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THE HEART OF THE HUMANITIES

Abstract: From having enjoyed a leading academic position the Humanities have increasingly been on the defensive against the dominant and unified natural sciences. In this situation, what could unify the Humanities and strengthen their social position? An obvious strategy would be to respond to an urgent global need for value discourse. The Humanities are in the perfect position to address those aspects of the human experience that the natural sciences are simply unqualified to handle, such as moral values, human understanding, esthetics, and ethics. Drawing on their rich heritage and hermeneutic skills, the Humanities could try to identify some important values or principles that seem to have traditionally characterized the Humanities, and thus reconstruct their own underlying common core, or "heart" – just as the sciences are seemingly united around a particular (limited) "scientific attitude". This value core would help unite the academically heterogeneous Humanities (or Geisteswissenchaften or "Human Sciences"). Thus united, the Humanities might assume a role as the obvious leader of a needed general social discourse about values (which social goals do "we" want to pursue, and why?), and claim their rightful status as a socially indispensable counterpart to the natural sciences.

Key words: *Humanistic values, value discourse, value rationality, social goals, Two Cultures, phronesis*

THE NEED FOR A VALUE DISCOURSE

I believe most people would agree that humankind is in a major crisis. The crisis has to do with values. Particularly in the industrialized countries there seems to exist a value gap of sorts, a gap that when discovered is quickly filled with more activity or technological gadgetry or video games. Where is the world going? It seems that as we are being more and more rushed and pushed along by ever emerging technologies, there is less and less time to think and reflect – for everybody. And this is happening at a global scale. Meanwhile one can really perceive a change of tradition when it comes to things that an earlier generation considered important.

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The style of media has changed. Strange things are happening now, with people willingly giving up more of their privacy (or not so willingly – think for instance of Facebook and its default privacy settings, which need to be actively changed to really become private).

In this situation we need to ask a question about values. What are the basic values important for human existence? Which values should we follow in key decisions on matters that affect groups of people or have global impact? Which values do we want to emphasize in the education of new generations? Instead of letting things just happen, we would need to do something.

I agree with the German social philosopher Jurgen Habermas, who for a long time has observed this kind of phenomenon. He makes the important distinction between two kinds of rationality: *instrumental rationality* and *value-rationality*. Our modern societies are functioning mostly at the instrumental rational level – finding means to satisfy certain goals. But what is badly needed is a discussion about *what the goals ought to be* – what ends do we think are rational from the point of view of human values? It is this kind of discourse that Habermas sees as currently "dominated" by power and politics, and also more indirectly by the instrumental considerations connected to science and technology. To be able to have a free discussion, or "rational discourse", then, what is needed is a situation where different voices can make themselves heard in a democratic way as they are presenting their arguments (which are always expected to be justifiable). No power pressure is allowed; what wins is simply "the better argument". Only with this type of model would we be able to have a fair and open discourse about where society should be going, or about the values that individuals think ought to guide society. [1]

WHY THE HUMANITIES IS THE RIGHT PLACE

Now where is there such a place, even hypothetically, for his kind of discussion? It would need to be a place which is not obviously dominated by social or political power interests, a place where discourse is the typical form of interaction, and where human values in various forms represent an accepted and natural topic of discussion. I would say that on the face of it, the Humanities look like a very good fit! Not only do the Humanities have a long tradition of discussion and disputation, but they are a veritable treasure trove when it comes to identifying important candidates for values, since they have the ability to draw on among others the Classical tradition, the Renaissance Humanist tradition, and the Enlightenment.

Right now, however, the Humanities are in their own kind of crisis, both of identity and of legitimacy. What are the Humanities, and why are they classified together under this name? Is it a matter of tradition that certain fields "count" as the Humanities, or is there some shared intellectual approach or agenda? What good are the Humanities? Why do they exist? This latter question was being debated in March this year at a huge forum at Abo Akademi University in Finland where I happened to be visiting giving a crash course for doctoral students in the Human

Sciences. The title was: (in Swedish) "Vem behover Humanvetenskaperna?" Who needs the Humanities? I had expected the speakers to ardently extol the virtues of the Humanities but I cannot recall many interesting things being said. The speakers seemed uninspired. The attitude soon became defensive rather than assertive. Some afterwards concluded this had been a real non-discussion. A student later told me that a similar sense of lack of legitimacy is being conveyed by their professors in different subjects, and that the students had internalized this general feeling from them!

But could this value discourse not take place in some other branch of academia?

