ZAGADNIENIA
NAUKOZNAWSTWA
1 (223) 2020
PL ISSN 0044-1619

Rafał Paweł Wierzchosławski
Liberal Arts and Sciences
Collegium Historicum UAM
e-mail: rafalpawelwie@gmail.com
ORCID: 0000-0002-0460-1669

Introduction to the discussion on Agnieszka Olechnicka, Adam Płoszaj, Dorota Celińska-Janowicz, *The Geography of Scientific Collaboration*, London–New York: Routledge 2019 (Routledge Advances in Regional Economics, Science and Policy)

Extra collaborationem nulla scientia

DOI: http://dx.doi.org/10.12775/ZN.2020.001

Abstract. The discussion of the *Geography of Scientific Collaboration* took place during the pandemic summer months of 2020. Three prominent scholars, of various specialties, gave their assessment not only of the content of the book in question itself, but also of the institutional, social and cultural context within which significant transformations of the academic world are taking place. These transformations determine the phenomenon of scientific collaboration, treated as one of the determinants in the functioning of modern science. In the first part, I present the profiles and scientific achievements of the participants in the discussion: Stephen Turner, Nico Stehr and Steve Fuller. Then, I make a brief discussion of the content of the book under discussion. I pay particular attention to the aspects of center-periphery relations, which are important from the point of view of the Polish reader, and which define the types of cooperation in the global republic of scholars. Especially in the context of the possible advancement of peripheral centers in the hierarchy of important links which enable skillful cooperation with the centers. In the last section, I draw attention to the forms of scientific cooperation practiced themselves by three scholars invited to discuss Olechnicka et al.'s book, in the context of the types of man of knowledge distinguished years ago by Florian Znaniecki.

Keywords: Stephen P. Turner; Nico Stehr; Steve Fuller; scientific collaboration; internationalization (global science); center-periphery relationship; Florian Znaniecki; man of knowledge types

Three authors – Stephen Park Turner, Nico Stehr, and Steve Fuller – participate in the discussion of the book. Each of them is a prominent specialist in his field; each of them individually, and at the same time all of them together, have specifically relevant credentials to comment on the book under discussion. At the same time, it should be emphasized that the perspectives adopted, from the point of view of which the authors speak on the book under discussion, do not exactly coincide with the perspective adopted by the authors. This does not mean that the diversity of perspectives cannot bring interesting observations to the debate and show the problems discussed in the book in a broader context, thus expanding on completing the issues that the authors wanted to draw attention to in the book.

At this point, let me briefly introduce the participants in the discussion to make my point, and thus justify why they were the ones asked to speak about Olechnicka et al.'s book. Considering the discussion of scientific cooperation, I would like to take into account, first of all, their views on science (as well as technology) in the context of recent and rapidly occurring changes (especially institutional and in terms of culture) within the academic world.

Stephen Park Turner (born March 1, 1951) is a philosopher of social sciences (social practices and normativity), methodologist of sociology (causality), and works on social theory, sociology of organizations (experts studies), and history of social sciences. Turner was born in Chicago, Illinois. He graduated from the University of Chicago Laboratory Schools in 1968 and then attended, among other universities, the University of Missouri in Columbia, Missouri. Following his intellectual autobiography, one can claim that the experience of multiethnic and multicultural background has been one of the reasons of his intellectual pursuits and choices in Academia.

He is Graduate Research Professor in the Department of Philosophy of the University of South Florida, where he also holds the title Distinguished University Professor. He has held many honorary positions in Europe and USA. He received two master's degrees (one in philosophy and one in sociology) and his Ph.D. in sociology, with a dissertation on a philosophical topic, later published as *Sociological Explanation as Translation* (1980) by Cambridge University Press.

From the very beginning of his academic activity, he has been strongly influenced by Max Weber's approach to science and its meta-scientific understanding (interpretation), to politics, and value neutrality. It means that he is committed to methodological individualism in explanation of the social and the political (participants account) and that he adopts a soft-naturalist position as far as normative questions are concerned. His works include *Search for a Methodology of Social Science*: *Durkheim, Weber, and the Nineteenth-Century Problem of Cause Probability, and Action* (1986) and a book with Regis Factor *Max Weber and the Dispute over Reason and Value*: *A Study of Philosophy, Ethics, and Politics* (1984). This is connected to Turner's work on Max Weber's theory of causality, which, as Turner has shown, is derived from law and legal probability, most notably in *Max Weber. The Lawyer as Social Thinker* (1984). Weber was undoubtedly an important author who should have been read, if one had ambitions to study the philosophical foundations of social sciences (Turner 1981; 2002; Turner and Mazur 2009).

Turner has published in the overlapping fields of sociology and philosophy, particularly on the notion of practices and normativity. In *The Social Theory of Practices* (1994) as well as in *Explaining the Normative* (2010), Turner argues against collective concepts like culture (against Pierre Bourdieu and Robert Brandom): what we call culture (and similar concepts), he argues, needs to be understood in

terms of the means of its transmission. He has extended this argument in various places, most recently in relation to the philosophical idea of "normativity" which he argues is an explanation of "facts" which are the product of an unnecessary and mystery-producing redescription motivated by an attempt to take back ground from social science explanation. The concept of "good-bad theories", as causal and naturalist understanding of believes and practices of indigenous grasping of the world (reality), might be useful not only in reference to members of the primitive society, but also in reference to members of post-modern, and post-religious societies, who in spite of *die Entzauberung der Welt* may be looking for ciphers of transcendence, to apply Hubert Knoblauch's 'popular religion' concept (Wierzchosławski 2021a). This may apply to some aspects of the post-truth condition proposed by Steve Fuller in context of customized science.

