EASST Review

European Association for the Study of Science and Technology



Vol 35 | No 1 | March 2016



EASST Review (ISSN 1384-5160) is published quarterly and distributed digitally to all EASST members.

Editor: Ignacio Farías (Technical University of Munich) ignacio.farias@tum.de

Editorial Board:

Tomás Sánchez Criado (Technical University of Munich)

tomas.criado@tum.de

Andrey Kuznetsov (Tomsk State University, Volgograd State University)

andrey.kuznetsov.29@gmail.com

Josefine Raasch (Ruhr-University Bochum)

josefine.raasch@ruhr-uni-bochum.de

Vicky Singleton (Lancaster University)

d.singleton@lancaster.ac.uk

Niki Vermeulen (University of Edinburgh)

niki.vermeulen@ed.ac.uk

Layout: Anna Gonchar

Subscription:

Full individual membership fee: EUR 40 annual.

Students pay a reduced fee of EUR 25.

Library rate is EUR 45.

Please note that subscriptions can be made through the EASST website by following the 'Join EASST' link.

EASST Review on the Web: http://easst.net/easst-review/

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The Association's journal was called the EASST Newsletter through 1994.

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A COLLABORATIVE TURN IN STS?

Ignacio Farías

Maybe it's just me, but my sense is that STS is not just thriving, but that this might also be related to wider transformations of what STS might involve as an intellectual practice.

There is indeed so much going on, wherever one looks. This becomes particularly evident when you check, for instance, publication initiatives. In the last one or two years, highly interesting new open-access STS publication projects have come to life, arguably changing the landscape of what it means to engage in STS writing. New journals, such as *Engaging Science, Technology, and Society* of the 4S, the new *Catalyst Journal* with a focus on feminist techno-science, or the Goldsmiths' based *Demonstrations* journal are just some prominent examples. Our association journal *Science and Technology Studies* has recently increased the number of issues per year given the rapid increase in high quality submissions. Editorial projects, such as *Mattering Press* and *meson press*, are opening up new spaces and ways of conceiving of monographic books in STS.

At the *EASST Review*, the year couldn't have begun better. For the first time since its launch, the *Review* has appointed an editorial board. It is composed by a fantastic group of STS scholars, including (alphabetically): Tomas S. Criado from Technical University of Munich, Andrei Kuznetzov from Tomsk University, Josefine Raasch from Ruhr-University Bochum, Vicky Singleton from Lancaster University and Niki Vermeulen from University of Edinburgh. By the end of this year, Liliana Doganova from Mines ParisTech will also join the board. I'd like to officially welcome all of you and thank you in advance for the years to come. Indeed, whilst during the last year we have been making slight formal changes to the *Review*, also adding a couple of new sections (*STS Multiple* and *Cherish*, *not Perish*), the new editorial board will enable us to strengthen the Review as a key space for exchange, collaboration and reflection.

Or take STS events. The eurograd mailing list offers probably a good indicator that the number of STS events organized by individual 'heroes', research collectives, departments and national associations has not just significantly increased in the last couple of years, but also that the variety of techno-scientific issues addressed continues to expand at a fast pace. I think it is fair to say that the overwhelming number of submissions (more than 2500!) received for the 'Science and Technology by other means' EASST/4S Conference in Barcelona didn't take that many by surprise - and not just because Barcelona is such a nice place to visit. Crucially important was, I think, the work put so far by the local organizing committee, especially in terms of proposing a set of questions that displace the study of science and technology to other sites and, most importantly, that invite us to explore our ethical and political commitments to those other means of thinking, researching and infrastructuring contemporary collectives. No wonder thus the major success, which from what I have heard and understood, is also due to the fact that such questions and commitments have also become of interest for researchers from other disciplines (designers, geographers, architects, etc.), as well as for concerned and activist groups.

Indeed, if one had to grasp the spirit of the many current STS initiatives in a diversity of fields, I would argue that the so much discussed 'ontological turn' is far from grasping what is currently going on. Rather, I would like to paraphrase a question posed by Antoine Hennion in a recent visit to Munich: 'How can one engage in STS today if not collaboratively?' Collaboration defines indeed a very specific mode of engaging in STS as an intellectual practice – somewhat different in spirit from the one STS developed in the early days, mostly oriented at turning radically upside down conventional understandings of scientific practice, research policy, technology design and development, techno-economic innovation systems, etc. This is arguably still today the most widespread mode of practicing STS. More recently, since the 1990s perhaps, we have witnessed an important transformation of STS, as it began to expand its theoretical insights, analytical perspectives and empirical sensibilities beyond science and technology to explore and engage with a number of other objects: arts, markets, government, design, care, disasters, cities, etc. STS, thus, entered a mode of not just opening up the back box of science and technology, but also of studying all sorts of phenomena across society. But what is now becoming apparent is again something different, namely, the consolidation of a collaborative mode of practicing STS involving committed action-research projects based on dialogue, mutual learning and caring relationships within heterogeneous collectives.

A collaborative STS is by no means a new intellectual practice per se. A short look at the long and powerful tradition of feminist technoscience suffices to understand that this has been an on-going concern since the early 1980s. But, as Mike Michael commented the other day, after the launch of our book *Studio Studios* at Goldsmiths, when you read the titles of the open-tracks for the Barcelona conference, you get the sense that what was for a long time a minoritarian position in STS has now become the new mainstream. Now, to be sure, if there ever was a mainstream we can join without any complexes, this is the one. Accordingly, my hope for the *EASST Review* is that it will increasingly become a space in which such committed and collaborative forms of STS could have a broader and stronger presence.

STS MULTIPLE

STS Multiple offers a platform for presenting and learning about the heterogeneous ways in which STS is practiced in and across Europe. University departments, research centers, local networks and other groups engaging with STS can present themselves in this space. The section begins with an extended summary of the contribution in the working language of the group. This aims at highlighting the linguistic diversity of STS as an intellectual practice, as well as reaching local audiences.

STS в Югоизточна Европа: Школата в Пловдивски университет

Школата по социални изследвания на науката и технологиите в Пловдив (STS) възниква през 1997 г. Развивайки направлението почти двадесет години, STS школата в Пловдив се явява наследник на българската традиция в "социология на науката и техническия прогрес", възникнала в края на 1960-те години в Института по социология при БАН. Днес, изследоавателите от център Наука, технологии, иновации, които са преподаватели в Пловдивски университет Паисий Хилендарски, предлагат единствени в България систематично обучение в СТС в рамките на специалност Социология. Още от възникването си, тя е фокусирана върху прилагане на теорията да дейците мрежи. В рамките на три години бакалаврите по социология изучават класическата социология на познанието, социология на науката на Робърт Мъртън и два специализирани курса по семиотика като основен инструмент за изучаване на съвременните институции. Ядро на програма е курсът върху социология на лабораторния живот въвеждащ основните STS подходи, допълнен от дисциплините социология на рискови общества, иновации и предприемачество и икономика на техническата промяна. Оригиналността на програмата STS в Пловдив е в разработването на концепцията за хетерогенни микро-общности в областта на науката и технологиите с нейното особено внимание върху телесните и етични аспекти на връзката между човека и нечовешки актьори. Специално внимание се обръща също на всекидневните езикови практики, на анализа на графични и други визуални данни.

