

SCIENCES AND EDUCATION WITHOUT FREEDOM OF SCIENCE AND FREEDOM OF CONSCIENCE ARE NOT SCIENCES AND EDUCATION AT ALL

Josephine Papst¹

Throughout history, ideologies have been bound to established institutional powers of particular political doctrines, churches, religious institutions or a particular social system. Very recently, freedom of science and freedom of conscience were declared in order to guarantee for scientists, researchers and students the human right of being free and independent from political and institutional indoctrination and safe from prosecution in favour of the immanent aim of sciences to reach truth or the most appropriate result.

In this paper I argue that there exists a contemporary practice – within scientific and educational institutions and between scientists – which denies and gives up freedom of science and freedom of conscience. Furthermore, that this is scientific, social and institutional malpractice and a destructive way within sciences and societies. Some examples of this practice in Austria will be shown.

The aim of this paper is to advocate freedom of sciences, freedom of education and freedom of conscience as the essential values in favour of an open-minded, human, creative and eudemonic society – for our contemporary world and all the future.

1. THE SLIPPERY SLOPE FROM SCIENTIFIC THEORIES TO SCIENTIFICALLY JUSTIFIED IDEOLOGIES IN TERMS OF TRENDS

At the beginning of philosophy or of sciences there were the questions on what there is, how to understand the world, how to reach truth how we can grasp it. The ontological question *On what there is* was the most elementary one. Ontology was intrinsically connected to the aim of arriving at truth. It was epistemology that tried to define the conditions for achieving objective truth. In the twentieth century epistemology became a new name, namely theory of knowledge, whereby knowledge is regarded as somehow connected to truth, depending on the concept of truth used and to the according particular theory of truth.² Knowledge is laid down by statements

¹ President and Scientific Director of indexicals – Centre for Transdisciplinary Cognitive and State-System Sciences, Graz, Austria. E-mail: josephine.papst@indexicals.ac.at

² Compare for instance the non-doxastic version of truth formulated by John Pollock. John Pollock, *Contemporary Theories of Knowledge* (Savage: Rowman and Littlefield, 1986); John Pollock, "Epistemic Norms" in *Synthese* 71 (1987), 61–95. See also my criticism: Josephine

or sentences and, therefore, the different kinds of doxastic and non-doxastic theories of knowledge ascribe truth to sentences believed by a person or a society. A confusion has been established with respect to the notion of beliefs, true beliefs, information, true information, and objective knowledge by virtue of the lack of distinction between these notions. After the linguistic turn in philosophy and the formal approach to truth formulated by Alfred Tarski³ in the 1930's, truth became its semantic interpretation, although correspondence between a particular sentence and a particular state of affairs is required and implicitly presupposed. The Tarskian schema, which is still influential in philosophy, works with the *de re* notion of a relation of correspondence, although it rejects ontological commitments. In favour of such kinds of semantic approaches to truth ontological approaches to truth were rejected, because they were evaluated as metaphysical, having no place in the sciences.

In whatever way sentences are established to enter a procedure of logical deduction, once the formal procedure is entered upon, the question of truth becomes a formal one. What will be investigated within a procedure of logic simply is whether or not a particular consequence follows from the given premises according to the rules of the particular system of logic chosen. There are, of course, many systems of logic available, such as classical logic, first-order and second-order logic, three-valued logic, many-valued logic, quantum logic, natural style deduction and others. Yet, as already said, logic is always a formal proof that does not ask for the truth of its premises at all.

Furthermore, based on the twentieth century militant-style rejection of ideologies and metaphysics by the members of the Vienna Circle, epistemology was mostly replaced by the theory of science. The scientific program advocated by the Vienna Circle is called *Neopositivism*. *Neopositivism* accepts only empirical statements grounded in empirical observations and proofs of mathematics and logic. Nevertheless, the question of how to formulate scientifically valid theories is still an open and controversial question, and therefore, of high relevance – especially when it come to making them have effects on people, societies and our environment. The self, the mind as non-physical entities, free will, values,

Papst, "About the Impossibility of Epistemic Justification in Terms of Epistemic Norms," in *The Role of Pragmatics in Contemporary Philosophy: Vol. 2*, ed. Paul Weingartner, Gerhard Schurz and Georg Dorn (Kirchberg am Wechsel: Austrian Ludwig Wittgenstein Society, 1997), pp. 747–752.

