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Overcoming Boundaries in Science – A Plea against Political Isolations

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***Abstract*—**If science is supposed to gain greater social relevance and acceptance, researchers must not only relate to the broader public, but also promote intercourse within the ivory tower itself. The latter process has been under way successfully for a number of years in the form of transdisciplinary research initiatives. What is still lacking is a broad debate about the necessity to look around properly and face up to opposing views on *one and the same topic* within *our own discipline.*

***Keywords*—**Schools of thought, pluralism, openness, value judgements, controversy

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I. INTRODUCTION

THE longer and more intensively we work on an issue, the smaller is our willingness to set aside the insights gained and the verdicts derived from them. Information fits itself into preconceived – often unyielding – ways of thinking and frequently eclipses relevant facts, which remain neglected even though it is recognised that the rightness and significance of scientific findings generally only becomes clear over the course of time.

If science is to gain greater social relevance and acceptance, researchers must not only relate to the broader public, but also promote intercourse within the ivory tower itself. The latter process has been under way successfully for a number of years in the form of transdisciplinary research initiatives. What is still lacking is a broad debate about the necessity to look around properly and face up to opposing views on *one and the same topic* within *our own discipline.*

II. UNDERMINING CONTROVERSY

The one-sidedness of conferences, lectures and textbooks as well the training of young academics in general undermines the credibility of science. One reason is without doubt that there is now broad public awareness that economic and social conditions have become almost impenetrably complex. Nobody would deny that issues such as nuclear power, climate change and genetic engineering – and also discussions about the globalised economy – require more than simplistic solutions. With its (often unconscious) narrow focus science frequently loses social relevance, because outsiders sense the transience and argumentative limits of one-sided statements. The public rightly expects researchers to provide deeper analyses of the social, economic and social policy questions than they find presented in newspaper articles or at press conferences of political parties and lobbying organisations.

Openness and pluralism are regarded as central pillars of teaching and research. Reinhold Hedtke writes 'Teacher training in the social sciences demands systematic practice in critical thinking and discursive communication (whose outcome can of course be in scientific consensus) and consequently must hold positions up to rigorous scrutiny and do without a deterministic world view'. [1] Although these ideas have found their way into the regulations and curricula for the subjects of politics, sociology and social studies, in my view the principle of debate is neglected in everyday university teaching. Like the (rightly) much-discussed diversity of methods, the presentation of conflicting interests often gets neglected in teaching. It is not appreciated that (verbalised) differences of opinion represent a constitutive characteristic of pluralist societies and often act as a motor of social change, nor that there is a tradition of debate as a guiding didactic principle that goes back centuries. "In Classical rhetoric and in medieval scholarship and dialectics, the culture of controversial discussion was already highly developed as an instrument for clarifying values and making decisions." [2]

In other words, there is historical backing for the call to avoid drawing the line round a subject so tightly that (possible) errors would be shielded from criticism and broad scope for objections would be denied – quite in keeping with the "open society" typologised by Karl Raimund Popper, where "every idea is in principle valid for a limited time". [3] In his main theoretical work, *The Logic of Scientific Discovery*, first published in German 1934, Popper, the founder of critical rationalism, describes how the discovery of a contradiction between what we think we know and the actual facts reveals the inadequacy of our existing knowledge.

In line with the principles of critical rationalism – whose moderate scepticism puts it between infalliblism (a stance claiming to possess the absolute truth) and radical relativism on the epistemological spectrum – all knowledge is uncertain and provisional. Because the number of potential falsifiers is

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infinite, the theory states, we always approach the truth asymptotically. According to Popper, because hypotheses, laws and theories make statements about an infinite number of objects they cannot be verified through a finite number of observations. On the contrary, the best we can hope for is for our hypotheses to withstand testing: 'In the past we have learned from many disappointments that we must never expect finality; and we have learned no longer to be disappointed when our scientific theories are disproved.' [4]

From the logical credo of the epistemological school of critical rationalism – as Popper put it 'let our theories die in our stead' [5] – we can derive an argument for practised tolerance (for example in appointment procedures). In scientific discourse it is important for there also to be space for such standpoints as are not (yet) approved or supported by the majority.