Изследователски проекти на школата по Социални изследвания на науката и технологиите от център Наука, технологии, иновации към Пловдивски университет

Изследователски център "Наука, технологии, иновации" е основан 2004. Неговата мисия и цели са:

Издигане на нивото на обучението по СТС и интегриране на студентите в научно-изследователска работа;

Работа по фундаментални и приложни изследвания в областта на социалните изследвания на науката и технологиите, социология на иновациите и икономика на техническата промяна;

Подпомагане на изследователите от естествено-научните и инженерни специалности в ПУ и останалите ВУЗ в региона по въпросите на научната политика, връзката наука-индустрия и наука-общество; защита на интелектуалната собственост и др.

През последните години центърът реализира редица фундаментални и приложни изследователски проекти в областите на социалните изследвания на науката, технологиите, големите технически системи, иновативното предприемачество.

Лятната практика по Социални изследвания на науката и технологиите на Пловдивски университет

От 2000 г. школата в Пловдив организира «Летни практики по STS" за завършващите студенти по социология. Тя цели да въведе студентите в особеностите на всекидневието в модерната наука и технологии и развие у тях начални умения да прилагат знанията и уменията, усвоени в преподаваните в блока Социални изследвания на науката, технологиите дисциплини. Във връзка с това, практиката традиционно се провежда в специализирана област на съвременните науки и технологии - "Социология на големите технически системи", "Социология на лабораторния живот", "Иновациите в малката фирма", "Практики на лансиране на иновационни продукти на пазара" и др. До днес са изследвани множество сектори като като енергетиката, машиностроененто, леката промишленост, химията и биотехнологиите и др.

Лятната практика по Социология на науката и технологиите освен "близко запознанство" с областта на съвремевременните наука и технологии, цели и разкриване на основните методите за изследване на конкретни научни и инженерни общности, като им дава възможност да реализират собстевни изследователски проекти. Акцентът е предимно върху качествени методи за емпирично изследване - дълбинни интервюта и техния анализ, анализ на кодифицирани текстове (статии, лабораторни протоколи, експертни оценки, наръчници, инструкции, и др,), събиране и анализиране на фото и видео данни и др. Специално внимание се отделя на практическото усвояване на семиотичния метод за анализ на данните.

STS IN SOUTH-EAST EUROPE: THE PLOVDIV UNIVERSITY SCHOOL

Ivan Tchalakov, Tihomir Mitev

SUMMARY: Since 1997, STS in Plovdiv University was established as a rather "orthodox" program based on actor-network theory. Here B.A. sociology students study classical sociology of knowledge and Merton's sociology of science, semiotics and 'sociology of laboratory life' where the key STS approaches are introduced. These are complemented by courses on risk societies, innovation and entrepreneurship, and economy of technical change. The academic courses are followed by annual STS summer practice, where the students examine the forms of engagement of human actors in laboratory science and large technical systems, thus seeking for the conditions thank make possible a deeper 'moral' commitment towards the studied objects and served technical systems as precondition for human agents' responsible behavior in critical situations. Originality of the STS program in Plovdiv is in the elaboration of the concept of heterogeneous micro communities in science and technology, stressing the bodily (corporeal) and ethical layers of relationship between human and non-human actors. Also a special attention is paid to the everyday (language) practices, graphic materials and other visual data, allowing deeper understanding of the interactions taking place inside the heterogeneous communities.

STS AT THE BAS INSTITUTE OF SOCIOLOGY IN SOFIA

The STS program at Plovdiv University is the offspring of an old academic tradition that emerged in 1960s from two separate research fields: the sociology of science and the history of science - the latter merged with so called 'science of science' or 'naukoznanie', both in Russian and in Bulgarian, and which has its roots in the works of John Bernal and Boris Gessen from the 1930s and received favorable development in former Soviet Union. During the late 1960s, Bulgarian social researchers such as Niko Yahiel, Nikola Stefanov, Benko Benev, Yulian Minkov and Viktor Samouilov, inspired by the international achievements in science studies, greatly contributed to institutionalizing social studies of science in Bulgaria. In 1968, simultaneously with the creation of the Institute of Sociology at the Bulgarian Academy of Sciences (BAS), the Department of Sociology of Science and Technological Progress (SS&TP) was established. Applying a Marxist version of systems theory, researchers from the SS&TP Department conducted several research projects dealing with epistemological and methodological problems of sociological studies of science, social relations in science, efficiency in the relationship between science and society, sociological aspects of scientific and technological innovations, as well as the social role of science and education. The Bulgarian communist government used some of the results of these studies for designing its national scientific and technological policy¹.

In the late 1980s, however, a clear shift towards the study of scientific practices took place in Bulgaria. The renamed *Department of Sociology of Science and Education* (SSE) at the BAS Institute of Sociology initiated research projects on the structure and functions of Bulgarian scientific community, scientific policy issues such as brain-drain in science, science-industry relationships, as well as topics from classical (Mertonian) sociology of science such as scientific communication, scientific recognition, the mobility of scientists, etc.

In the beginning of 1990s, the public understanding of science became a key focus of the Department's research activities. The complex relations between science and the public were for example studied in collaboration with British colleagues in an empirical comparative survey between Great Britain and Bulgaria, which showed that Bulgarians had a strong faith in the usefulness of science, a deep conviction that scientific knowledge brings progress and deserves society's support, and a strange combination between the communist and liberal-democratic models of science (Petkova, Boyadjieva and Tchalakov 1994). Beyond this, the paradigm of Science and Technology Studies (STS) began to be adopted by a group of young researchers within the SSE department, including Maria Nedeva, Ivan Chompalov, Ivan Tchalakov, Vyacheslav Evlogiev and Vyara Gancheva, who focused on the study of scientific practices, paying special attention to the role of facts and artifacts in the maintenance of society.

However, the process of brain-drain that started in the Bulgarian academic community immediately after 1989 affected this group too. Only Vyacheslav Evlogiev ¹ These studies took place in the context of a rapid growth of the country's scientific community - between 1960 and 1990 the number of Bulgarian scientists grew from 5846 to 31704. In 1989 the Bulgarian Academy of Sciences (BAS) alone consisted of 103 research institutes with more than 12000 scientists and engineers. That same year according to the number of scientists per million inhabitants Bulgaria had one of highest rates in the world, compatible with that of US and Japan (Tchalakov 2000: 573).

and Vyara Gancheva remained in the Department, but Vyacheslav soon left for a permanent position in the Bulgarian government. Maria Nedeva moved to PREST, University of Manchester, UK where she completed her PhD and later took a permanent position. Ivan Chompalov moved to Virginia Tech in 1992, where he also completed PhD and remained as a researcher, collaborating extensively with Wesley Shrum. Ivan Tchalakov moved in 1991 to the University of Amsterdam, where he studied in the Science Dynamics Department.