³ Alfred Tarski, "The Semantic Conception of Truth," in *Philosophy and Phenomenological Research* 4 (1994), 341–375. Alfred Tarski, "The Concept of Truth in Formalized Languages," in *Logic, Semantics, Metamathematics* (Oxford: Clarendon, 1956); Alfred Tarski, "Truth and Proof," in *Scientific American* 220 (1967), 63–77.

and everything that is not accessible in terms of procedures of measurement were and are strictly rejected as scientifically unacceptable metaphysical issues. The argument for this method of elimination is that sciences have to have an empirical source, and only if based on observable or empirical data and the correct formal procedures can a theory be accepted as scientifically correct. Without going into the problems of obtaining empirical or observable data in the different fields of sciences, the argument has some plausibility as long as there do not occur examples that use manipulated data as an empirical source. The aim of the neopositivist doctrine was to avoid metaphysics and ideologies: it was an anti-metaphysical program. For instance, on the basis of these assumptions Descartes, Kant, and others were rejected.

Against this background the following question arises: could a scientific theory based on the neopositivist program become a pure ideology or a systematic strategy of defamation which denies reality? The answer to this question will be *yes*.

In the following I give a proof to show that based on the neopositivist program a scientific theory has the power to establish an ideology, although the theory claims not be an ideology but a scientific theory. This proof is the *slippery slope* from Neo to NeoNeo. Three elementary scientific methods are used: reduction, elimination, and a wide circle.

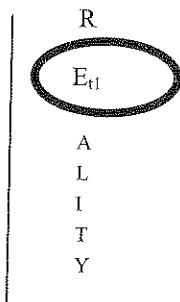
1.1. THE SLIPPERY SLOPE FROM NEO TO NEONEO⁴

NEO is an empirical theory (*T*) that is formulated in QLI with identity, whereby V_T is the vocabulary of (*T*) and S_T are the well-formed sentences that can be formulated in (*T*). (*T*) continues as (*T'*), (*T''*), (*T'''*), ... by virtue of the application of the scientific METHOD OF REDUCTION:

I. STEP:

$$T = \langle V_T, S_T \rangle$$

V_T contains (i) terms of logic and mathematics,
 (ii) theoretical terms (*THT*) and
 (iii) terms of observation (*OT*),
 whereby a *THT* will be defined with the help
 of rules of translation, such that
 $THTx = OTx$
 $THTe = OTe$



⁴ A first version of this argument was presented in my talk, *Konsequenter Realismus: Das Prinzip der Wahrheit in Wissenschaft, Recht und Kunst* at the University of Munich (Germany), Department of Philosophy, Logic and Theory of Science on November 25, 2001.

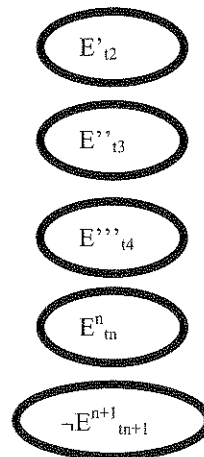
2. STEP: $T' = \langle V_{T'}, S_{T'} \rangle$