Why, for instance, is not science having one? A big obstacle is for sure that science is concerned with *knowledge* (episteme) and is dependent on the State and most recently industry for funding. A value discourse is not part of the standard scientific self-perception. What counts in science, and what is rewarded, is contribution to knowledge. Science's distancing of itself from values has a long tradition. In fact, we know that value concerns were actively eliminated from the discussion in at least one early academy, the English Royal Society founded in the 1660 s. In exchange for sponsorship by the King after tumultuous political times, that society had to promise not to "meddle" with politics, metaphysics, religion, and a whole list of other things.

What is not formally rewarded as part of science, is being ethical or even careful to correct your own errors before you publish. The first discoverer gets the credit, not the runner up even if he/she has taken time to check (for the benefit of all) that his/her product is error free. So scientists take their chances. Competition does encourage sloppy research, because it is more important to be first rather than a conscientious second. Moreover, science is increasingly being steered from the top – the funding agencies – look at the intense push for nano research recently from the United States' National Science Foundation.

The same goes for the results of the research. There has typically been no Hippocratic Oath for scientists when it comes to the results of their research, which has been at the base of a number of controversies especially in the United States. Also, until recently, government grants in the US were given based solely on the intellectual merits of the research proposal. Lately, though, any submitted proposal requires a justification for both intellectual and social merit. Note, however, that the social merits are not typically required to be of the broad "benefit for humanity" type, but rather at the level of giving employment to a few graduate students, or having particular limited impact. Also, I am not sure that the proposal writer is requited to explicitly consider the potential harm his/her research may be able to cause. The situation is getting trickier as the involvement between industry and science becomes increasingly entangled. [2]

THE RESPONSIBILITY OF SCIENTISTS – A RECURRING ISSUE

This moral/ethical limitation of science, though, has been keenly felt by some scientists, who have attempted to redefine the situation and actually introduce con-

cerns for the *consequences* of scientific research. There were for instance the atomic physicists after World War II, and those who sought a moratorium on "recombinant DNA" research (the beginning of genetic engineering) in 1974. The consideration of hypothetical consequences resulted in enhanced lab security in regard to *E. coli*. Also, after World War II, an earlier generation of human geneticists practiced self-censorship in the form of a UNESCO statement in 1952 which discouraged the pursuit of anything but medical genetics. (Before the war, various traits of human groups and races had been compared). [3]

The "nature-nurture" controversies in the second part of the 20th century, again, were interesting examples of some scientists' attempting to actively introduce moral/political concerns into science. It was done, however, in the form of individual scientists accusing other scientists of racism and sexism. The critics said that sociobiology, IQ research and similar was ideologically influenced "bad science"; they saw themselves as *weeders*. Additionally weeders felt that they had to personally weed out bad science so that it would not cause harm merely by being around. *Planters,* traditional scientists, responded by just dismissing these critics as "Marxists" and went on doing what they saw as useful research. [4]

This general division of scientists into two camps seems to be continuing. In 2011 a philosopher, Heather Douglas, suggested in an article in *The Scientist* that when it comes to foreseeable consequences of their work, scientists ought to be held to the same standards for responsibility as ordinary citizens. Some liked what she said, but others severely attacked her in an online "blog" exchange about her article. Her point was in fact seen as "illegal" self-censorship by some traditionalist scientists. For them, science was supposed to produce useful knowledge, while the responsibility lay with the user of this knowledge. [5]

SCIENCE OUT OF BOUNDS

Now who made this point about useful knowledge? That was the Englishman Francis Bacon, who in the 1600 s imagined an idealized international scientific community, where scientists would be accumulating useful knowledge together. He was the one who coined the expression "knowledge is power". But this "father of empirical science" (at least in the English tradition) was not a naïve inductivist – he also warned about a set of "idols" that may corrupt the scientific mind: idols of the cave, idols of the tribe, idols of the market place, and idols of the theater. He had in mind natural science, which equals "science" in the Anglo-Saxon tradition, and largely saw science as fact-gathering, based on which more universal statements could be made and laws and theories developed. [6]