From the three young researchers specializing abroad, Ivan Tchalakov was the only one to return to the SSE Department, initiating an ethnographic study of an holographic laboratory (CLOSPI) between 1993 and 1997 - the first STS laboratory study in former communist Eastern Europe. Tchalakov analyzed the laboratory practice of optical scientists, focusing on their everyday life among research objects and installations, as well as on their relationships with colleagues from the former Soviet Union, Germany and France since the late 1960s. Moreover, applying an ANT approach, the study also reconstructed the social, political, economic and technical history of the 'holographic computer memory' project, which never found its way to industrial production. Thereby, the study uncovered the formation and development of the laboratory in the whirlpool of interactions among the various involved actors, such as high rank Communist Party and Government authorities, international partners at both sides of the Iron Curtain, the local scientific community, the Department of Science and Technological Intelligence at Bulgarian State Security, which supplied pieces of latest Western research equipment through COCOM embargo, as well as various technical devices and artifacts. This study introduced the notion of a heterogeneous couples or micro-communities as comprising pairs of human and non-human actors constituted on the relationships of passivity and responsibility towards 'non-human Others' to the point that scientists become "hostage" of the nonhuman beings he or she discovers and gives names (Levinas 1972, Tchalakov 2004).

In 1999, the *Technology Studies Group* (TSG) was established within the SSE Department at the BAS Institute of Sociology. The group adopted ideas and methods of contemporary STS and developed a kind of Bulgarian tradition in Sociology of Science and Technology that, based on the concept of heterogeneous micro-communities in science and technology, pays special attention to the bodily (corporeal) and ethical layers of relationship between human and non-human actors. By focusing on everyday (language) practices inside these micro-communities with their specific slogans, nicknames and shifts of meaning, it has studied how the emerging properties of human and non-human actors are fixed for the first time and developed into notions and concepts. Graphic material and other visual data (both pictures and short movies) are also important objects of analysis in this tradition, allowing for a deeper understanding of interactions taking place inside such heterogeneous communities.

Researchers at TSG have conducted a number of research projects on the ecological sensitivity of industrial managers, engineering practices at hydro electrical systems, dual-use technology policy in Bulgaria (an issue which became particularly important after the events of September 11, 2001 in New York, when the relatively relaxed industrial and export regime on dual use technology in Eastern Europe, established after the dismantling of former COCOM commission, was strengthened again). They have also studied the transformation of Bulgarian scientific institutions and emerging innovative (including academic) entrepreneurship during the post-socialist transition, the causes and consequences of brain-drain in Bulgaria and the interactions between regional governance, academic institutions and the new private business in emerging regional innovation systems. An attempt at a Schumpeterian reading of the socialist planned economy was made based on case studies on specific sectors of Bulgarian heavy and light industry.

Besides this, the members of TSG work on different theoretical and methodological problems of the STS paradigm – including some limitations of Actor-Network Theory, the relevance of phenomenological ideas to STS, and the critique on the semiotic method (Tchalakov 2004, 2005, 2009, Mitev 2006). Between 1999-2001, TSG was the scientific coordinator of large comparative study of communication and information technologies in Bulgaria, Macedonia and Romania (TACTCIS project, INCO-Copernicus IV Program of EC) conducted with Michel Callon and Philippe Laredo at CSI, Ecole des Mines in Paris, France and Peter Burton and Georgi Nachev from Isomatic Lab, UK. Research was based on the Techno-Economic Network approach as an extension of network analysis to situations where technical change is a key variable.

Since 2000, four PhD students have worked in the Technology Studies Group at BAS Institute of Sociology: Todor Galev, today a research fellow at BAS, completed his PhD on *Dual-use technologies in Bulgaria* in 2006. One year later Tihomir Mitev, today an assistant professor at Plovdiv University, completed his PhD on *Heterogeneous community in large technical systems: conditions for sustainabil-ity.* In 2013, Martin Ivanov, also a research fellow at BAS, completed his PhD on *Development of renewable (wind and solar) energy in Bulgaria.* Only Mimi Vassileva still needs to defend her PhD dissertation on *Regional innovation system in Plovdiv region,* but she has been appointed at University of Plodiv as part-time assistant professor on Sociology of Innovation and Entrepreneurship.

THE CENTER FOR SCIENCE, TECHNOLOGY AND INNOVATION (STI) AT PLOVDIV UNIVERSITY

Most of the members of TSG have gradually moved since 2004 to University of Plovdiv, when they established the *Center for Science, Technology and Innovation* (STI) within the Department of Applied and Institutional Sociology. Currently its members are Prof. Dr. Ivan Tchalakov, Assoc. Prof. Dr. Ivo Hristov, Assist. Prof. Dr. Tihomir Mitev, Assist. Prof. Dr. Petar Kopanov, Assist. Prof. Donka Keskinova, and PhD Students Mimi Vassileva, Ivan Lazarov, Zornitza Tchakmakova. Plodvid has thus become a key place for maintaining and spreading STS as an academic discipline and advanced research field in Bulgaria.

Our current research activities focus on these fields:

1. Classical studies of scientific and engineering practice – ethnographic studies of scientific laboratories, engineering communities and large technical systems;

2. Sociology of innovation – innovation & entrepreneurship in late capitalism; national and regional innovation systems; financing of innovations; studying of radical innovations in space industry and additive manufacturing (see International Journal of Actor-Network Theory and Technological Innovation, 2015);

3. Academic-industry relationships, i.e. crossing the gap between business & research

4. Public involvement in science and technology policy and evaluation: energy; transportation systems; communication technologies; ecologically friendly technologies and products, renewable sources of energy, etc.

5.Cognitive approach to social movements.

Hereby we aim to:

- Improve the scientific level and teaching standards in the 'Social Studies of Science, Technology and Economics' module at B.A. curriculum in Sociology and M.A. Program on Management of Research and Innovation;
- · Integrate students into research activities;
- Train graduate students two PhD students (Ivailo Hristov and Elitsa Stoilova) have successfully graduated under the joint program with Dutch foundation for History of Technology and Technical University in Eindhoven;
- Initiate fundamental and applied research in the field of STS, Sociology of Innovation and Economic of Technical Change
- Provide expert support and consultancy services for researchers in natural and engineering sciences at University of Plovdiv and other universities in the region in science policy issues, especially technology transfer from science to industry, protection of intellectual property, science-society relationships, etc.

