a highly specialized area of our activities, that of the sciences and their progress. But in order to get our value systems straight we do not want to look exclusively into the theory and history of the sciences -- if we do we might realize the Janus-face of scientific generalization for value orientation -- but also into the reality and history of cultures, based on various forms of truth, scientific, contractual and revelational truth.

Adam Smith more than a century ago stated that the wealth of the nations can only be rooted in a free and open competitive market of economic goods. <sup>14</sup> It is even more true that the wealth of the nations and the richness of mankind are rooted in an open and free market of values, competitive, plentiful and not identical, but united in our quest for justice, for unity, for brotherhood and for enriching ourselves and our environment by embodying what we understand to be absolute values and of which we are all probably a part. <sup>15</sup>

## NOTES

- (1) As to the tool-use theory of the sciences and the technologies, c.f., Ernst Kapp, Grundlinien einer Philosophie der Technik, ed. H.-M. Sass, Duesseldorf: Stern, 1978.
  
- (2) Contemporary schools in the theory and history of the sciences unfortunately narrow their scope of inquiry by overemphasizing issues arising in nuclear physics or astrophysics, while neglecting the theory and history of other sciences such as medicine or organization. C.f., Edmund D. Pellegrino and David C. Thomasma, A Philosophical Basis of Medical Practice, Oxford: Oxford University Press, 1981; H.-M. Sass, "Science and Technology in Modern Medicine," Science, Technology and the Art of Medicine, ed. C. Delkeskamp and M. A. Gardell, Dordrecht: Reidel, 1984.
  
- (3) O. Helmer and N. Rescher, "On the Epistemology of Inexact Sciences," Management Science, 5, 1959, 25-52; H.-M. Sass, "Technik: Analyse, Bewertung, Beherrschung," Philosophische Rundschau, 30, 1983.
  
- (4) H.-M. Sass, "Technological Values and Human Values," Wandlung von Verantwortung und Werten in unserer Zeit, ed. H.-M. Sass and M. Staudinger, M@unchen: Saur, 1983.
  
- (5) Vincenzo Cappelletti, "Unity and History of Science" in this volume.

- (6) C.f., F. A. Hayek, The Rules of Morality Are Not the Conclusions of Our Reason (Plenary Lecture, XIIth ICUS Conference), Chicago, Illinois, 1983, which holds that "socialism is the logical consequence if you assume that only that is true which you can rationally prove." (p. 11)
- (7) H.-M. Sass, "The Quest for Humanism in a Scientific Society," Zeitschrift fuer allgemeine Wissenschafts-theorie, 11, 1980, 45-52.
- (8) I. Kant, Critique of Pure Reason, (1781), II 2, 3, Appendix: Regulative Use of the Ideas of Pure Reason.
- (9) Leih Tzu, The Book of Lieh Tzu, tr. A. C. Graham, London, 1962.
- (10) G.W.F. Hegel, The Philosophy of History, tr. J. Sibree, London, 1857.
- (11) H.-M. Sass, "Hegel's Concept of Philosophy and the Mediations of Objective Spirit," Hegel's Social and Political Thought, ed. D. Verene, New Jersey: Humanities Press, 1970, 1-26.
- (12) H.-M. Sass, Ludwig Feuerbach, Reinbeck: Rowohlt, 1978, 80-90; H.-M. Sass "The Transition from Feuerbach to Marx -- A Reinterpretation," Studies in Soviet Thought, 26, 1983, 123-142.

(13) Therefore a study in the theory and history of culture or responsibility would offer more results than one in the area of theory and history of science in order to address the issues related to absolute values, e.g., books such as Albert Schweitzer, Kulturphilosophie, 2 vol., München: Beck, 1923; Hans Jonas, Das Prinzip Verantwortung, Frankfurt: Insel, 1979.

(14) Adam Smith, Inquiry into the Nature and Causes of the Wealth of Nations, London, 1776.

(15) Adam Smith, Theory of Moral Sentiment, London, 1759; Sun M. Moon, Science and Absolute Values, New York: International Cultural Foundation, 1982.