Bacon may have worried primarily about distorting the mind of the individual scientist, but he in fact addressed some basic problems that science as a *community* has later tried to cope with by establishing a set of "scientific control systems": peer review of grant applications, referee review of submitted journal manuscripts, and the ultimate control – the replication of results. These systems are *supraindividual* and agreed upon by scientists. They do help clear out some potential garbage (but

not all), and therefore help guarantee relatively reliable knowledge. These systems, combined with the implicitly shared system of norms for science, as well as the reductionist method and the very nature of the studied material ("it doesn't speak back"), make for a shared sense of science for natural scientists. (It is not perfect or shared in detail, but perhaps one could say, for instance, that most scientists would have little difficulty agreeing that a particular piece of research would *not* count as science). Most importantly, scientists believe that there are underlying, universal patterns or laws, and are set to find them. This ambition is an important part of the scientific attitude, as is the confidence that the production of useful knowledge is a socially important and justly rewarded activity. [7]

In fact, science is so important today that it is used as an arbiter also in regard to issues that go far beyond science. In the minds of many people, factual statements are taken as automatically implying value judgments. This was seen for instance in the sociobiology debate that raged in the last quarter of the 20th century in regard to biological facts about humans. (For instance, findings about sex differences between males and females have created and continue to create great upheaval in the United States, largely because it is believed that any suggested sex differences will have dangerous social implications – at a psychological, moral or policy level). [8]

But even more ironically, even when it comes to such obviously *humanistically relevant* questions as "What does it mean to be human?" the initiative today seems to be with the *sciences*. This question is being examined in relation to a number of different research topics today, for instance such things as "Can robots have human feelings?" Or: "What types of human enhancement are acceptable for us to still call something human?" When the genome project was finished in 2000 lots of people were led to believe that we now had found out "the very essence of humanity" (or however James Watson and other promoters formulated it at the time). But the question is rather: what does it *mean* to be human? What is *really* the human essence? These are the kinds of things that humanists have been pondering for a long time. (In this case, a political scientist of the old school, youngish Francis Fukuyama, in his *Our Posthuman Future* tried to tackle this and other matters of technological progress in relation to humans). [9]

And the value discourse about human nature continues today, promoted by scientists! Much has been made recently of such things as altruism and cooperation as being behaviors that are deeply biologically and evolutionarily grounded – say, based on hypothetical "altruistic genes", or through the physiological mechanisms of empathy and mirror neurons – and demonstrable, say, by comparative primate studies and laboratory experiments. This has been argued by scientists for the last forty years or so. [10]

REGAINING THE INITIATIVE

OK, so altruism and cooperation are possible, and now we know the infrastructure or mechanism for it, too. Good. But their biological basis does not necessarily point to the value of these behaviors, or legitimize them. This must be done on oth-

er grounds, and those grounds lie *outside* the sciences. Today, however, we may have veered into treating *natural* explanations as important *value* arguments because of the power of science ("it has been scientifically proven"), and the relative weakness – or unassertiveness – of the Humanities and of organized religion, and perhaps because of our tendency to take science over-seriously as a guideline for action.

My point is that it is the *Humanities*, not science, that would seem to be the natural place for discussion about what kinds of issues and values society *should* have (and impart to the next generation). In fact, I believe this is exactly something that should be recognized and socially *rewarded* as an important social function of the Humanities (in addition, of course, to the traditional scholarly research of the Humanities).

So I would like to say: "Hey, Humanities, get your act together and figure out how you can speak together with a strong voice! You are part of an academic institution which is not yet totally dominated by government funding agencies or private industry (unlike science), and you have a long tradition of deep thought and self-reflection. Don't forget that the Humanities is the place which science emerged from. It was only later that science became more specialized and deliberately shed its connection to ethics and social values (a connection still visible for instance during the science movement in early modern England). The Humanities need to regain their rightful place as equal partners with the natural sciences. They possess and can generate knowledge and discourse that is *complementary* to that of the natural sciences – in other words, furnish the part of the social discourse about the human experience that is currently missing.

ABANDONING "TWO CULTURES" TALK

All this "Two Cultures" talk, existing ever since 1959 and C. P. Snow's famous *The Two Cultures* book, has been particularly detrimental to the Humanities. This kind of talk has only re-emphasized the socially favored position of the natural sciences after the Second World War and, conversely, led to various protest and "anti-science" movements and attempts to undermine science (e. g., the Ideologiekritik of the Critical School of the 1960 s and 1970 s, and later various postmodernist, constructivist and relativist criticisms). More recently in the "Science Wars" in the mid-1990 s, some declared science as nothing but a myth, comparable to tribal beliefs, not having any special epistemological status. This treatment of science actually made some natural scientists nervous in regard to research funding and students' interest in science, but also because a deep belief was being threatened. [11]

I believe that this Two Cultures talk has to stop. It was probably something of a flip statement already from the beginning and ever since it has invited wrong attitudes on both sides. Snow may or may not have seriously suggested that the Humanists should learn thermodynamics; in any case, the Humanities should simply *stop* comparing themselves to the natural sciences because they can't win or assert themselves that way. The situation is pre-rigged from the beginning. The Humanities should instead be doing what they ought to be doing, and what they can do well, and that is assert themselves in an area that is legitimately their own. And that

area has to do with the human experience and with values – especially those values that we consider important and wish to perpetuate and promote. Those need to be identified and agreed upon, and the Humanities can help in this regard.