In the area of political theory, Turner has argued that the rise of expert knowledge has altered the conditions of liberal democracy by increasing the importance of a new form of politically relevant inequality: epistemic inequality (Turner 2003; 2013; Wierzchosławski 2016a, 2016c; 2017; 2021a). Turner does not argue that inequality justifies the reliance on experts. Instead, he argues that this is only one solution among many to the problems produced by the fact that knowledge is distributed unequally. Deciding whether or not to accept the products of experts or expert communities is a political decision. In the experts' context, one should include the problem of politization of standpoints in Academia; one of the examples might be an advocacy scholarship, which links representation problem with axiological engagement of scholars displaying variety of standpoints in order to promote them in public discourse and ameliorate positions of minority groups members. Another example of the contestation of expertise can be found in blogosphere (Turner 2013), i.e., the circulation of views among engaged scholars, who point out misbehavior of academic administrators, as in case of Penn and Harvard Presidents (Turner 2024). To the extent that decisions by experts replace democratic deliberation or become the content of democratic deliberation, liberal democracy itself becomes transformed from government by discussion among the equally informed into contestation over expertise itself.

Turner is also recognized for his contributions to the history of sociology, especially in *The Impossible Science* (with Jonathan Turner (1990); Polish translation with an introduction of Edmund Mokrzycki, an old friend of Turner, appeared in 1993), a contemporary overview of the history of American sociology, which has been reexamined almost 25 years later as *American Sociology*, *From Pre-Disciplinary to Post-Normal* (2014a). I mention the two books devoted to the history of sociology (alongside with this intellectual autobiography *Mad Hazards*, *A Life with a Social Theory* (2022)), since they provide a wide spectrum of various factors which caused recent changes in science, technology, research and institutional frameworks of academic institutions affecting scholars' careers in crucial ways.

His contributions in this field – in my opinion – are very seminal not only for the debate over the Olechnicka et al.'s book but also for deeper insights into cogs-and-wheals of the Academia behind the stage (see Chubin and Turner's contributions in this issue)[1].

Nico Stehr (born March 19, 1942) was Karl Mannheim Professor for Cultural Studies at the Zeppelin University in Friedrichshafen in South Germany and Founding Director of the European Center for Sustainability Research. He studied economics and sociology at the University of Cologne with René König, and following his recommendations continued his studies and received a Ph.D. in sociology from the University of Oregon in 1970. Between 1967 and 2000, he taught at American and Canadian universities. During the academic year 2002–2003, he was Paul-Lazarsfeld-Professor (a visiting appointment) at the University of Vienna. He has been appointed Fellow of various research institutions and scholar association in Canada and in Europe. In 2011, Stehr created the European Center for Sustainability Research (ECS) at Zeppelin University. His research interests center on the transformation of modern societies into knowledge societies and associated developments in different social institutions of modern society (e.g. science, politics, and the economy) and are focused on these fields of attention.

Knowledge is not merely a model of reality but a model for reality. Knowledge represents a capacity to act. Knowledge and information: the substance of information primarily concerns the properties of products or outcomes, while the stuff of knowledge refers to the qualities of process or inputs.

In Stehr's periodization, post-industrial society is a stage in which innovation increasingly derives from research and development; there is a new relation between science and technology because of the centrality of theoretical knowledge, and the weight of the society is increasingly shifting toward the knowledge field.

In the next stage, the knowledge society: the significance of knowledge grows in all spheres of life and in all social institutions of modern society. This leads to a transformation of common sense itself; the growing significance of science and its manifold social utility has led to its having a virtual monopoly on the production of new socially, economically and politically relevant knowledge in modern societies – knowledge that rarely can be contested by religion, nor by politics, and in particular not by daily experience. But this does not mean that ordinary citizens are now the slaves of scientific experts (see Stehr and Grundmann 2012).

[1] A detailed bibliography of Turner's scholarly achievements can be found on his web-page https://usf.academia.edu/StephenTurner; https://www.usf.edu/arts-sciences/departments/philosophy/about-us/faculty/stephen-turner.asp and in the special issue of Poznań Studies in the Philosophy of the Sciences and the Humanities, Vol. 116 (Adair-Toteff 2021).

He has written extensively in cooperation with Hans von Stroch, and later on with Amanda Machin, on various aspects of climate change, in particular in the context of *The Hartwell Paper*, which proposes that the organizing principle of our effort should be raising up of human dignity with three overarching objectives: ensuring energy access for all; ensuring that we develop in a manner that does not undermine the essential functioning of the Earth system; and ensuring that our societies are adequately equipped to withstand the risks and dangers that come from all the vagaries of climate, whatever their cause may be. But, above all, it emphasizes the primacy of accelerating decarbonization of energy supply. This calls for very substantially increased investment in innovation in noncarbon energy sources in order to diversify energy supply technologies[2].

Steve William Fuller (born July 12, 1959) is an American social philosopher in the field of science and technology studies (Fuller 1997; 2004; 2006). He has published extensively in the areas of social epistemology (1993 [1989]), academic freedom (2002), in support of intelligent design and transhumanism (2011; 2013; Fuller and Lipiński 2014), and for the democratization of Academia in the face of the post-truth condition, customized science, and the decline of academic *Rentiership* (Fuller 2018; 2020; Wierzchosławski 2020; 2021b). Fuller attended Regis High School in Manhattan. Admitted as a John Jay Scholar to Columbia University, he majored in history and sociology and graduated *summa cum laude* in 1979. He then studied at Clare College, Cambridge, and received an M.Phil. in history and philosophy of science in 1981. He earned his Ph.D. in the same subject from the University of Pittsburgh in 1985.

Fuller held assistant and associate professorships at the University of Colorado at Boulder, Virginia Tech and the University of Pittsburgh. In 1994, he was appointed to the chair in sociology and social policy at the University of Durham, England. He moved in 1999 to the University of Warwick, England. In July 2007, Fuller was awarded a *Doctor Litterarum* by Warwick in recognition of "published work or papers which demonstrate a high standard of important original work forming a major contribution to a subject". Fuller has been a visiting professor in Denmark, Germany, Israel, Japan, the Netherlands, Norway, Sweden, and the United States (UCLA). He has also visited Poland presenting papers at various venues. In 2011, the University of Warwick appointed him to the Auguste Comte Chair in Social Epistemology. In 2011, Fuller was appointed a Fellow of the UK Academy of Social Sciences, and, a year later, he was made a member of the European Academy of Sciences and Arts in Division I (Humanities).