3. STEP: $T'' = \langle V_{T''}, S_{T''} \rangle$

4. STEP: $T''' = \langle V_{T'''}, S_{T'''} \rangle$

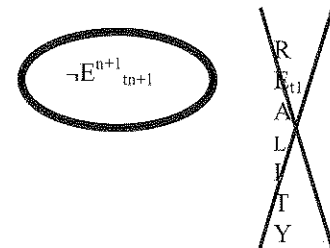
n. STEP: $T^n = \langle V_{T^n}, S_{T^n} \rangle$

n+1. STEP: $T^{n+1} = \langle V_{T^{n+1}}, S_{T^{n+1}} \rangle$



After the n+1. STEP: $T^{n+1} = \langle V_{T^{n+1}}, S_{T^{n+1}} \rangle$ NEO changes to NEONEO, which is a scientific theory that contradicts reality. At this point of confirmation the scientist or the research group has to decide what to do: based on scientific considerations such a mistaken theory should be rejected. Based on other considerations – which shall not be discussed here – the scientist or the research group continues successfully by virtue of the application of two further scientific methods: the method of elimination and the method of the wide circle. Due to these methods NEONEO is scientifically established and has the institutional power to be used successfully over reality: over the living world and over people and societies.

NEONEO ELIMINATION AS THE SECOND METHOD OF CONFIRMATION; THE WIDE CIRCLE AS THE THIRD METHOD OF CONFIRMATION



NEONEO is a pure ideology that claims to be based on empirical data and to use only methods of mathematics and logic, but in fact does deny empirical data and reality, Q.E.D. Besides the scientific method of reduction, the scientific method of elimination is used to eliminate all the data that disturb the established theory that has been developed based on manipulated data. The third scientific method used is the wide circle. An explanation is said to be a circle if it has the following structure: 'a' is explained by 'b' and 'b' is explained by 'a'. An explanation or a theory is said to be a wide circle if it has the following structure: 'a' is explained by 'b' and 'b' is explained by 'c' and 'c' is explained by 'd' and 'd' is explained by 'a', and so forth. Such kinds of circles were regarded to be mistakes of scientific theories due to the fact that they do lack the appropriate kind of evidence. However, nowadays it is commonly accepted that a circle is not at all a problem for a scientific theory if it is large enough.

The crucial point is that NEONEO is a scientifically perfect theory, although it has one slight drawback: it contradicts reality. Nevertheless, NEONEO is scientifically justified, and therefore it is said not to be an ideology because ideologies lack a scientific justification. Nowadays such kinds of theories that are commonly accepted are called trends. They do enter the NEONEO-scientific evaluation of scientific theories for the sake of public support or of spending money to work on such kinds of ideologies. Therefore, in the end what is politically selected to receive support is already known in advance, and the outcome of the scientific investigation is also certain. However, it is simply no scientific theory, but rather a fake. The way from a scientific theory to an ideology or a fake is always a possible option that a scientist should be aware of. The *slippery slope* from NEO to NEONEO is not simply a scientific problem but a problem for societies and humanity within a global culture that claims to be committed to a scientific picture of the world based on knowledge and reliable information.

2. HOW DID SCIENCE BECOME IN SOME PARTS A DISGUSTING SHAPE?

Frederick Grinnell wrote in the year 1987 in the "Preface" to *The Scientific Attitude*: "My seventh grade science teacher, Leon Perkins, characterized science as "serious play." That sounded good to me, and after completing the typical secondary school science curriculum, I went on to major in chemistry in college. [...] There were features of science, however, that I

found puzzling and bothersome."⁵ Retrospectively Frederick Grinnell formulates the problem in his "Preface to the Second Edition": "In 1983, when I started writing *The Scientific Attitude*, issues relating to fraud and conflict of interest had not yet reached national prominence. By 1989, however, three different subcommittees of the U.S. House of Representatives were holding hearings on fraud in science as were committees sponsored by the National Academy of Sciences and the American Association for the Advancement of Science. In response to the changed situation, I decided to revise the first edition of my book and add a thorough discussion of scientific misconduct."⁶ Later on there appeared several reports on scientific fraud and different kinds of scientific misconduct and scientific malpractice that can not be discussed in this paper because of limited space. Yet while the USA has seen a demand for clarification of the serious issues of scientific fraud, misconduct and malpractice, within Europe such a demand has very rarely been focused on seriously. Within Europe and especially within Austria these serious issues remained a subject of pure entertainment to show that scientific fraud and malpractice in the sciences are curiosities that happen outside Europe somewhere else in the world, such as within the USA, Japan and all the underdeveloped countries that lack the high legal standards of the European countries, especially the members of the European Union. All these countries enjoy the high social value of being founded on knowledge and information based on democratic constitutional principles and basic human rights. Ethical commissions are established to prove that everything within the sciences and scientific education runs in the officially-declared way and in accordance with the standards guaranteed by the basic human rights. For instance, in England, where individual development of personality is traditionally the essential characteristics of human education and of education at Universities, the issue of the application of human rights in education is at least academically relevant, as the academic engagement with the Human Rights Act 1998 shows.⁷ In Germany, scientific fraud and misconduct were discussed, if somewhat randomly, at the Berlin-Brandenburgische Akademie der Wissenschaften.⁸