| | The STI Centre maintains collaborations with other research centers of the Faculty of Philosophy, as well as other research units of the University of Plovdiv, the Bulgarian Academy of Sciences and other universities in Bulgaria. The following partnerships have been established with fellow research units in Bulgaria and Europe: |
|-----------|---|
| | Technology Studies Group, the BAS Institute of Sociology in Sofia; |
| | The Bulgarian Industrial Capital Association (BICA) |
| | Technical University in Eindhoven, The Netherlands (joint PhD Program in the field of History of Technology); |
| | Centre of Sociology of Innovation, Mines ParisTech, France (collaboration in ATACD project, 6th Framework Program of EC), |
| | Institute of Advanced Studies Graz, Austria (Joint Project on Governance of Socio-technical Change in South-Eastern Europe – ASO Sofia, 2006-2007) |
| | Additionally, a good number of research projects have been conducted and/or completed recently by members of the STI Centre: |
| 2006 | Mapping Creative Industries in Plovdiv Region, British Council Sofia; |
| 2006 | SEENet-STS - South-East European Network for Science and Technology Studies: STS Contributions to the Governance of Sociotechnical Change, Program on "Research Cooperation and Networking between Austria and South-Eastern Europe", Austrian Science and Research Liaison Offices (ASO), Vienna, Austria |
| 2007 | Mapping Creative Industries in Bulgaria, Bulgarian Ministry of Culture; Study on the Contribution of Copyright and Related Rights Industries to the National Economy Of Bulgaria, World Intellectual Property Organization (WIPO) |
| 2006-2009 | Production of Knowledge Revisited: The Impact of Academic Spin-Offs on Public Research Performance in Europe (PROKNOW) EC 6th Framework Program. The project analyses the positive and negative impact of spin-off firms on public research institutions. |
| 2007-2010 | A Topological Approach to Cultural Dynamics (ATACD), EC 6th Framework Program; |
| 2008-2010 | Europe goes Critical: The Emergence and Governance of Critical Trans- national European Infrastructures (EUROCRIT), EUROCORES Program of European Science Foundation |
| 2009-2011 | How the project "Bulgarian Power Hub in the Balkans" emerged? Plovdiv University Science Fund, |
| 2009-2010 | The Current's Power: Transformation of Electric Power Industry in Bulgaria, "Riskmonitor" Foundation |
| 2012-2015 | Building the capacity for technology transfer at University of Plovdiv, Competitively Program of EC, |
| 2015-2017 | History of Nuclear Energy and Society (HoNESt), EC Horizon 2020 Framework Program project, |
| 2015-2018 | Bridging Innovations, Health and Societies: Educational capacity build- ing in the Eastern European Neighbouring Areas (BIHSENA), Erasmus+, 2015-2018 |
| | |

Two conceptual contributions

HETEROGENEOUS COUPLE / HETEROGENNA DVOIKA

(often used as a synonym of the slightly broader concept of 'heterogeneous micro-community')

Ivan Tchalakov first introduced this concept in mid 1990s when working on his holographic memory project and since then it has been further used and elaborated by some of his PhD students and colleagues when doing fieldwork on laboratory life and large technical systems. Below is the definition provided in an early publication (Tchalakov 1998):

My own ethnographic studies in the field of opto-electronic research convinced me that the "laboratory" is a too broad and "socialized" concept in which humans, nonetheless, dominate. The classic analyses of laboratory life of the 1980s reveal the wide variety of its subdivisions and zones -experimental halls and studying rooms, text processing rooms, offices and attendant services, and so on (Latour and Woolgar 1979; Knorr- Cetina 1981; Traweek 1988). Yet when observing the life in the holographic laboratory in Sofia, I was surprised that almost every researcher had a nickname that inevitably contained as an essential element the name of the objects he was studying (as semiotic characters). It seems that while communicating, the colleague's most relevant characteristic is the name of his or her specific nonhuman partner. I also often noticed people in twos and threes seeking privacy to have an argument. Then they would be lost for hours and days in work around the optical tables and lasers, sometimes calling in a colleague of theirs to come to their aid. Observing all this, one is left with the impression that at least several sequences of events, at least several experiments of the type Latour speaks about, may occur in laboratory life simultaneously...

Consequently, I suggested introducing the concept of "coupling" to describe the "melting pot" processes occurring in laboratory life and considering emerging relations between researchers and the nonhuman agents they are studying as "heterogeneous couples" (Tchalakov 1998, 2004). In the context of the ANT, coupling can be defined as a process by which during the process of research—scientists gradually emerge as "spokesmen" for the nonhuman agents they are studying, their messengers in the "large society". In essence, heterogeneous couples are the "constituent elements" of the laboratory. They are elementary "micro-communities" which sometimes may be larger than the simple relationship between the scientist and the specific nonhuman agent he or she is examining (crystal, piece of DNA, etc.)².

However, this definition describes the coupling from the outside. Although it reveals one key aspect of what is going on inside between the humans and the nonhumans – the mechanisms of "reciprocal taming" and the exchange of "features and properties" (Latour 1993) – it leaves untouched the problem of what cements concomitance in the couple, what supports and what stabilizes it. It seems to me that at this point, the semiotic analysis of the intimate relationship between humans and nonhumans with its "minimum ontology" (simple and plain assumptions about the world, which let actors speak for themselves) lands in a situation when actors do not speak and start concealing very essential layers of what is happening in life "inside." We come up against a boundary, against non-transparency, and against "silence."

The idea of coupling between humans and nonhumans could hardly have meaning if we stick to the activist schemes or if we stay with the actors, with their goals, plans, interests, translations, and so on. This process has already been sufficiently explored. The concept of heterogeneous couple has meaning only if it indicates a new type of relation, a new layer in the interaction between humans and nonhumans, which oversteps the activist ontology and, in a sense, founds it. Karin Knorr-Cetina hints at this type of relation, citing the analyses of Fox-Keller and talking about the relations of solidarity and mutuality between people and what she calls "knowledge objects." She is talking about "unity" and "sharing" as well as about the "disappearance of self-consciousness" and about "subjective fusion" of the researcher with his knowledge objects, about turning the object into a subject. It is worth stressing Knorr-Cetina's reminder that, according to ² In my study of CLOSPI, the largest group of this kind has consisted of two or three researchers with (sometimes) a Ph.D. student and a few laboratory assistants. In 2000 during the summer practice with my Plovdiv University's students at the dam of "Kurdjali", Rhodope mountain, we have discovered yet another heterogeneous micro-community, which consisted of sixteen people plus a hybrid (the huge 104 meters high ferro-concrete dam packed with sensors) and 'tamed' water collected in the dam's lake (Mitev 2015). E. Durkheim, unity and sharing can be both ethical and semiotic (Knorr-Cetina, 1999).

Hence the heterogeneous couple is constituted along two lines: first, it is based on the belief that the nonhuman exists and that one is facing a partner and not an illusion, and second, it is constituted through the distinction from the other people (colleagues), based on a different understanding of the hypothetical nonhuman agent's nature, up to whether it exists or not. Getting deep into the "ecstasy" of the heterogeneous couple often means breaking standing relations with other humans and a disintegration of previously established "social" communities! At the same time this often means entering into new forms of association - with those who are ready to accept your arguments and proves. Depending on the events inside the heterogeneous couple, the human could "re-socialize," could return to the previous social world, however, as a "speaker" or "representative" of the tamed nonhuman. He or she will be constituted again for the colleagues as an "other," yet as a "displaced" and different other. Here an interesting phenomenon of two different types of responsibilities of human agents emerge that often clash between - the responsibility to your human fellows in the couple (and those outside it) and the responsibility to the nonhuman agent, whose existence is not certain at all (often questioned by the colleagues). Hence applying Emanuel Levinas 'passive notion of responsibility' we could also speaks about specific 'humanism towards non-human Other'.