---

[2] A detailed bibliography of Stehr's scholarly achievements can be found on his web-page https://www.researchgate.net/profile/Nico-Stehr and in the book *Nico Stehr*: *Pioneer in the Theory of Society and Knowledge* (Adolf 2018) http://afes-press-books.de/html/PAHSEP_Stehr.htm.

Fuller is most closely associated with social epistemology as an interdisciplinary research program, understood as a normative discipline that addresses philosophical problems of knowledge using the tools of history and the social sciences. Fuller founded the first journal (1987) and wrote the first book ([1988] 2002) devoted to this topic. Along with 21 books, Fuller has written 65 book chapters, 155 academic articles and many minor pieces. He moved to the United Kingdom in 1994. Fuller has increasingly oriented himself towards public intellectual expression, including television, radio and the Internet, which he interprets as a natural outgrowth of his version of social epistemology (2005).

Given the discussion on collaborative science, it is worth noting Fuller's work is not only dedicated to the idea of the university and R&D in relation to the Humboldt tradition, but also to science for personal use, which arises as a result of mass access to information (Internet and open access) by citizens (individuals) outside the academy.

Fuller believes (modeled on what he takes to be the German model) that academic freedom is a freedom reserved for academics, not a special case of freedom of speech. This includes the right to "cause reasoned offence", if within the terms of reason and evidence appropriate to the academic profession. Humboldt as a model marker for modern university is still valid as has been claimed in his most recent book (Fuller 2023, and earlier 2000; 2002; 2016). He believes it important for academics to be able to express intellectual opinions for further debate which can result in progress. He also argues that students are equally entitled to academic freedom.

Fuller has made many statements about his support for the teaching of intelligent design (ID) and authored two books on the subject. In 2005, in the case of Kitzmiller v. Dover Area School District, he testified on behalf of a local school system in the United States that required the teaching of intelligent design. In his book *Dissent over Descent* (2008), he says he sees religion in general as a motivating influence in scientific pursuits and believes that the difference between science and religion is more institutional than intellectual. Critics have called his views on science postmodernist. In 2007, Fuller wrote *Science vs Religion*? *Intelligent Design and the Problem of Evolution*. In addition to introduction and concluding chapters, it has chapters on the history of the relationship between religion and science, the thesis that modern science has its basis in an attempt by humanity to transcend itself and reach God, and explains how Fuller believes complexity distinguishes ID from "other versions of creationism", legal issues, and the future of "Darwinism". At this point, it is worth emphasizing that Fuller's works, in which he sticks a prob into the anthill of contemporary debates, often adopting positions that are perceived in terms of the 'provocation' of a sociological *enfant terrible*,

have been met with numerous polemics and discussions, also in the ongoing public debate in the media and not only in the professional literature[3].

Since I cannot assume that the potential reader of this issue of *Problems of the Science of Science* (*Zagadnienia Naukoznawstwa*) is familiar with the book under discussion, let me give a brief overview of the book's structure.

The authors' primary concern is the turn to collaboration in current science, and they stress that science as a "collective activity". The authors point out the multiple factors that need to be taken into account in the discourse on the social determinants of scientific practices. The goal that the authors set is to analyze not only the theoretical perspective of social determination, but also to reflect on the practice of cooperation itself. The authors thus limit the scope of their topic "to relations among scientists and within science".

The first two chapters "pave the way for the remaining parts of the volume" (p. 3). The "driving forces of the geography of science" have been introduced as key concepts in order to "discuss the spatial aspects of research collaboration (Chapter 1)" (p. 3). The second Chapter focuses on "the processes that govern collaboration on the level of individuals, teams, and organizations, as well as the historical developments that led to the contemporary collaborative turn in science" (p. 3). Thus, it tackles some important issues from the philosophy of science point of view, i.e., ontological level of collaboration, and it points out that collaborative turn (what is relation to the practice turn) which seems to be a distinctive marker of modern science – *extra collaborationem nulla scientia* (or in weaker sense: *sine collboratione nulla doctrina*).

In Chapter 3, the authors present "data sources, measures, and methodological considerations for spatial studies of research collaboration" (p. 3). In Chapter 4, the spatial patterns of scientific collaboration at several territorial levels are depicted and scrutinized. They focus is on the internationalization of science, the evolution of global scientific networks, the geographical patterns of collaboration-performance nexus, and the center-periphery logic of the geography of scientific collaboration. Chapter 5 "provides explanations of the driving forces and processes that condition research collaboration in space and the theoretical framework for the geography of scientific collaboration" (p. 3). Chapter 6 "reviews research collaboration policies", and "consists of policy case studies – set in Europe, the United States, and China – as well as provides a comprehensive catalogue of tools for scientific collaboration policy" (p. 3). Finally, the authors close their book with conclusions that summarize their "key insights, reflect on possible future trajectories of the geography of scientific collaboration, and discuss challenges for science policy in the collaborative-turn era" (p. 3).

---

[3] A detailed bibliography of Fuller's scholarly achievements can be found on his web-page https://warwick.ac.uk/fac/soc/sociology/staff/sfuller/.

They point at two essential constituents of scientific collaboration. "First, the collaborative process needs two or more collaborating sides: units, people, or groups of people" (p. 41) – so we may talk about a relational approach in sociology of scientific collaboration. "Second, collaborating parties act to achieve a particular goal, to do something that would not be possible without collaboration, or would be significantly more difficult to achieve" (p. 41) – this component refers to plural person perspective (shared attitudes or we-mode) in which actors are mutually committed. "The latter is crucial for the understanding of collaboration in science. The common goal component differentiates collaboration from other forms of interaction in science" (p. 41).

In above mentioned context it should be noticed an important institutional and disciplinary output, which might be claimed to be a byproduct of the "interdisciplinary collaboration," since it "can also lead to the emergence of new scientific disciplines and research areas, such as bioinformatics, which combines molecular biology with computer science, statistics, and engineering" (p. 50). Another aspect of collaboration implies reflection on the economic and financial dimensions which are interwoven with theoretical (conceptual), and involve "intensive flows of resources (mostly intellectual, but also financial and infrastructural) among disciplines. In order to utilize such cooperation, partners have to make an additional effort to build a common understanding with representatives of distinct knowledge domains" (p. 50).