⁵ Frederick Grinnell, *The Scientific Attitude*, 2nd edn (New York and London: Guilford, 1992), p.xiii.

⁶ *Ibid.*, p.xi.

⁷ See, for instance, Nicholas Bamforth "The Application of the Human Rights Act 1998 to Public Authorities and Private Bodies," *Cambridge Law Journal* 58, no.1 (March 1999), 159-70.

⁸ For instance, see "Lug und Trug in den Wissenschaften, 13 Annäherungen," *Gegenworte: Zeitschrift für den Disput über Wissen* 2, Autumn (1998). See <http://www.gegenworte.org/heft-2/heft2.html>

Different from these approaches to achieving ethical standards in scientific practice and in scientific and higher education according to the standards of European human rights, Austria denies explicitly all these standards based on structures of malpractice in Austrian institutions of science, scientific administration and law.⁹ Based on such an institutionalised structure Austria declares itself to be the golden place where scientific fraud, misconduct and malpractice have never occurred and even could not happen. This is the thesis formulated by the leading governmental official in the Austrian Ministry of Science and Education, Sigurd Höllinger, in a manner powerfully demonstrated by the following interview¹⁰:

Gelegentlich Schmarren . . .

. . . aber keine Skandale sieht Sektionschef Höllinger

Keine Skandale, aber gelegentlich Schmarren: Das ortet der Sektionschef im Wissenschaftsressort, Sigurd Höllinger, bei Publikationen heimischer Forscher.

STANDARD: Schummeln heimische Forscher viel?

Höllinger: Viel häufiger wird als wissenschaftliche Leistung veröffentlicht, was keinen Erkenntnisfortschritt bringt. Das ist mindestens so schlimm!

STANDARD: Manche Habilitationen sind Schmarren?

Höllinger: Ja. Das liegt am überkommenen Zwang, im Lauf der wissenschaftlichen Karriere irgend etwas Dickes produzieren zu müssen. Was da oft zusammen- und abgeschrieben wird! Aber im Moment ist leider eine Pragmatisierung nur mithilfe der Habilitation möglich. Das soll sich aber mit der erweiterten Autonomie der Universitäten ändern.

STANDARD: Viele Wissenschaftler arbeiten nebenher als Gutachter für Unternehmen.



Unter dem Zwang, etwas „Dickes“ produzieren zu müssen, wird viel abgeschrieben, meint Sektionschef Sigurd Höllinger.

Foto: Cremer

Leidet dadurch nicht auch Ihre sonstige Objektivität?

Höllinger: Eigentlich sollte man Großgutachter auf Schlagseiten anschauen. Das ist hoch tabuisiert, wäre aber ein förderungswürdiges Dissertationsprojekt. Es könnte ja auch befreiend sein festzustellen, dass so was nur selten negative Auswirkungen hat.

STANDARD: Wie oft werden Sie auf schwerwiegende Fehler in wissenschaftlichen Arbeiten hingewiesen?

Höllinger: Zweimal im Jahr. Wenn man dem nachgeht, dann wirkt der Korpsgeist, und dem bösen Ministerium wird natürlich überhaupt nichts gesagt. Ungefähr zehnmal im Jahr werden wir – meist anonym – auf diverse Seilschaften hingewiesen, die es angeblich erleichtern, auf Berufungslisten zu kommen.