III. The 'Ethic of Science': Pluralism

Nonetheless, departments and journals are often quite closed to differentiated approaches. Gerhard Fröhlich notes pointedly: 'In science, like in the Catholic Church, censorship rules'. [6] Adaptation to the academic mainstream is the unavoidable consequence. Advantageous as this may be for one's own academic career, the artificially narrowed perspective is disadvantageous for science as a whole: 'Agriculture is not the only field where monocultures have turned out to be rather vulnerable'. [7]

Such monocultures thrive especially where politics and academia work hand in glove (as is the case with the Bologna process), so a clear declaration in favour of openness and pluralism is needed in the schools and universities too. After all, even in Catholicism the days are past where a simple 'nihil obstat' ('there is nothing to be objected to') from the Church censor was sufficient to classify a work as the ultimate truth – and to smother the new-born hopes of the Enlightenment in the cradle. It was openness that brought us the revolutionary shift from the geocentric to the heliocentric view of the world initiated by Nicolaus Copernicus and Galileo Galilei, and it is vital – in schools, universities and teacher training colleges – to regularly remind ourselves of one of the most important European thinkers of the Enlightenment. This was Voltaire (1694–1778), who wrote the declaration that is still valid today and constitutive for every democratic state (but nonetheless regularly ignored): 'I detest what you write, but I would give my life to make it possible for you to continue to write.'

In *Von der Wahrheit* (1947) Karl Jaspers explains why we have to be able to think without fear of the consequences. Although he was writing primarily about the moral and ethical 'implications of the knowledge gained', his ideas also imply that in a free democratic constitution there is no place for taboos on positioning in society. Science means the generation of knowledge, and this net can never be thrown wide enough. Even if the era of the universal scholar is over, the full breadth of science's system of coordinates should still be exploited as fully as possible. This applies in particular to the social sciences, which not only encompass three disciplines (politics, economics and sociology) but also more than other subjects influence the 'intellectual mood' of a country (and if possible should reflect it too).

This must be kept in mind, because belonging to a particular academic body is a great privilege, and one that is often decisive for the success or failure of one's own career. This is especially apparent in elitist contexts such as academies, but also occurs in more subtle communities such as scientific schools and "citation cartels". The (academic) culture that is passed on from generation to generation 'belongs' to all of us – and it arises above all through the sharing of findings. Scientific work by definition requires cooperation, which extends beyond the generally (too) restrictive bounds of the ideas and persons in a particular department. If one wished to found an 'ethic of science', unhindered intellectual exchange would without a doubt be a conditio sine qua non for a productive working environment.

IV. What is the value of being value-free?

The world is simply too complex for it to be possible to explain everything from *one single* vantage point. When a scientist pursues the goal of gaining reliable data and findings based on them, this is generally accepted to require the most neutral possible approach at the descriptive level. Writing in the mid-1970s, Carl F. von Weizsäcker described the advantages and disadvantages of this as follows: 'In my opinion value-free science may not be the ultimate truth, but it possesses great ethical value. Today, if we are to move beyond it we will first have to pass through it. Practising value-free analysis is for all of us first of all a lesson in distancing from the self, in other words a step towards maturity. It involves overcoming wishful thinking, practising self-criticism, distancing from our own ideology, growing up'. [8] If we hastily pursue one-sided partial science or a particular 'way of seeing things', we quickly have what science should not be: a doctrine for improving the world.