What is the profit or reward of collaboration in time of "the publish or perish"? There are some advantages: "First, it is easier to publish many co-authored papers, where the individual contributions are fractional, than to publish many single-authored works. Second, collaboration may increase the quality of publications". Mutual work, by "using the tacit knowledge and writing skills of more experienced members of the team also increases the scientific level of the publication" (p. 51). A third aspect of collaboration is intergenerational relations: "collaboration between less and more established scholars can help the former to break into highly selective journals" (p. 51). With reference to the Mertonian Matthew effect, the authors employ a strategy which might be rewarding for and promoting younger scholars:

> In particular, collaboration with a scientific star and placing him or her on the author list can increase the paper's chances for publication in a prestigious journal. Authors may assume that if an article is authored by a prominent scientist, journal editors will mitigate the review criteria for such an article. The editors and reviewers can in turn assume that a well-recognized author can vouch for a paper's content and the credibility of the presented results (p. 51).

Collaboration with a star-scholar acts as a leveraging mechanism in this case and may promote young adepts according to famous gospel observation concerning talents: "For unto every one that hath shall be given and he shall have abundance, but from him who has not, even what he has will be taken away" (Mt, 25:29) which results in the Mertonian mechanism: "success breeds success".

The question of "the cumulative advantage of credit allocation in scientific communities" refers to the already mentioned concept – the Matthew effect. The concept is usually associated with Robert Merton; however, it should be attributed to his wife Harriet Zuckerman – one of the examples of the Matilda effect (the topic which has been raised recently by the Ignorance Studies scholars as an example of intentional ignorance). In this context, "the Matthew effect equally depicts the process of accumulating new collaborative relationships by units – either individuals, organizations, cities, regions, or even countries – that already have extensive collaboration networks" (p. 59).

The rise of mass collaboration in science has been accompanied by the decline of solitary scholars, who are gradually becoming a rare – if not endangered – species. The context of star scientists, and of world-class research institutions (hub-and-spoke, phenomenon in scientific collaboration) has been discussed through the example of Hungarian mathematician Paul Erdös (1913–1996) – the effects of the two factors of being a star scholar and the spatial perspective (jet-set world mobility), illustrate the mutual relation between the two factors.

There is a significant difference in "the structure of collaboration networks in particle physics, where large teams of researchers depend on a unique infrastructure" which is "far more spatially bound than collaboration in the field of theoretical mathematics […] where solo or small team projects prevail (mavericks of the Erdös type being notable exceptions)". That is why two "dimensions that frame collaborative undertakings in contemporary science" are distinguished: "spatial and organizational". "The first one is "exemplified by projects that either need a unique infrastructure (say a large cyclotron) or have to be conducted in a unique environment (e.g., a distinctive Himalayan ecosystem)". The second one "encompasses research that can be performed in any – in principle at least – location (such as the previously mentioned theoretical mathematics)" (p. 119).

> Analysis of the development of structures and institutions involved in international scientific cooperation involves considering various aspects of this phenomenon, it might be focused on issues like: (1) internationalization of science and its varied dynamics, (2) formation and evolution of global scientific networks, (3) the collaboration-performance nexus in the geography of science, and (4) the center-periphery logic of the geography of scientific collaboration. Before we go into details, it is worth taking some time to discuss the rationales and assumptions underlying the presented approach (p. 77).

The ontological implementation of scientific collaboration can occur at different levels. The basic one is "the micro-level – where individuals and organizations get their hands dirty with everyday collaboration"; however, the other (higher), i.e., the mezzo and macro levels, "are the most relevant from the perspective of the global geography of science" (p. 77). In this perspective, it should be observed that "the type of collaborative links and the scope of collaboration affect the strength of the impact. In other words, the influence of the collaboration factor is not zero-one but rather gradual" (p. 100). There are also some behavioral patterns which govern (or at least support) collaboration. "Firstly, links to stronger partners are more valuable than links to less developed ones" (p. 100). It can be valid on all levels, both individual and institutional. "At the individual level, it is particularly beneficial to work with various established scholars or groups that are otherwise not too strongly interconnected. Parallel effects can be observed at the regional level" (p. 100). Secondly, significant is the qualitative aspect: "more collaboration translates into greater impact. The number of citations received by a publication grows not only with the growing number of coauthors but also with the increasing number of unique organizations, cities, and countries involved in the preparation of a collaborative publication" (p. 100). The third factor refers to the qualitative aspect of research performance which depends "on their position in the overall collaboration network" (p. 100).

Although there is no specific theory of scientific cooperation, as the authors observe, it is not surprising that researchers refer to, or at least adopt, sociological and historical theories as general assumptions and frameworks. Global and international nature of scientific cooperation evokes holistic social (more specifically, historical-socio-economic) theories, which are used as a kind of theoretical framework within which the subject matter is addressed. One of these is Immanuel Wallerstein's concept of the world-system, which continues the Marxian tradition and the Annales school, creatively modifying and developing them. *La longue durée* has been enriched by the notion that core and periphery play complementary roles in the global system.

> The core is at the forefront of socio-economic and technological development, while the periphery provides cheap labour and low-processed resources. In the case of science, this is manifested by the fact that new ideas are generated predominately in the centre and then imitated in the periphery. Furthermore, the world-system is composed not only of core and periphery, but also of semi-periphery (p. 102).

It follows that "the global scientific system is thus multi-level" since "semi-periphery acts as a periphery to the core and as a core to the periphery" (p. 102). As consequence, authors point out, that:

> the system is segmented into macro-regions within which horizontal relations are dense. Horizontal relations occur especially among core countries, while between core and periphery relations tend towards domination and subordination (p. 102).

Reference to Wallerstein's scheme, treated by the authors as a conceptual framework in which the phenomenon of various forms of cooperation can be grasped (captured), appears not only in the work of Olechnicka et al., but also in the autobiographical book discussed by Daryl Chubin on the issue of scientific careers, which are closely linked to spatial relations and the positioning of the centers entering the network of geographic ties, located on a certain continuum from central to completely peripheral. The issues that the mentioned authors write about seem to be important also from the perspective of the Polish reader. Thus, it is worth noting the aspects of careers from the point of view of an individual who wants to develop in a particular field and must adopt appropriate strategies that, under favorable circumstances (windows of opportunity), will allow a young student's dreams and plans in science to come true.