ENDURING SCIENCE / USTOYAVASHTA NAUKA

(related with the notions of passivity, responsibility, endurance, 'giving oneself')

This notion is based on the distinction between 'entrepreneurial' and 'enduring' (earlier we called 'other') types of science, Georgy Kapriev and Ivan Tchalakov introduced in a publication from 2009. This was further developed by Ivan Tchalakov's paper *The Amateur's Action in Science* (Tchalakov 2014), from which we quote a brief outline:

Since the early 1980s a number of remarkable researches have been carried out, which made actor-network theory one of the leading approaches in the field of Science and Technology Studies (STS). Applying this theory in my own studies since early 1990s, I came to the conclusion that its success was partially based on a key feature of modern science – the emancipation of and the increase of the proper role of methods and techniques of study in the process of research.

During the last forty years, this steady phenomenon reemerged in most of the studies of scientific practice - "strong link" is not in the 'direct relationships' between researchers and their research objects (nonhuman agents they were taming), but between researchers and the technical artifacts, equipment and procedures they are using in this process. This is a rather peculiar type of science indeed, which I named 'entrepreneurial' - here the mastering of specific method (tool) and its transfer into new area of research gives the newcomer competitive advantage to the indigenes of the field. Usually the 'entrepreneurial' scientists come to a field where the research problems were already articulated, the debates were going on, and the interested parties outlined. Coming with their new methods and techniques, the scientists in fact transform (or translate) the old problems - 'translation' always presupposes a text (or story) that is already available, an existing configuration of actors and interests. (Tchalakov and Kapriev 2005, 2009). Just like the entrepreneurship in the capitalist economy, described by Joseph Schumpeter and Israel Kirzner, this type of science does not consist in 'simple' application of the method and re-formulation of the problem. The translation, i.e. the turning upside down the existing communities by introducing new methods of study that make new actors to emerge out of nowhere or redefine the old ones, also requires "persistence, audacity, and precision" (Latour 1993). Yet being as fascinating as it is, we are facing here rather peculiar type of research. For the long period of time it has remained hidden from philosophers and historians of science, to be identified today by ANT and other STS approaches as a dominant type of science.

It seem to me, however, that the cases outlined in the previous section [the critique of Steven Shapin on Merton's 'moral equivalence' principle and the widespread neglect of the scientists' personal commitments to their deed as crucial for the progress of research, as exemplified by the practical dominance of the devoted amateur in modern science up to the end of 19th century] reveal another type of science we somehow have (almost) forgotten - a science guided by patient, laborious, and uncertain efforts for acquaintance of a new agent or unknown features of an existing agent and where the methods of study are secondary - often they need to be modified or yet to be invented in order to 'match' the supposed properties of those unknown creatures. This is a science, where you continue probing into your study when the colleagues you are working with are leaving in despair, or switch to other problems, or some of them even manage to prove that the elusive entities you are studying are nonexistent. This science is maybe not as successful as the 'entrepreneurial' one, but it is indispensable for the development of knowledge and for the evolution of human ways of engaging with the world. This was the science of Pasteur's colleagues from the crystallographic lab that have remained there searching the problems interesting for their tiny community only. And whose efforts made possible someone like Pasteur 'to come and go', bringing with him the methods they have developed, or the new entities they had discovered and tamed. This science sometimes fails, but as Fox-Keller's case of Barbara McClintock and my case with Bulgarian holographic scientists Methody Kovatchev suggest, it was worth the long years of efforts. Eventually they have achieved what they had strived for, and their opponents were to withdraw their critiques. So this is not a marginal type of science, although now it is almost forgotten. Rather, it refers to research practices, which have escaped the attention of mainstream STS and actor-network theory in particular - maybe because they have been exploited too much by the old epistemology and history of science.

OUR TEACHING PROGRAMS

After some of the key member of TSG moved from BAS to Plovdiv between 2003 and 2008, our teaching offer expanded from offering one single course in the B.A. sociology curriculum (1995 program) to teaching a whole STS module in the entirely new B.A. program in 'Sociology of Law, Economy and Innovation' in 2011 (together with modules on Applied Sociology and Economics and Law)³. In the STS module, B.A. students of 'Sociology of Law, Economy and Innovation' study the following topics and analytical perspectives:

1. Classical sociology of knowledge with its methods for studying traditional, everyday and other forms of non-scientific knowledge in the tradition established by Karl Manheim, Alfred Schütz, Gernot Böhme and Nico Stehr;

2. The classical sociological approach of Robert Merton with its focus on science as institution;

3. Semiotics as a tool for studying modern institutions, including techno-sciences;

4. Sociology of laboratory life, where the key STS approaches are introduced: sociology of scientific knowledge (SSK), ethnographic studies of science Karin Knorr-Cetina and actor-network theory;

5. Risk society, innovation and entrepreneurship, and the economy of technical change where the understanding of STS approaches - such as social ³The new curriculum combines classical sociology of M. Weber and E. Durkheim with applied functionalist (Parsons, Luhmann, modernization theories) and interpretative sociology (phenomenology, symbolic interactionism), as well as with training on applied sociology (quantitative and qualitative methods) and key topics in Law (constitutional, administrative and commercial law) and Economics (macro and micro economics, economic sociology).

construction of technology (SCOT), Joseph Schumpeter's approach to innovation and history of technology, and large technical systems developed by Tomas P. Hughes - is expanded to the analysis of different industrial sectors (power industry, machine building, pharmaceutical & cosmetics) and university-industry relationships (academic entrepreneurship and spin-offs).

The STS training program in Plovdiv combines theoretical academic courses with summer practice-based courses, or summer schools, where the students have the chance to expand and develop their understanding of contemporary *Science and Technology Studies*. One of the main research issues is to examine forms of engagement of human actors in laboratory science and large technical systems, as well as the emergence of a specific 'mutuality' and forms of 'sharing' between scientists and engineers on the one hand, and scientific objects and technical equipment, on the other. The program is attempting to establish the conditions that make a deeper 'moral' commitment towards the studied objects and served technical systems possible as a precondition for human agents' responsible behavior in critical situations – such as technical breakdowns, emergency situations.

A relatively high number of graduate theses have been successfully supervised here. As a consequence of the good results in teaching, a new Masters Program on "Management of Research and Innovations" was established already in 2005. The teaching program focuses on contemporary research processes in natural and technical sciences and, specifically, on how these are interwoven with entrepreneurs' activities and innovation. The program enables students to develop abilities for analyzing research and innovation activities, takes into economic norms and organizational regulations as key engines of social change. It provides practical knowledge about the principles of management of the contemporary innovative firm and trains skills for project management. Guest-lecturers as well as innovation experts and entrepreneurs deliver lectures and share their experience with the students.

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Ivan Tchalakov is Professor at Department of Institutional and Applied Sociology, University of Plovdiv, and senior research fellow at Center for Policy Analyses and Studies of Technologies (PAST), Tomsk State University, Tomsk, Russian Federation. He is also affiliated at BAS Institute of Studying Societies and Knowledge.