STANDARD: Und was machen Sie damit?

Höllinger: Wenn es anonym ist: wegschmeißen.

In Austria the solution to fraud and misconduct in sciences is according to Sigurd Höllinger's final statement, "wegschmeißen". In other words, he means to cast aside all evidence of scientific fraud, manipulation, and misconduct. The Austrian public authorities seem to like *Schmarren*, which is a typical Austrian everyday sweet meal. How the process from scientific fraud, misconduct and malpractice to *Schmarren* by Austrian institutions of science, scientific administration, and law is performed is an Austrian top-secret issue.

In short, the result of Höllinger's statements in the interview is that sciences and scientific education are not possible without fraud, malpractice and so forth, so that these features have to be accepted in sciences and higher education. The reason for this claim is not that it could be scientifically justified or that it is in accordance with the standards of the basic human rights, but only by virtue of the effective oppressive power within Austrian institutions of science, scientific administration, and law. The outcome is justified by an effective application of pure administrative power and methods of oppression by the scientists responsible, which demand for the elimination of all the proofs of fraud and malpractice within scientific, administrative and legal institutions.

3. HOW COULD AUSTRIA DIFFER SO MUCH FROM OTHER EUROPEAN COUNTRIES IN PRESERVING EFFECTIVE REACTIONARY STRUCTURES OF POWER BASED ON FRAUD AND MALPRACTICE?

This is a very serious and difficult question. An answer to it has to start with the political, scientific, legal and administrative situation of the different kinds of public institutions in Austria after the end of the World War II. Contrary to the brute facts of social reality in Austria, Austria declared itself to be a victim of Germany. As a victim Austria was not forced to reflect on how the Holocaust happened and did not feel itself to be implicated in its cruelties. After 1945 many of the responsible public authorities, students and people could continue the way they had become used to during those years. They were said not to be responsible for the cruelties they committed or in any way guilty of them and they learned how to continue in very similar ways, but in a much more sophisticated version. Against the background of reactionary features in the shape of a somehow old-fashioned brute version of reactionary political events within Austria in the nineties of

⁹ Josephine Papst, *The Problem of Systematic Manipulation in Austrian Institutions of Science and Law*, <http://gewi.uni-graz.at/~jpapst/>

¹⁰ Interview with Sigurd Höllinger, *Der Standard*, May 29, 2000, 2.



the last century, there appeared an interview¹¹ in the Austrian newspaper *Der Standard* with Massimo Cacciari, where he states that the contemporary anti-fascism in its nostalgic mood is not able to grasp the political situation correctly, since the social and political danger no longer comes from fascism, but rather from different kinds of manipulation and from manipulating public opinion.

With regard to Austria – in addition to this – to this day there is *is censorship applied against the victims of crime committed by scientists, scientists in administrative function, public authorities, judges, and lawyers*. To give a proof of that situation I quote at least one document circulated by the Styrian chamber of lawyers: “werden Sie [...] verständigt, dass Mitteilungen an die Öffentlichkeit und über nichtöffentliche mündliche Verhandlungen gemäß § 79 des Disziplinarstatutes untersagt sind.”¹²

Although here in Austria the collection of manipulated documents and forgery in science, scientific administration, criminal courts, civil courts, administrative courts, the chamber of lawyers and so forth has been started by a non-governmental research institution, the investigation of them will take time, and it will also take time until the first results can be published and the opening question of this passage can receive an answer: How could Austria differ so much from other European countries in preserving effective reactionary structures of power based on fraud and malpractice?

Here a very elementary question for societies which declare themselves to be knowledge-based and information-based and are committed to the scientific picture of the world arises: is it the task of the sciences to formulate and to create sophisticated complex scientifically-proven methods and theories in the different fields of science, research and higher education for the purpose of establishing powerful oppressive institutions of various kinds to destroy humanity, societies and the living world as it exists and to justify such actions scientifically based on fraud, malpractice and misconduct, based on **NEONEO**?