Whereas for a long time value neutrality was not raised as an ideal of teaching and research in social science, it became particularly strong in West German universities after the Second World War. Eduard Bernstein, along with August Bebel, Wilhelm Liebknecht and Ferdinand Lasalle one of the founders of German Social Democracy, cloaked this opinion in the famous words: 'No one today would speak of a "liberal physics" or a "conservative chemistry". But should this be any different for the science of human history and institutions? I, for one, say no, and cannot consider a liberal, conservative, or socialist social sciences anything but a contradiction in terms'. [9]

But what is the value of being free of values and value judgements? A very cogent answer is supplied by Gebhard Kirchgässner, Professor of Economic Policy and Econometrics at the University of St Gallen: 'The purpose of the theory of value-free science first postulated by Max Weber is to generate statements that are objective, valid and "true"'. [10] In 1904 Max Weber published his attention-grabbing

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contribution 'The "Objectivity" of Knowledge in Science and Policy' in the *Archiv für Sozialwissenschaft und Sozialpolitik*, in which he explained in depth his theory of value-free social science. At the 1964 congress of the German Sociological Association in Heidelberg, Talcott Parsons then identified three 'intellectual strands' as being crucial for Weber's thinking. According to Parsons it was German historicism, utilitarianism and socialism in its Marxist form that led Weber to develop his maxims of value-free science in clear distinction to these theoretical points of reference.

At the same time, the founding father of German sociology was well aware that a separation of the two 'heterogeneous' spheres of 'is' and 'ought' could hardly be upheld, given that scientists always act not only as members of a scientific community, but also always as emancipated citizens with their own (mostly well-considered) interests and standpoints. This applies all the more to sociologists, who deal particularly deeply and extensively with the mechanisms, the values and the failures of a society.

One important reason why the German understanding of science is to this day particularly strongly influenced by the principle of neutrality is without doubt to be found in 'our' history, which provides plenty of good reasons to value a balanced representation of political and historical matters. [11] But still, there would be much to learn from the Anglo-Saxon scientific community, which is characterised by a considerably greater readiness to take clear positions (generally coupled with a refreshingly clear and sometimes even humorous diction) and by a willingness to give space to opposing views at conferences and in textbooks. This does more than just enliven the debate; it also has a positive effect on the knowledge gained by each individual.

Ultimately that means that conflicting opinions should not merely be respected but should be put to good use, because knowledge gained through interaction with counterarguments gets us a good deal further than 'stewing in our own juice'.

V. Orientation Towards a Broad Public

If science research is to be brought to a broader public, be that school students, newspaper readers or other interested circles, the issues must not only be presented in a didactically condensed form, but also 'brought to life', i.e. emotionalised, individualised or even caricatured. If this is borne in mind, provocative descriptions in popular science and newspaper articles need not deepen ideological divides but can serve instead as the starting point for lively debates. In the course of these it will of course rarely be possible to bridge the divide. But discussions with proponents of opposing views do offer the opportunity to explore the 'opposing' position in more detail and in order to hone one's own standpoint by dealing more precisely with the arguments against and/or to adopt at least some of the new insights.

What could be better than to bridge ideological divides with rational arguments? As the French painter Francis Picabia said about seventy years ago, 'God made our head round, so that our thinking can change directions'; a statement that was to become the guiding principle for the debate about 'openness' in science.

VI. Conclusion

Above and beyond the debate over the future of the universities, a valuable answer to the question why we urgently need a less blinkered way of thinking is supplied by the observation that science depends on doubt. Science strives for explanations, only to overturn them again. Rarely do the 'ruling ideas' last for long, because the path of enlightenment can normally only be trodden if we direct our gaze to the left and right as well as forwards. Pushing ahead all too quickly is seldom rewarded with (long-term) success. In other words after two steps forwards we should probably take one back – or at least to the side. Speaking less metaphorically that means that our own standpoint needs to be checked regularly by keeping an eye out for discussion partners, colleagues and editors who hold opposing views and can thus exercise substantive criticism.

The great majority of social scientists are well aware of the tensions between the theoretical and the empirical, between of 'is' and 'ought', and of the extent to which values affect their thinking. Anyone who is 'absolutely' convinced of his opinions – and thus opinionated – is in truth acting politically. Of course there is no doubt that socially relevant science (especially its findings) must be condensed and formulated in a succinct form that will give it media resonance. Scientists only act in a socially relevant way if they refuse to be stopped by sociopolitical stop signs (mostly self-imposed) but instead come back again and again to consider the opposing views.