Ivan Tchalakov is working in the fields of Sociology of Sciences and Technologies, Sociology of Knowledge, and Economics of Technical Change.

tchalakov@sociology.bas.bg



Tihomir Mitev graduated in sociology at Plovdiv University 'Paisii Hilendarski' in 2002. He completed his PhD thesis in Institute of Sociology at Bulgarian Academy of Sciences in 2008. He is presently working as assistant professor at the Plovdiv University and at the Science, Technology, Innovation research center. His main research interests are in the fields of STS, particularly in Actor-Netwok Theory and Large Technical Systems approach. He published both theoretical and empirical studies.

tihomir.n.mitev@gmail.com



THE PLOVDIV UNIVERSITY STS SUMMER SCHOOL

Elena Genkova, Gergana Dineva

The highlight of the STS teaching program for B.A. Sociology students is the STS Summer Research Practice, which takes place alternatively in sites of large technical systems (dams and power stations) and big research infrastructures. The Summer Research Practice aims to mimic classical STS fieldwork (as done by Latour and Knorr-Cetina). Students immerse into the daily life of scientists and engineers for about a week. In groups of two or three students, they are assigned to a particular micro community and collect data about it. They use STS concepts and methods as a tool for understanding and describing everyday life of scientists and engineers. Since scientific research and engineering practice is widely unknown to the public, displaying its "essential" features is another key tasks of the students. The Summer Research Practice ends with a public presentation of the research papers written by each of the groups. Among the discussants are representatives of the studied communities.

The Summer School "Science and Technology as Way of Life and Identification: Observing the Practices at Confined Research Stations and Large Technical Systems in High Mountains", held at the Rozhen National Astronomical Observatory, Bulgaria, from 22 of June to 1 July 2015, was the first international edition of the STS Summer School, regularly held since year 2000. Sixteen Bulgarian B.A. sociology students took part in this, along with twelve anthropology students from Laboratory for Social and Anthropological Research at Tomsk State University, Russia, whose travel expenses were supported by the project "Man in a Changing World. Problems of Identity and Social Adaptation in History and at Present" (the RF Government grant No. 14.B25.31.0009). The summer school was also awarded an *EASST Network Fund*.



The program included an introductory theoretical and methodological seminar on Anthropology of Science and Sociology of Large Technical Systems, a seminar on methodology of data collection, fieldwork at the Rozhen National Astronomical Observatory and high mountain dam, assessment of the collected data and instructions how to prepare the research reports, data analysis and writing research reports (two months after fieldwork), the presentation of research reports at competitively organized student sessions (held in Plovdiv and Tomsk). The practice was supervised by Prof. Ivan Tchalakov (Plovdiv University), Associate Prof. Irina Popravko (Tomsk State University, Russia) and Dr. Tihomir Mitev (Plovdiv University).

Participants of the summer school



During the program, students spent one week with the research community of astronomers and supporting engineering staff at NAO Rozhen – the biggest astronomical site in South-Eastern Europe. NAO Rozhen is managed by the Astronomy Institute of the Bulgarian Academy of Sciences, which is involved in research in astronomy, astrophysics, as well as in the training of professionals and students interested in this field. The Institute has two modern observatories to conduct astronomical observations and research - NAO Rozhen and AO Belogradchik. NAO Rozhen provides observations on a wide class of astronomical and astrophysical phenomena - from dynamics and physics of bodies in the solar system to extragalactic research on asteroids and comets, star spectra of different classes and types of variability, star clusters, close and distant galaxies, quasars.

The observatory, its scientists and engineers, their everyday life, practices and overall work were the object of research. International groups of two or three students observed the daily work of particular researchers, conducted interviews, analyzed documents and technical artifacts, and collected photo and video data. Special attention was paid to practical application and use of semiotics in the analysis of collected data. In their research, student groups approached different aspects of the life of this heterogeneous community.

Some teams reflected on the changing position of these scientists, taking into account both everyday immersion in the studied community and public perception of astronomy. For example, analyzing the relationships between astronomers and their publics (citizens that every day visit Rozhen observatory, local and regional authorities in Smolyan region, public media), students reflected on Schütz' distinction of three types of social knowledge - the knowledge of the man in the street, the expert and the well-informed citizen. Interestingly, these three types could not grasp the relationships students identified, since some members of the public, especially amateur-astronomers but not only, have acquired deep enough knowledge to erode the asymmetry between experts and the other two groups, as assumed in Schütz' typology. At the same time, astronomers (and especially the

Student group visiting the Rozhen National Astronomical Observatory

Institute of Astronomy as an institution) lack the knowledge and skills to promote the significance and attraction of their research to the larger public and thus boost its legitimacy – what is probably due to its inherited tradition of being dependent on and working with top public authorities.

Others student groups described the similarities between sociology and astronomy, using Weber's understanding of science as a vocation. They focused on the anthropology of scientific practices and turned their attention to problems that arose in this heterogeneous community by addressing a crisis that occurred during one of the observations, the ways of dealing with it and the links between the heterogeneous elements in the network by applying Latour's Actor-Network Theory.

Many papers examined this scientific community as a network of actors, particularly with a focus on the interaction between humans and non-humans, highlighting the influence of change of equipment on the process of doing science. Finally, some papers traced the steps followed by an astronomer in order to reach his/her scientific goals, making visible the routes of translation in the work of the scientist, through the prism of Latour's and Callon's terminology, while simultaneously showing how science "reproduces" itself.



Elena Genkova is currently a fourth year B.A. sociology student in Plovdiv University "Paisii Hilendarski". She graduated from Humanitarian High-school "St. st. Kiril and Metodii" Plovdiv, in 2012, particularly studying English, Philosophy, Literature and History. She participated in numerous events concerning innovative technologies and ecology and took part in several sociological studies by analyzing and acquiring data. Her main interests are in sociology of science and technology, semiotics and data processing.

elena.genkova@abv.bg



Gergana Dineva is currently a fourth year B.A. sociology student in Plovdiv University "Paisii Hilendarski". Her interests are related to sociology of science and technology, risk societies and data processing. She participated in student practice under the Human Resources Development Operational Programme, co-financed by the European Social fund, that took place at the Bulgarian Red cross. She graduated from Secondary School "St. Kiril and Metodii", humanitarian profile with enhanced studying of greek, history and technology.

dineva.gergana@abv.bg

CHERISH, NOT PERISH

Cherish, not Perish aims at increasing the visibility of STS journals and other publication projects based in Europe and beyond. The publications presented are invited to design the following pages as they wish.

MESON PRESS: OPENING UP BOOK PUBLISHING

meson press publishes research on digital cultures and networked media. Our open access publications challenge contemporary theories and advance key debates in the humanities of today.

Despite our admiration for books we believe they need to be reinvented. We face changing reading habits in the era of digital media: for academic reading as well as for public outreach >searchability< has become central, and as such the pdf-format of the book. At the same time we face a rise in publishing (especially with edited volumes) leading to more and more books to be released under the increasing pressure to publish. This makes it necessary to experiment with new forms of book publishing that explore the books' digital being, e.g. shorter formats of books as well as new forms of (still rigorous) peer review.