The ability to move up the structure (the promotion ladder, by pursuing more degrees, post-doc's, grants and research positions) is of considerable importance in the development of the individual career. At the same time, the authors here point out the structural and institutional factors at work – whether we are dealing with centers or peripheries. In both cases, science managers either consider the criteria for selecting the best who will be able to develop their talents in the structures they manage and contribute to the growth of the center; here, the dilemma to which Chubin (careers in academia, this volume) draws attention is how to balance the talents from the world in relation to their own resources, especially when it still involves equalizing educational opportunities for representatives of previously excluded groups, or at least with a limited path of social advancement through science and technology. Geography matters – in a global as well as local sense. A slightly different approach takes into account the governance of science from peripheral, semi-peripheral countries, or as they develop more and more towards the centers. An example of this mechanism discussed by both the authors of *Geography of Scientific Collaboration* and by Chubin (this issue) is the policy of China, which for years has invested heavily in the study abroad of its students, some of whom later take further career paths in Western countries.

> There is nothing small about China, nor about Chinese science. The Chinese scientific sector has experienced incredible growth and one cannot deny that in the last 40 years government policy – with the visible hand of the Chinese state – has played a crucial role in these developments (p. 154).

It should be noticed that in the case of China, the cultural background has been the opposite:

> The roots of the uncollaborative environment are deeply embedded in Chinese culture and history […] The Confucian tradition does not support collaborative behaviour. It attaches great importance to the social hierarchy, loyalty, and subordination to authority (p. 164).

But although tradition and cultural conditioning can undoubtedly be an obstacle, the system of institutional (top-down) stimuli and incentives can initiate a mechanism for changing attitudes and gradually moving from the phase of "in many areas of research, Chinese scientists have changed from being a raw-data exporter" to "to the source of creative ideas" (p. 161).

With the degree of shift from the periphery to the center, the demand for educated R&D professionals increases, as the status of the country's university and research units changes and they are inclined to offer research conditions that increasingly resemble (or aspire to the level of) the countries of the center. Thus,

> Due to intensive science diplomacy, the Chinese science system is today closely intertwined with the worldwide network of connections […]. The priority given by the Chinese government to international scientific collaboration is manifested in the Chinese presence in numerous international research projects, including the largest and the most cutting-edge (p. 159).

Despite the increasing scale of international collaboration, the big issue is the character of the involvement of Chinese participants in international scientific projects. The role of Chinese scholars is gradually changing, from being passive workers to proactive collaborators, based on a win-win basis and with more equal responsibilities and tasks (p. 161).

Given the scale of the project, "the 2.24 million students and scholars that went overseas in the years 1978–2012", and the fact that "only one-third have returned to China" (p. 161), the fact of significant "loss of human capital" has become a major concern for the Chinese government. As a result, China has implemented many programs focused on its highly skilled overseas diaspora. On the one hand, we can observe a strategy of incentives and encouragement to return (scientific patriotism), but on the other hand, the value of the fact that some remain and make careers in the center itself may be recognized and appreciated by the authorities of "provincial" country, since scientist who decide to stay abroad can still support (in various ways) development in the country of their origin.

> An important policy development occurred in 2001, when China shifted its diaspora policy from the notion of "return and serve the homeland" (*huiguo fuwu*) to a more

> flexible "serve the homeland" (*weiguo fuwu*), which means keeping contacts with the homeland, collaborating from a distance, and supporting the development of Chinese science, but not necessarily returning to China (p. 163).

Another feature that significantly characterizes scientific cooperation, and which is pointed out by the authors of the book under discussion, is competition. Competition in the individual aspect concerns individual careers, competition, and cooperation. But each of those researchers who have achieved dominant positions strives to make his mark on the Earth, although, as the text of Chubin and Turner (this volume) points out, this mark is becoming more and more a collective mark, involving large research teams and laboratories, rather than one in which a single scientist dies, who, according to the old image of science, having ripped out nature's secrets, like brave Prometheus, stoles fire from the Gods. On the other hand, competition in the structural and institutional aspect, concerns collective entities like states or supranational creations such as the European Union, and raises the question of how to define goals achievable at a given level of development in a given country and its immediate or further surroundings. Thus, the issue of spatial relations is as relevant as possible for science policy; countries (states) want to win, at least in the areas they define as their own (national) specialties, and at the same time, striving to win, they must appropriately distribute the forms of cooperation with other centers (including the exchange of achieved results).

An important factor which is discussed in this context is the question of trust. They distinguish two dimensions of this issue:

> Affective trust relates to interpersonal bonds among people and is manifested in the feeling of security and perceived strength of a relationship. Cognitive trust is based on judgments of a partner's scientific credibility, competence, and reliability, confirmed by their reputation (p. 53).

The second one is more important; they recognize that "collaborating scholars from various institutions, countries, and cultures often have limited possibilities to build mutual trust based on personal relations" (p. 53). Another significant question challenging interdisciplinary (transdisciplinary, etc.) collaboration refers to the linguistic dimension:

> different disciplines may use the same terms with various meaning. […] A good illustration is the term "map", originating from geography, where it usually refers to a generalized, mathematically defined representation of all or a portion of the planet's surface, including discernible elements of scale, projection, and symbolization, showing the distribution, state, and relations of various natural and social phenomena (p. 54).

The problem has only been mentioned; however, it deserves much more attention. Here, the authors mention inter- or transdisciplinary differentiation of meaning, but as far as collaboration between people coming from different countries is concerned, even if the vernacular of collaboration is English, meanings in conceptual schemes in their own mother-languages still underlay people's thoughts. Some important work in this domain has been done by Barry Smith and the ontological analysis team from Buffalo University (regional ontologies, like geo-spatial, biomedical, biological ontology, intelligence, defensive and security ontology, etc.; more on site: https://ontology.buffalo.edu/smith/).