Within Austria, the scientific community including the authorities in the institutions of scientific administration, in the criminal courts, the civil courts and so forth, was able to preserve a structure of reactionary attitudes or pure oppression from the early days of the Austrian version of fascism. Again, contrary to the clearly documented political, scientific, and social facts, Austria was said to have been a victim of Germany. Therefore, the

¹¹ Interview in *Der Standard*, 20 May 1994, p.3. Massimo Cacciari is an Italian philosopher who changed to politics. There he became famous for his left-wing position in the nineties of the last century.

¹² See docvie 148 (= the sign and number of the document, documentation-center vie). In English: “... you shall ... be notified that it is forbidden to bring something to public attention about the secret verbal hearing according to paragraph 79 of the ‘Disziplinarstatut’.”

Austrian responsibilities in the different governmental, public and legal institutions never had a reason to change the effective inner structure of their institutions and the attitude of mind. Besides the 2005 celebration ceremonies for “50 Jahre Staatsvertrag,” or in English “50 years Austrian State Treaty,” Austria would be well advised to declare this year 2005 as the year of “50 Jahre Heuchlerei,” or in English “50 years hypocrisy”.

4. NEONEO AS ONE VARIANT OF SCIENTIFIC MALPRACTICE THAT HAS AN IMPACT NOT JUST ON THE SCIENCES BUT ALSO ON SOCIETIES

The societies of the twenty-first century have declared themselves to be the most advanced ones since the beginning of the world, no matter when and how the world came into existence. The reason is that within the twenty-first century the societies very loudly claim to be committed to a scientific picture of the world, which no longer needs the mind because it is too complicated and scientifically superfluous, and which has given up all the fine-grained approaches to reality, myths, stories and whatever might be genuinely human. The societies of the twenty-first century believe themselves to be the smartest ones.

Whatever the so-called most advanced societies do is justified by virtue of scientific proofs. The scientific strategies yield all kinds of outcomes: reliable proofs, theories, and theses and also odd ones, namely kinds of **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES**.¹³ The **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES** are the results presented by the established scientific committees or the so-called knowledge authorities or truthmakers.

Here, I formulate an outline of the problem, firstly with respect to the sciences themselves and secondly with respect to the societies. The presentation of **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES** is scientific malpractice that has a strong impact on sciences themselves, scientific education, higher education and all kinds of education. Institutions that produce and use versions of **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES** do not allow their students, professional colleagues, and others to discuss or to publish research results that would give the proof of the mistakes within and of **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES**. Frederick Grinnell formulates this method of indoctrination in contemporary scientific and educational practice as follows: “At one time, the thesis defense served the rigorous

¹³ Compare again Section 1, “The *slippery slope* from scientific theories to scientifically justified ideologies in terms of trends” and especially 1.1, “The *slippery slope* from NEO to NEONEO” in this paper.

function of determining whether students received their doctoral degrees. Recently, however, it has become more of a final initiation rite."¹⁴

In societies such kinds of **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES** enter the decision-making process of authorities in governmental, public and private institutions and in all kinds of courts. The latter are allowed to apply **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES** to come up with **NEONEOJUDGEMENTS**, which are to be enforced on individual people due to brute force and are to be implemented in societies and the living world.

With respect to the twenty-first century, the century of the so-called knowledge-societies, there have not yet been any investigations of these serious issues carried out. Yet with regard to an analogous issue, namely that of the effects of rumour, there was formulated the self-fulfilling prophecy by Robert King Merton and Paul Felix Lazarsfeld.¹⁵ The social structure of the self-fulfilling prophecy is shown by the following example: there is a good developing bank, here we name the bank *fairness*. Yet, for instance, a competitor on the market of the bank *fairness* wants to damage this well-developing bank. Therefore, he brings into the public the rumour that the bank *fairness* is about to go bankrupt. Based on this rumour that became spread out in public all the people concerned with the bank *fairness* take their money out and break off relations with it. The result is that the bank *fairness* in fact goes bankrupt. This is exactly what the rumour predicted: the bank *fairness* goes bankrupt. This is the social structure of a self-fulfilling prophecy.