These developments allow authors to shape their manuscripts in a different manner. Examples for this are future book projects like the upcoming »Symptoms of Our Planetary Condition«, a critical vocabulary developed by

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the group terracritica.net. Or the upcoming »Terms of Media Series«, an experiment initiated by Wendy Chun, Timon Beyes, Goetz Bachmann and Boris Traue, who reinvent conference proceedings as a series of short books rather than thinking of them as an edited volume.

Generally, books by meson press are timely and of high expertise while written in a style that openly engages the reader in the spirit of Open Access. We believe in openness. For us this means that all our books are released under an open license on our website www.meson.press free of charge and that our publications can be harvested by libraries and other content aggregators using the OAI-PMH inferface. Recent publications published in this spirit include topics like »No software, just services« (Kaldrack, Leeker 2015), »The Politics of Micro-Decisions: Edward Snowden, Net Neutrality, and the Architectures of the Internet« (Sprenger 2015) or »Rethinking Gamification« (Fuchs, et al. 2014).

meson press has also published a range of translations of theoretical classics, among those Isabelle Stengers' »In Catastrophic Times« (co-published with Open Humanities Press), the Italian 1960s classic »The Cyborg« by Antonia Caronia, or the German translation of Étienne Souriau´s »Les différents modes d'existence«. As one can see from this list, our books are not only written for media scholars and advanced students of cultural and media studies, but also address the serious reader interested in digital media.

In the spirit of digital media, all of our books are published in digital formats and as print-on-demand. The visual identity of the press, which is effectively optimized for both environments, has been developed in close collaboration with the book designer Torsten Köchlin and the digital designer Silke Krieg. Working with the print-on-demand provider Lightning Source allows our beautifully printed books to be available in flexible numbers worldwide far beyond Europe including the UK, US, and South America.

Publications have become cheaper in recent years, however, publishing still isn't free. Recent developments show that the sales especially for smaller presses are not high enough to sustain a press and its editors. This means, presses rely on a charge - hopefully paid by funding agencies or academic institutions - generally known as >author processing fee< or >print support fees<. In German speaking countries, academic book publishing is already heavily subsidized by those fees known as »Druckkostenzuschuss«.

meson press remains an optimistic experiment despite Open Access is still highly contested in many respects and faces challenges that cannot be ignored. Taking a closer look at current developments, the suspicion against open access as not rigorous enough or the one-sided focus on OA journals quickly becomes apparent. The latter might be historically explained by the fact that the idea for Open Access was first voiced in the MINT disciplines.

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However, one size does not fit all in scholarly publishing and it is therefore important to us to take part in the development of Open Access publishing models more suited to the publishing cultures in the humanities and the social sciences, which still rely heavily on the book as a powerful means of scholarly communication.



meson press is a spin off of the "Hybrid Publishing Lab" which was funded within the framework of the EU major project "Innovation Incubator" at Leuphana University Lüneburg from 2012 until 2015. Its aim was to investigate the future of scholarly publishing in digital environments and generating ideas, technologies as well as business models for supporting the development of the regional publishing industry. It is in this context that we, Mercedes Bunz, Andreas Kirchner and Marcus Burkhardt met. As a consequence, the aim of meson press is to develop an academically sound strategy for Open Access book publishing. Today, meson press is an experiment we continue with verve after our research time at Leuphana University. As academic nomads living at the moment in Munich, Cologne and London, we run meson press in a decentralized manner, while keeping our main office in Lüneburg. To stress this network-like structure as well as its participative and democratic character, we chose to organize meson press as a cooperative - a legal framework not only meeting our requirements for the moment, but also enabling us to include further members in our hopefully growing network.

Contact

info@meson.press www.meson.press

meson press eG Sandstrasse 1 21335 Lüneburg Germany

STS EVENTS

This section features reports from recent workshops and conferences exploring new perspectives, topics and methods in STS.

BIO-OBJECTS MEET MULTISPECIES ETHNOGRAPHY

Niki Vermeulen, Sakari Tamminen

SUMMARY: The workshop explored affinities between the concept of bio-object and the practice and theory of multispecies ethnography. Bio-objects are materializations of new forms of vitality such as stem cells, bio-products, and other objectifications (Vermeulen, Tamminen, & Webster, 2012). Multispecies ethnography is a tool of emergent forms of anthropology that consider how animal, plant, fungal, and organic agencies can be most fruitfully incorporated into ethnographic accounts (Kirksey & Helmreich, 2010). After an introductory panel discussion of these two topics and two exploratory sessions, fueled by the work of PhD students from MIT and Europe, we explored whether "life" is objectified across a range of cases and, if so, how. We addressed how well "multispecies"-related concepts suffice for particular ethnographic or historical cases, and we sought to identify convergences and divergences between the terms and scout out new avenues for collaboration.

ON BIO-OBJECTS: THE CONCEPT AND RESEARCH NETWORK

Niki Vermeulen, Sakari Tamminen, and Bettina Bock von Wülfingen

The bio-object concept and the associated network have grown out of a common interest in issues surrounding the boundaries of the biological sciences and how they meet various aspects of society. The concept was born of the need for a heuristic device allowing the analytic gaze to be focused on a multiplicity of "objects of life" and the myriad processes that render life as an object that can be known, and hence grasped for intervention. The concept is biographically situated in the European STS research scene of the late 2000s, where it emerged in objection to some writings' implications that the secrets of life can be reduced to genetic code. Thus, it voices opposition to reductionist interpretations surrounding life's generative potentiality. At the same time, the concept, in effect, posits that work on philosophically and politically framed questions within the social sciences about "life itself" must be informed also by nuanced empirical studies of how the status of "life" is accorded to various vital objects. This endeavor demands a concept that does not carry the historical weight (from moral, philosophical, and religious realms) associated with discourses on "life itself."

The bio-object network brings together researchers who are interested in the new biosciences and, indeed, in bio-objects in all their diversity. Since its establishment,



in 2007, the network has, with the aid of EU COST funding, grown quite extensive. With more than 80 members, it spans a broad spectrum of disciplines – sociology, history, philosophy, anthropology, and the life sciences. The COST network, under the name "Bio-objects and Their Boundaries: Governing Matters at the Intersection of Society, Politics, and Science," concentrates on three key questions:

- What are bio-objects, and how do they span various boundaries?
- What challenges do bio-objects pose for governance and regulation?
- How do bio-objects generate and get generated by various relations social, cultural, material, etc.?

Bettina, Niki, and Sakari considered how the concept can be used in practice and, through a number of case studies, illustrated where life is presented through relations found, for example, within bioinformatics. They also explored how the attempts at modeling life – to objectify life through relations – are culturally mediated in scientific practice.