The Two Cultures talk just leads to silly one-upmanship or one-downmanship, such as Humanists saying that science could not function without relying on language and agreement about the meaning of words. See! Language and hermenutics are prior to science! (I know how great some humanists and social scientists felt listening to a guest lecture by Karl-Otto Apel in Helsinki in the 1970 s). Or: Because Kuhn said that paradigms change, science has no foundation but is just a Colossus on clay feet! See! This means they are not more scientific than the social sciences! (This was the reaction of many humanists and social scientists in the 1970 s against the smugness of the natural sciences). And later there was the postmodern claim that science is nothing but a story. And so on, in ever new attempts to put down natural science.

THE HUMANITIES IN CHARGE

When it comes to proposing potential candidates for values to consider for the future social discourse, the Humanities have a treasure trove of resources: all the heritage from the Classics to the Renaissance to the Enlightenment – and more, including important teachings from other cultures and the great religions. The Humanities are in principle able to draw on so many traditions. One way to go might be to collect examples from literature, say, and stories from history – maybe in a form similar to Biblical parables. Because the human mind indeed seems particularly receptive to story-telling (as cognitive scientists have found). Story-telling works as a mnemonic. Also social psychology knows the worth of a single vivid example, because it sticks in the mind much better than any "scientific-seeming" statistical overview.

Is there within the humanities some tradition similar to the one in the natural sciences, that is, one striving for unity around some common principles? I believe that finding universal principles and values would be important for two reasons. Not only could these be subject of discussion in a further social discourse (as suggested above), but they would also be important for the Humanities themselves, helping them present a unified front in their attempt to reclaim their academic status in relationship to the natural sciences. The answer is yes. I am thinking in the first place of the Enlightenment tradition and the idea of Reason – which of course is typically regarded as the thing that makes us uniquely human in the first place. There is the idea of *value-rationality*. As mentioned, the Humanities could help foster a type of rational discourse which would lead to the identification and selection of a set of core values that we want to pursue and implement in such things as education. Maybe another set of values could be identified, relating to things that we do *not* appreciate and that we find harmful and want to discourage? This may, in fact, be easier to agree on.

I believe that the Humanities needs to organize itself as a *complement* to natural science and speak with a wise voice when it comes to such things as what is

means to be human. The sciences are currently making inroads into the human sciences, "explaining" everything – even the understanding that is going on among people (empathy, mirror neurons). All this is fascinating, but it cannot compensate for the feelings and experiences that individuals have and can describe, and which lie by definition outside science, because they are subjective and individual.

We cannot leave the initiative to the natural scientists, because the scientists are simply not trained to take on *all types* of discussion about what it means to be human. As noted, scientists are by definition operating in an explanatory, universal law-seeking mode.

At the same time, because scientists are so visibly successful in their own realm, the debate may easily end up taking place completely within the scientific realm between "liberal" and "conservative" *scientists* rather than between scientists and humanists (or completely within the realm of the Humanities), and this may easily be regarded as *the* discussion.

A SMALL EXCURSION: THE PROBLEM OF TERMINOLOGY

Incidentally, what is the reason for certain fields to be classified as belonging to the Humanities? Is it stemming from some now obsolete old tradition? Is it merely a convenient administrative category for "everything that is NOT natural science or engineering"? And what is the reason for certain fields to be counted as belonging to the Humanities, rather than the social sciences? (History, for instance, sometimes counts as a social science. In any case, the social sciences are typically mixed up with Humanities by many natural scientists and engineers…). But to take things further – and this is important – Wissenschaft in German and 'science' in Europe has a much broader meaning than 'science' in the English/Anglo-Saxon tradition, where 'science' means exclusively Natural Science. In that tradition there is no place in 'science' for the Geisteswissenschaften, which in Europe count as part of science. And how do we translate Geisteswissenschaften? 'Human Sciences', perhaps, or Humanities? In England and America, social science, which is sometimes partly admitted to the scientific club, is in its own category, 'Social Science' – that is, not part of 'science', which is strictly natural science. Also, what does it actually mean to be a humanist? Is it only someone who studies the Humanities or the Human Sciences? Would it be possible to count as a humanist anybody who *calls* him/herself a humanist – from whatever academic field he/she happens to come (including science)? I believe that there needs to be a serious parallel discussion about terminology – enough to clarify what one is talking about. Still, the important thing here is the discussion about values, which I will now return to.