The rumour brought to public attention is an analogous example to our **NEONEOPROOFS**, **NEONEOTHEORIES**, and **NEONEOTHESES**. Different from the historical example of self-fulfilling prophecy, namely that of bankruptcy due to the structure of social effects based on rumour, all kinds of **NEONEO** work not just with the power of public opinion based on rumour, but based on scientific proofs and theories with the brute oppressive force of legal, governmental, and educational institutions. **NEONEO** is scientifically justified rumour or information or ideology that will not miss its effects: it is a sophisticated ideology in terms of trends.

¹⁴ Grinnell, p.68.

¹⁵ See the following works: Robert King Merton, "The Self-Fulfilling Prophecy," *Antioch Review* 8 (Summer 1948), 193-210; Robert King Merton, *Major Works by Robert K. Merton - Social Theory and Social Structure*, Enlarged Edition (New York: Free Press, 1968 [1949]); see especially Part III, *The Sociology of Knowledge and Mass Communications*, pp.491-582. Robert King Merton and Paul Felix Lazarsfeld, "Mass Communication, Popular Taste, and Organized Social Action," in *Communication of Ideas*, ed. Lyman Bryson (New York: Harper and Bros, 1948), pp.95-118.

All the versions of **NEONEO** are dangerous cases of impact on human beings, societies, the living world, or reality, because of **NEONEO**'s internal self-fulfilling structure with respect to a justification of itself within the scientific community and its external self-fulfilling structure with respect to the contemporary and future reality that human beings, societies and the living world are parts of.

5. FREEDOM OF SCIENCE, FREEDOM OF EDUCATION AND FREEDOM OF CONSCIENCE ARE THE ESSENTIAL CHARACTERISTICS OF SCIENCES AND EDUCATION

We human beings and the world we are part of are as we are. However, we formulate statements, myths, stories and theories about ourselves and the world. True statements correspond to something in our inner worlds and in the outer world: otherwise we consider them to be vague, open, not true or false. Within sciences based on such statements there are formulated arguments that enter some kind of a proof of logic to arrive at formally sound or true conclusions. Dependent on a particular aim, different systems of logic are chosen and applied, such as classical logic with bivalence, logic with the included middle, natural style deduction, more-valued systems, and so forth.

The immanent aim of the sciences is to provide reliable approaches to reality in all its various features and to improve in this way humanity on earth. However, reality is not a static state of affairs, but rather a dynamical process over time. To capture this dynamic process appropriately, we do need fine-grained approaches to the different features of reality. Otherwise sciences end up in versions of **NEONEO** which deny reality and humanity. The impact of sciences in the shape of versions of **NEONEO** on sciences and societies is already outlined in the previous section.

The most dangerous problem is that within **NEONEO**-shaped sciences, freedom of science, freedom of education and freedom of conscience are strictly denied. Instead of that there is an oppressive institutional structure implemented within the scientific administrative apparatus. According to the contemporary trend, arguments in favour of the necessity of an oppressive administrative apparatus are formulated in terms of money and budget.¹⁶ However, if at the same moment we give up and deny *freedom of*

¹⁶ Compare, for instance, the Austrian University Law 2002 that came into power on January 1, 2004. For the issues of the first Symposium on the anti-constitutional parts of that law, see Josephine Papst and Hans Mikosch, *Freedom of Sciences and Freedom of Conscience within Sciences - Symposium on the Occasion of the "University Law 2002."* Celebratory Hall of the University of Natural Resources and Applied Life Sciences - BOKU - Vienna, June 15, 2004

science, freedom of education, and freedom of conscience we are no longer engaged in sciences and humanity. At that moment we change to **NEONEO**.

Therefore, my conclusion is that freedom of science, freedom of education, and freedom of conscience are the essential characteristics of sciences and education.