Taking a look at 'practical' politics in Germany could contribute to overcoming boundaries in the social sciences that are set by society or party politics. For example, it is commonplace at the local, state and national levels for experts from the different political parties to exchange views in inter-party talks. In this context it is worth recalling the growth in (parliamentary) acceptance of Alliance 90/The Greens. In its early years its deputies were denounced as 'squatters', 'terrorist sympathisers' and 'stone-throwers' by leading conservative politicians, but by the mid-1990s the reservations were disappearing thanks to an informal discussion group of young Christian Democrat and Green deputies. Local government alliances between the Christian Democrats and the Greens are no rarity any more, and since the last national elections in 2005 it would seem that the dreams of such coalitions at national – or at least at state – level could come true.

Without going any more closely into the actual processes of adaptation that have occurred in the Greens and the other parties, it cannot be denied that for example the environmental and climate change policies brought forward by the one-time 'anti-party party' have now become the political consensus – although the 'ecology party' first had to endure a lonely existence inside and outside parliament for many years. Political standpoints that were initially categorically rejected but later migrated to the centre ground of society and acquired

cross-party majorities could be listed for other parties too. That suggests that scientific – especially sociological – discussion culture should always give room to the greatest possible bandwidth of standpoints. Ultimately one of the main tasks of science and politics is to speak out for political and economic change by counterposing to the (poor) reality a desired, in some way better state.

Here with respect to scientific, media and public discourse it should not be forgotten that science 'builds not on rock, but on marshland' (Popper). One stops ramming in the piles not when some solid layer or other has been found, but when one hopes they are sufficient stabile to support one's theories: 'Where we thought we were standing on firm secure ground, in truth everything is uncertain and unstable'. [12] Universities, foundations and the media should always have an open ear for the 'opposing side' – after all it might turn out to be right in the long term.

REFERENCES

[1] R. Hedtke, Die Kontroversität in der Wirtschaftsdidaktik, in *Gesellschaft, Wirtschaft, Politik*, Vol. 51, No. 2, 2002, pp. 173–86.
[2] T. Grammes, Kontroversität, in *Handbuch politische Bildung*, Wolfgang Sander, Ed. Bonn 2005: Wochenschau Verlag, pp. 126–145.
[3] M. Seiler, Das Elend des Historizismus: Über Karl Raimund Popper, in *Die Zeit*, January 15, No. 4, 1992, p. 45.
[4] K. R. Popper, *Die offene Gesellschaft und ihre Feinde*, Vol. 2, 8th ed., Tübingen 2003 (1958): Mohr Siebeck, pp. 18–19.
[5] ibid., p. 131.
[6] W. Lotter, Der Furz des Herings: Wer forscht, hat recht: Wissenschaftler gelten immer noch als klug, rein und gut, in *brand eins* Vol. 10, No. 1, 2008, pp. 112–15.
[7] ibid., p. 115.
[8] C. F. v. Weizsäcker, *Deutlichkeit: Beiträge zu politischen und religiösen Gegenwartsfragen*, Munich and Vienna 1978: DTV.
[9] R. N. Proctor, *Value-Free Science? Purity and Power in Modern Knowledge*. Cambridge and London 1991: Harvard University Press.
[10] G. Kirchgässner, Wertfreiheit und Objektivität in den Wirtschaftswissenschaften: Mythos oder Realität, in *Werte in den Wissenschaften – 100 Jahre nach Max Weber*, Gerhard Zecha, Ed. Tübingen 2006: Mohr Siebeck, pp. 137–182.
[11] R. N. Proctor, *Value-Free Science? Purity and Power in Modern Knowledge*. Cambridge/London 1991: Harvard University Press.
[12] K. R. Popper, *Logik der Forschung*, 6th ed. Tübingen 1976 (1934): Mohr Siebeck.

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