VALUES FOR THE HUMANITIES

The Humanities have quite a menu of potential values to pick from. Are there perhaps some major *types* of values that one can identify? Well, there is the value of *individuality*, creativity and initiative – this is a celebration of the uniqueness of

individuals and their expression of that uniqueness. Then there is the value that comes from belonging to some kind of entity – the value of *identity* (actually necessary for supporting the strong sense of self that can lead to the independent individual expression just mentioned). And then there are values that have the capability of being "universalizable" and agreed upon in principle by all. For instance Christianity has a set of such values, codified as the Ten Commandments.

I realize that it may seem difficult for some humanists to imagine working on value identification and value consensus. Many humanists may be attracted to the Humanities rather than the natural sciences exactly for the reason that these are *not* like the natural sciences. These persons would not be thrilled by universal patterns or truths, but rather take a delight in the opposite – the out-of-the ordinary, the unique. They would emphasize the multi-facetedness of human nature, human creativity, and the power of the unique individual. To the extent they could agree about these kinds of general criteria, however, it would seem that a set of general principles could emerge.

I have suggested that the Humanities would consider taking on the momentous task of helping humanity identify its most important and enduring values by providing suitable value candidates and potential criteria for selection and other preparatory measures for a serious discourse about values. How might such a discourse be conducted in practice? One of the aims for sure would be to reach a broad consensus. Is this possible for people in such a widely disparate area as the Humanities? What gives me hope that some fundamental values (for the Humanities, for humankind) can actually be agreed on is a recent study by Harvard professor Michelle Lamont of the consensus forming process on peer review panels for grant proposals. She has documented how there in these complicated discussions emerges *a wish to reach consensus* and how an interesting *moral* type of spirit appears to prevail (as a complement to the discussion about the proposals' technical merit). I myself have had a very similar experience from sitting on a number of interdisciplinary grant review panels at the National Science Foundation in Washington. [12]

AN INVITATION TO ACADEMIC ACTIVISM

There is an interesting suggestion for reforming the social sciences that could be adapted for the Humanities. Bengt Flyvbjerg, a Danish social scientist, has suggested that the trouble started with the very wish to imitate the natural sciences. The social sciences should never have bought into this losing proposition! He goes one interesting step deeper, all the way back to the ancient Greeks and their view of virtue. The natural sciences initially chose to pursue a quite limited perspective – Plato's idea of *episteme* (theoretical knowledge), which they saw as the most important virtue, rather than valuing the broader set of virtues suggested by Aristotle – *episteme*, *techne*, and *phronesis* – that is, a wider spectrum of what it takes to lead one's life as a human (techne is know-how, the set of skills possessed by artists, architects, engineers, etc; phronesis is sometimes translated as "prudence" – social know-how, how to go about things to achieve a certain goal). [13]

Since under the current model the social sciences will really never be able to measure up to the natural science model because they deal with unpredictable human beings, Flyvbjerg suggests that they reconsider what model they should actually be following. What do the social sciences want to accomplish, and how can they get there? Flyvbjerg suggests that the social sciences instead of Plato's limited episteme choose rather Aristotle's virtue of *phronesis*, that is, reflexive and strategical goal-oriented action. Phronesis can be defined as "deliberation about values with reference to praxis". It takes into consideration all kinds of factors, including the very practical question of how to achieve one's goal in the view of prevailing power relations, which is the typical problem for social scientists wanting to affect society. As it is now, their research may just be ignored.

This idea is rather militant and I like it. It may also be applicable to at least part of the Humanities. And to those younger humanists who want to *do* something, but have so far been caught up in the postmodern trend I would like to say the following: you have taken on a very difficult and challenging task, which is largely epistemological. You of course want to be radical and innovative, but you are, after all, following in the footsteps of your postmodern mentor. How much more radical can you be? How would it be to start a *new* paradigm instead, a paradigm emphasizing values and *ethics* rather than epistemology, and try to tackle this huge challenge of helping identify candidates for values, leading a social discourse, and engaging in consensus building around fundamental values? You would help the Humanities rise to their rightful place as complementary to the natural sciences, and re-emerge as not only socially useful but socially *indispensable.* How about that, Francis Bacon? Eat your hat, C. P. Snow.