An essential question is whether and what does the sociometric approach to the question of scientific collaboration analyzed in terms of spatial variation (place of collaboration) tell us about changes within science itself, or within its institutional social and economic environment (see Kulczycki 2023).

The issue of scientific cooperation in its dynamic dimension (historical development) is the aftermath of the ever-increasing involvement of the state (or supranational institutions such as the European Union) in shaping scientific policy and supporting various scientific and technological projects, the significance of which is not always purely scientific, but sometimes symbolic (political) in the context of rivalries between nations, political systems or military blocs (e.g., a flight to the moon or the launch of the first satellite). This issue is discussed both in Olechnicka and Co.'s book and in Chubin and Turner's article. In both discussions, a key figure of MIT and the Carnegie Institution of Washington, is Vannevar Bush, with his influential 1945 report to the President of the United States entitled *Science*: *The Endless Frontier*. Bush emphasized the critical importance of basic research. It can be said that the appearance of this item represents a watershed moment in the development of contemporary science, which is increasingly becoming an enterprise controlled by the scientists-managers (or scientists-managers delegated by them) of scientometrics (sociometrics) who manage it. To quote a remark cited in the book from *The Economist* ("Proteins and particles", 1999, p. 85), forcefully summarized the global dimension of science:

> Depending on your point of view, America is either a land of opportunity in which genius blossoms in ways that are impossible at home; or a talent-sucking vampire that bleeds other countries of their human capital by wickedly paying more and offering better laboratory facilities (quoted by Olechnicka et al., 2019, p. 151).

Collaboration and interdisciplinarity – the practice experience of the book discussants

It is important to note the important point that the three authors who agreed to post their voices in the discussion on the geography of scientific collaboration have personal experience in the area of scientific collaboration (in different senses,

by the way). On the one hand, there is collective authorship (writing) of texts with collaborators from other scientific disciplines (e.g., climate – von Stroch (1994; 2010) or Amanda Machin (2020)); another form of collaboration can be "intentional" (goal oriented) collaboration – that is, such a selection of collaborators whose skills, or knowledge, are necessary to realize a specific goal, that is, the study of a certain issue. An illustrative example would be Stephen Turner's collaboration with Regis Factor in the study of Weber's legacy (1981; 1994), the status of translations at the time, source knowledge of German texts (Regis in the case of Weber), or in the case of Kelsen (Mazur 2003; 2023), which were not known, at least sufficiently, by the interpretive side. Still another type of collaboration is with younger partners, with students, or doctoral students; examples include some of Nico Stehr's work with Amanda Machin – climate (2020) and social inequality (2016), and with Dustin Voss – what is money (2020), or Steve Fuller's work with Veronika Lipinski on transhumanism (2014), or Turner's with Christopher Adair-Toteff on history of sociology (2019).

A distinction must also be made between collaboration in the narrow sense, joint publication, and collaboration in the broad (or derivative) sense: in the latter sense, we are dealing with the appropriate of certain conceptual frameworks (schemes), which are taken over by other authors, e.g., for application, sometimes in a modified or derivative way for their own purposes. This type of treatment can occur already in a one-way sense (application), already in a multi-directional sense (modification of inspiration flowing from multiple authors, which necessarily implies modification (e.g., of a syncretic nature). The question of this type of dependence is particularly relevant in the perspective of center-periphery relations. This question is by no means simple, because it may turn out that certain peripheries in the central country (in the perspective of global science), are a point of reference, if only for the reason that only certain local centers in peripheral countries have channels of contact with institutions located outside (Turner and Mokrzycki 1993 or Turner and Kässler 1992).

In this context, a question arises about the nature of (extended) derivative cooperation, especially in the perspective of center-periphery relations. On the one hand, one may wonder whether peripheral use (adaptation) is not a form of "parasitism" on the ideas (concepts) of the centers, or whether it is not a certain form of "tie-in sales", where the peripheral author, who uses, adapts or transforms (modifies), sometimes combining or confronting with local traditions certain concepts from the centers, leads to their diffusion and a convergence of local intellectual traditions with the emerging new elements.

A separate issue that should be mentioned is cooperation in the context of exchange of ideas, including (a) conferences (especially thematic conferences), and (b) papers (materials) from these conferences. An example of this type of cooperation can be found in the book published by Nico Stehr and Reiner Grundmann on

power on scientific knowledge (2012) or with Peter Weingart on interdisciplinary cooperation (Stehr and Weingart 2000), which includes texts by S. P. Turner on the issue of scientific disciplines and interdisciplinary relations between them (Turner 2000b).

Editorial cooperation on the occasion of the publication of companions – contemporary *summae* or *quesiones disputatae* on a given topic is another example. It seems that from the point of view of defining the scope and content of a particular discipline, this type of work is particularly important, because it codifies the range of issues and topics (content) that are proposed in the didactics of individual subjects. Also, the fact of selecting specific authors who are invited to elaborate on particular texts is significant, since the very fact of invitation and acceptance of a text in this type of textbook indicates a certain consensus of the community of scholars that they are competent enough to teach (*venia legendi*) (Turner and Roth 2003; Turner and Risiord 2007; Turner and Delanty [2011] 2022; Turner and Outhwaite 2017).

Olechnicka et al.'s work suggests that that any cooperation is inextricably linked to competition. But it should be remembered that with regard to certain issues, we can note the existence of at least several companions that compete within educational institutions for selection (via tutors) in the teaching process in academic institutions (which may also translate into financial, or at least prestige and profits, since quantification of data allows us to determine the purchase by libraries of certain items and their subsequent individual availability in the form of electronic versions downloaded by students who choose certain courses.