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[2] See e. g., U. Segerstrale: "Values and science for the 21st century", in M. Djurovic (ed.): *Proceedings of the international conference Values and 21st Century*. Montenegrin Academy of Sciences and Arts. Podgorica. Montenegro. 2010.
[3] W. Provine: "Geneticists and the biology of race-crossing." *Science*. vol. 182. pp. 790–796.
[4] U. Segerstrale: *Defenders of the Truth: The Battle for Science in the Sociobiology Debate and Beyond*. Oxford University Press. Oxford and New York: 2000 a. See especially chapter 11 on planters and weeders.
[5] H. Douglas: "Opinion: The dark side of science". *The Scientist*. 16 November 2011. The online version of this journal immediately generated a rather heated and voluminous blog discussion, in which scientists as well as others participated.
[6] In a number of books, especially his *Novum Organum*. Incidentally, although I am here using the terms 'science' and 'scientists', nobody did so in the 1600 s. Science was called 'natural philosophy' and scientists 'natural philosophers'.
[7] Part of the scientific attitude involves what the "father of sociology of science", Robert Merton, called the "ethos" of science. This is an interesting model of an attempt to extract from the historical material about an academic field its underlying values. Mer-

ton derived his famous four basic norms through reading primarily such things as various documents, letters, and autobiographies. Sociologically, scientists are described as if they followed a set of four principles keeping them on the right course. These form the acronym CUDOS: Communalism (public sharing of information, not keeping things private), Universalism (paying attention solely to the merit of someone's science, not considering nationality, sex, or other characteristics), Disinterestedness (dedication only to finding the truth, not considering other interests of various kinds), and, finally, Organized Skepticism (willingness to abandon cherished views in favor of new scientific evidence). (R. Merton: "The normative structure of science". In R. Merton: *The Sociology of Science*. The University of Chicago Press. Chicago. 1973. pp. 267–278). In practice, of course, scientists do not always follow these norms; they act more as general guidelines. Still, there is something to these principles. At the very least one might claim that if norms of this nature were *not* followed, science as we know it might have a hard time existing. Today, however, it seems that these norms are being increasingly deviated from or modified as science gets more involved with industry, patenting, and proprietary knowledge, see reference in Note [2] above.

[8] See e. g., Segerstrale (2000 a), pp. 211–212.

[9] F. Fukuyama: *Our Posthuman Future: Consequences of the Biotechological Revolution*. Picador. 2003.

[10] In the 1960s, the British evolutionist William D. (Bill) Hamilton ("Darwin of the 20th century") was able to mathematically demonstrate that altruism as a behavioral trait could in fact be a product of evolution. (This would happen if the beneficiary of an altruistic act had genes in common with the donor – in other words, typically, but not necessarily, a relative. This was explained in a popular manner in *The Selfish Gene* by Richard Dawkins, a book that was much misunderstood and even thought to be advocating human selfishness!). Since the 1980 s, "evolutionary game theory", beginning with Robert Axelrod and William Hamilton's "The Evolution of Cooperation" (*Science*. vol. 211. 1981. pp. 1390–1396) has explored various situations under which cooperation would be the natural chosen "strategy" both for humans and animals. For more details on Hamilton and his scientific quest, see U. Segerstrale: *Nature's Oracle: a Life of William D. Hamilton*. Oxford University Press. Oxford. 2013. For a recent discussion of empathy and the role of mirror neurons, see Frans De Waal, *The Age of Empathy*: *Nature's Lessons for a Kinder Society*. Three Rivers Press. New York. 2009.

[11] The book (often quoted, though not necessarily read) is C. P. Snow: *The Two Cultures*. Cambridge University Press. Cambridge. 1959. For more on the Two Cultures, as well as protests and anti-science movements, and a detailed analysis of the "Science Wars" in the 1990 s, see my two chapters on "anti-antiscience" in U. Segerstrale (ed.): *Beyond the Science Wars: The Missing Discourse about Science and Society*. SUNY Press. Albany, NY. 2000 b.

[12] M. Lamont: *How Professors Think: Inside the Curious World of Academic Judgment*. Harvard University Press. Cambridge, MA. 2009.

[13] Bent Flyvbjerg: *Making Social Science Matter*. Cambridge University Press. Cambridge. 2006.