In this context, it may be worth recalling the typology of Znaniecki, a classic of science studies who, in his pioneering work on the social roles of the man of knowledge, distinguished several ways in which scholars functioned both within and outside the Academy system. With regard to scientific cooperation and exchange, Znaniecki had in mind the distinctiveness and specificity of the discoverer of new scientific truths, the builder of the scientific system, or the cluster of contributors who fill in and detail its contents, polemicists who, defend the school against the attacks of supporters of other schools, and erudite scholars, who compare the transformations taking place in different currents of thought within a given discipline, without themselves engaging in being supporters and defenders of the internal structures of this or that position or school. Finally, cooperation plays the role in the area of dissemination and popularization of knowledge already in the area of a given school, for example, in the form of comparative study. A separate function of scholars is the search for future knowledge, involving those who are tasked with anticipating new questions that humanity will have to face in the future. The types distinguished by Znaniecki, as well as any contemporary modifications of them that may appear in the science literature, are undoubtedly of significance (Wierzchosławski 2016a; 2016c).

Bibliography

Adair-Toteff Ch. and Turner S. (eds.), 2019, *The Calling of Social Thought*: *Rediscovering the Work of Edward Shils*, Manchester: Manchester University Press.

Adair-Toteff Ch. (ed.), 2021, *Stephen Turner and the Philosophy of the Social*, Leiden– Boston: Brill.

Adolf M. T. (ed.), 2018, *Nico Stehr. Pioneer in the Theory of Society and Knowledge*, Cham: Springer.

Adolf M. and Stehr N., 2017, *Knowledge*. *Is Knowledge Power*? 2nd ed., London–New York: Routledge.

Delanty G. and Turner S., [2011] 2022, *Handbook of Contemporary Social and Political Theory*, 2nd ed., London–New York: Routledge.

Fuller S., [1988] 2002, *Social Epistemology*, 2nd ed., Bloomington: Indiana University Press.

Fuller S., [1989] 1993, *Philosophy of Science and its Discontents*, 2nd ed., New York: Guilford Press.

Fuller S., 1997, *Science. Concepts in Social Sciences*, Milton Keynes–Minneapolis: Open University Press / University of Minnesota Press.

Fuller S., 2000, *The Governance of Science: Ideology and the Future of the Open Society. Issues in Society*, Buckingham Philadelphia: Open University Press.

Fuller S., 2002, *Knowledge Management Foundations*, Hartland Four Corners, Vermont Boston: KMCI Press Butterworth-Heinemann.

Fuller S., 2004, *Kuhn vs. Popper*: *The Struggle for the Soul of Science*, Thriplow Cambridgeshire, UK–New York: Icon Books / Columbia University Press.

Fuller S., 2005, *The Intellectual*, Thriplow Cambridgeshire UK: Icon Books.

Fuller S., 2006, *The Philosophy of Science and Technology Studies*, London–New York: Routledge.

Fuller S., 2007, *Science vs. Religion*: *Intelligent Design and the Problem of Evolution*, Cambridge: Polity (In Polish, *Nauka vs. religia? Inteligentny projekt a zagadnienia ewolucji*, trans. T. Bieroń, Poznań: Wydawnictwo Zysk i Spółka 2009).

Fuller S., 2008, *Dissent over Descent*: *Intelligent Design's Challenge to Darwinism*, Thriplow, Cambridgeshire UK: Icon.

Fuller S., 2011, *Humanity 2.0*: *What It Means to be Human Past, Present and Future*, New York: Palgrave Macmillan.

Fuller S., 2013, *Preparing for Life in Humanity 2.0*, Basingstoke: Palgrave Macmillan.

Fuller S., 2016, *The Academic Caesar*: *University Leadership is Hard*, Los Angeles, CA – London: SAGE.

Fuller S., 2018, *Post-Truth*: *Knowledge as a Power Game*, London: Anthem Press.

Fuller S., 2020, *A Player's Guide to the Post-Truth Condition*: *The Name of the Game*, London: Anthem Press.

Fuller S., 2023, *Back to the University's Future*: *The Second Coming of Humboldt*, Berlin: Springer.

Fuller S. and Lipinska, V., 2014, *The Proactionary Imperative*: *a Foundation for Transhumanism*, New York: Palgrave Macmillan.

Kulczycki E., 2023, *The Evaluation Game. How Publication Metrics Shape Scholarly Communication*, Cambridge: Cambridge University Press.

Leroux R., Thirry M. and Turner S., 2023, *The Future of Sociology*: *Ideology or Objective Social Science?* London: Routledge.

Machin A. and Stehr N. (eds.), 2016, *Understanding Inequality*. *The Social Costs and Benefits*, Wiesbaden: Springer VS Verlag für Sozialwissenschaften.

Meja, V. and Stehr N. (eds.), 2005, *Society and Knowledge*. *Contemporary Perspectives on the Sociology of Knowledge and Science*, 2nd ed., New Brunswick, New Jersey: Transaction Books.

Outhwaite W. and Turner S. (eds.), 2017, *The Sage Handbook of Political Sociology*, 2 vols., London: SAGE.

Stehr N., 1994, *Knowledge Societies*, London–Thousand Oakes–New Delhi: SAGE.

Stehr N., 2001, *The Fragility of Modern Societies*: *Knowledge and Risk in the Information Age*, London: SAGE.
Stehr N. (ed.), 2004, *The Governance of Knowledge*, New Brunswick, New Jersey: Transaction Books.
Stehr N., 2015, *Information*, *Power and Democracy. Liberty is a Daughter of Knowledge*, Cambridge: Cambridge University Press.
Stehr N. (ed.), 2015, *Das Hartwell-Papier. Eine Neuausrichtung der Klimapolitik an der Menschenwürde*, Wiesbaden: Springer VS Verlag für Sozialwissenschaften.
Stehr N., 2022, *Knowledge Capitalism*, New York–London: Routledge.
Stehr N. and Grundmann R., 2011, *Experts: The Knowledge and Power of Expertise*, London: Routledge.
Stehr N. and Grundmann R., 2012, *The Power of Scientific Knowledge. From Research to Public Policy*, Cambridge: Cambridge University Press.
Stehr N. and Machin A., 2020, *Society and Climate. Transformations and Challenges*, Singapore: World Scientific Publishing.
Stehr N. and von Storch H., 1994, *The Social Construct of Climate and Climate Change*, Hamburg: Max-Planck-Institute for Meteorology.
Stehr N. and von Storch H., 2010, *Climate and Society*: *Climate as Resource*, *Climate as Risk*, Singapore: World Scientific Publishers.
Stehr N. and Voss D., 2020, *MONEY. A Theory of Modern Society*, New York–London: Routledge.
Turner P. S., 1984, *Max Weber. The Lawyer as Social Thinker*, London: Routledge.
Turner P. S., 1986, *Search for a Methodology of Social Science*: *Durkheim, Weber, and the Nineteenth-Century Problem of Cause Probability, and Action*, Dordrecht–Boston: D. Reidel Publishing Co.
Turner S., 1994, *The Social Theory of Practices*, Cambridge: Polity Press.
Turner S., 2000a, *The Cambridge Companion to Weber*, Cambridge: Cambridge University Press.
Turner S., 2000b, "What Are Disciplines? And How Is Interdisciplinarity Different?", in: Weingart P., Stehr N., (eds.), *Practising Interdisciplinarity*, Toronto: University of Toronto Press, 46–65.
Turner S., 2002, *Brains/Practices/Relativism*: *Social Theory after Cognitive Science*, Chicago: University of Chicago Press.
Turner S., 2003, *Liberal Democracy 3.0*: *Civil Society in an Age of Experts*, London: SAGE.
Turner P. S., 2010, *Explaining the Normative*, Cambridge: Polity Press.
Turner S., 2013, "The Blogosphere and Its Enemies", *The Sociological Review* 61 (S2): 160–179. DOI: 10.1111/1467-954X.12105.
Turner S., 2014a, *American Sociology*: *From Pre-Disciplinary to Post-Normal*, Basingstoke UK: Palgrave Macmillan
Turner S., 2014b, *The Politics of Expertise*, New York: Routledge.
Turner S., 2018, *Cognitive Science and the Social*: *A Primer*, New York: Routledge.
Turner S., 2022. *Mad Hazard*: *A Life in Social Theory. Current Perspectives in Social Theory*, Emerald Publishing (digital).
Turner P. S., 2024, "Amerykański uniwersytet: punkt zwrotny?", *Forum Akademickie* 1: 16–17.
Turner S. and Chubin D., 1976, Another Appraisal of Ortega, the Coles, and Science Policy: The Ecclesiastes Hypothesis, *Social Science Information* 15: 657–662.
Turner S. and Chubin D., 1979, "Chance and Eminence in Science: Ecclesiastes II", *Social Science Information* 18: 437–449.
Turner S. and Chubin D., 2020, "The Changing Temptations of Science", *Issues in Science and Technology* (Spring) 36 (3): 40–46. (See also: "The Autonomy and Integrity of Science: A Discussion on 'The Changing Temptations of Science'", *Issues in Science and Technology* 36 (4), https://issues.org./the-autonomy-and-integrity-of-science-forum-turner-chubin/, Access 18.06.2024.

Turner S. and Factor R., 1981, "Objective Possibility and Adequate Causation in Weber's Methodological Writings", *The Sociological Review* 29 NS: 5–29.
Turner S. and Factor R. P., 1994, *Max Weber and the Dispute over Reason and Value*: *A Study of Philosophy, Ethics, and Politics*, London: Routledge and Kegan Paul.
Turner S. and Käsler D., 1992, *Sociology Responds to Fascism*, London: Routledge.
Turner S. and Mazur G. O., 2009, "Morgenthau as a Weberian Methodologist", *European Journal of International Relations* 15 (3): 477–504, http://dx.doi.org/10.1177/1354066109338242.
Turner S. and Mazur G., 2023, *Making Democratic Theory Democratic*: *Democracy*, *Law, and Administration after Weber and Kelsen*, New York: Routledge.
Turner S. and Roth P., 2003, *Blackwell Guide to the Philosophy of the Social Sciences*, Oxford: Blackwell.
Turner S. and Risjord M., 2007, *Philosophy of Anthropology and Sociology*, Amsterdam: Elsevier
Turner S. and Turner J., 1990, *The Impossible Science: An Institutional Analysis of American Sociology*, Newbury Park, CA: SAGE (in Polish: *Socjologia amerykańska w poszukiwnaiu tożsamości*, transl. E. Balcerek, with Introduction by E. Mokrzycki, Warszawa: IFiS PAN, 1993).
Weingart P. and Stehr N., (eds.), 2000, *Practising Interdisciplinarity*, Toronto: University of Toronto Press.
Wierzchosławski R. P., 2016a, "Floriana Znanieckiego społeczne role uczonych w kontekście współczesnego naukoznawstwa i socjologii wiedzy naukowej", *Humaniora* (Czasopismo Internetowe) 1 (13): 111–130.
Wierzchosławski, R. P., 2016b, "Rola nauki w demokracji liberalnej. Subiektywny przegląd zagadnień", *Zagadnienia Naukoznawstwa* 1 (207): 63–86.
Wierzchosławski R. P., 2016c, "Florian Znaniecki, Alfred Schütz, Millieu Analysis and Experts Studies", in: E. Hałas (ed.), *Life-World, Intersubjectivity and Culture. Contemporary Dilemmas*, Frankfur am Main–Berlin: Peter Lang, 245–262.
Wierzchosławski R. P., 2017, "Naukowcy w roli ekspertów: o pewnych problemach (re-)prezentacji prawdy w polityce", *Zagadnienia Naukoznawstwa* 2 (212): 207–231.
Wierzchosławski R. P., 2020, "The Post-Truth Condition and Social Distribution of Knowledge. On Some Dilemmas with Post-Truth Uses", in: M. Gudonis, B. T. Jones (eds.), *History in a Post-Truth World, Theory and Praxis*, Foreword by Henry Rousso, Routledge: London, 66–83.
Wierzchosławski R. P., 2021a, "Practical Normativity, Stephen Turner's Contribution to the Philosophy of the Social", in: Adair-Toteff Ch. (ed.), *Stephen Turner and the Philosophy of the Social*, Leiden– Boston: Brill, 49–68.
Wierzchosławski R. P., 2021b, "Funkcjonowanie nauki poza Akademią – nauka protestancka, interdyscyplinarna i wiedza ekspercka", *Filozofia i Nauka* 9 (1): 49–66.