MULTISPECIES ETHNOGRAPHY

Stefan Helmreich

Taking Kirksey and Helmreich's article about multispecies ethnography as a point of departure, Stefan explored the socio-historical context of the phenomenon and gave an eloquent update on new arguments drawn from a wide range of literature. He started out with several ways in which dogs can relate to humans, from rescuing us from danger and detecting substances on our behalf to being companions and comforters, then began unpacking these relations as fruitful starting points for multispecies ethnography. He continued by demonstrating how well the multiplicity of relations is often depicted by bio-art and bio-artists, as both help to unwrap the "sacred bundle" of life. In fact, bio-artists have had a much larger role – they were among the first to push forward with ideas in this field, with the Multispecies Salon exhibits held at AAA meetings. Stefan compared multispecies ethnography to various approaches applied in ethnographic research – in research traditions ranging from ethnoprimatology to ethnomicrobiology – and borrowed from their discourse in order to map, analyze, and problematize the idea of multispecies ethnography.

What seems fundamental to multispecies ethnography, in a recurring pattern hinted at in the other approaches too, is the explicit effort to shift the boundaries between the researcher and the research object, between knower and the known, and perturbation of the modern dichotomy between the human perspective and the Other. With the modern way so imbued with traditional ethno-graphic methods and manners of representation, can we render the perspective of the other species visible, through innovative research approaches that break from methods centered on text and the associated senses (the visual and cognitive)? What about sounds and the visceral, especially since we know that our voice is mediated through bio-objects and multi-species relationships, through parchment, paper, and/or the bacterial culture on an iPad screen?

THE MULTI-SPECIES WORLD AND BIO-OBJECTS

Andrea Núñez Casal: microbiomes

Luísa Reis Castro: anthrozoology and pests, mosquitoes

Nadia Christidi: art, science, biology, conflict in the Middle East

Richard Fadok: "bio-inspired design"

Caterina Scaramelli: bovine biopolitics

Michelle Spektor: biometric IDs and databases

Lucas Mueller: aflatoxins

Rijul Kochhar: antibiotic-resistance research in India and the US

Alison Laurence: animals on display

Jia-Hui Lee: anthrozoology in post-conflict zones, olfaction

Peter Oviatt: domestication and commodification of fungi

Claire Webb: the search for extraterrestrial intelligence

Valentina Marcheselli: astrobiology

That a host of species can live with humans (and within a human host) and that these can be conceptualized as both enemies and friends can be viewed in terms of the human microbiome. Immunity as community opens numerous perspectives to health and car, while also showing diversification and inequalities connecting gut, food, and political cultures (Núñez Casal). For instance, while mosquitoes connecting with humans can bring disease, they can also become a public health tool that prevents infections (Reis Castro). In the context of war too, the lines between friends and foes can become reconfigured through multi-species relations. In one example, the Iraq War saw people become objects of destruction, yet the Baghdad zoo and its animals became ground for the reestablishment of social relations and international connections (Christidi).

These patterns are closely connected to differences between security and insecurity, yet another interplay in relations between the human and non-human species. As with mosquitoes as friends and foes, microbes can protect (as in the microbiome) yet can also resist being protected against (as in antibiotic-resistance), through adaptation and their travel through various cultures (Kochhar). In another landscape, through the care of and for water buffalo, wetlands that need protection are also protecting the livelihood of their inhabitants (Scaramelli). However, the balance in multi-species relation-ships is continuously at stake and reconfigured, or strictly regulated as in the case of aflatoxins (Mueller) or cheeses (Paxson). All the concomitant issues are closely related to the governance of life and modes of governing life.

Another theme that ran through the presentations was the way in which bio-objects and multi species relations are defined by form, smell, and taste. In the case of bio-inspired design, matter mimics life and life becomes active matter in various scenarios of emergence ruled through perceived principles of life, as form and function are blended (Fadok). In spaces that entail such melding, we learned that all smell can be reduced to six chemical components, but are those deconstructed smells still alive (Lee)? And can, in the case of truffles (Oviatt), smells constitute a difference between French, Italian, and Romanian identities? Finally, the discussions explored the identity of life. In Israel, bodily identity can be transferred to a chip with biometric information (Spektor), creating a split between individual and informa-tion, an opening for rethinking the meaning of historical and political relations for today and the future. And can another gap be closed, with fossils of political life (such as Mount Rushmore) being subsumed by the category "natural history" (Laurence)? Finally, the quest to seek extraterrestrial life and be able to escape Earth's tether calls us to re-imagine what life is and how it can be known (Marcheselli), while also raising the question of whether, or how, instruments for finding life are themselves mediating (Webb), bringing bio-objects



Umwelt Scallops +

to life when within a proximity of vital signs – like the hyphen in bio-object concept itself.

RECOMBINATION, REMIXING, REPURPOSING, AND MORE

From the preparations and the initial presentations, it was already clear that bio-objects and the "multispecies" framework are both not only a way of conceptualizing and framing the social study of the biosciences but also a heuristic device to address the complexity and the (shifting) perception of relations between the organic and the non-organic and among various species in their broader social and cultural context. That both concepts focus on relations in a synthesis of material and diverse social-cultural-economic relations makes their relationship worth exploring.

Discussions focused on what the "bio" of the bio-object is and on how it is related to the other "bio"s, such as bio-value, bio-capital, bio-politics, and bio-labor (and/ or multi-species labor). Is this a matter of object versus process? What about bio-epistemologies and bio-objectivities? Or does this objectification also take into account the more negative aspects of objectifying? And how should substances such as air or water be added to the picture? Are they bio-objects too? These questions led us to consider politics of engagement, mediation, intersubjectivity, and abiotic signs for "bio"s. Can we also think in terms of lifetimes, of objects-by-bio?

In the case of the microbiome, it became clear that both concepts address the other's shortcomings: where the bio-object concept does not provide obvious ways to talk about relation-ships among multiple species and the numerous elements of life (the microbiome as a bio-object composed of many bio-objects), the "multispecies" approach does not allow ready analysis of the scientific work that transforms life (e.g., processes of bio-objectification).

An important observation was made at this juncture; that bio-objects as an analytic category can be used to think about issues of freedom and containment. How does freedom work in application of freedom of movement and pushing the boundaries of life – such as in the creation of a non-free body when data are stored elsewhere and can be stolen: a stolen self?

Opportunities for future encounters

During the 4S/EASST meeting in Barcelona – there will be a bio-object track:

Revisiting bio-objects and bioobjectification: Categories, materialities and processes central to the (re)configuration of "life" (http://www.nomadit.co.uk/ easst/easst_4s2016/panels. php5?PaneIID=3917). Related to this is the opening up of the categories of life, into digital representations of life but also into ruins of life and bodies of death. With regard to the material stuff of life, the flesh to the bones, we find categories of life able to be opened through instruments, technological objects such as microscope and satellites that mediate life, through which we zoom in and zoom out. Turning from space to time raises the question of when life ends: Where do the thresholds of life lie, and can we talk about pre-life? This is, quite literally, a matter of life and death. Finally, we can look at symbiosis. Ruins can be conceptualized as runaway life rather than any sort of death. Should we, for instance, understand antibiotic-resistance as the ruins of antibiotics or, instead, antibiotics out of control? And how is this related to cultivation and uncultivated/uncultivable life?

An important issue that arose repeatedly in the presentations and discussions is the primarily Euro- and US-centeredness of these approaches (the "multispecies" approach is more connected to US traditions, and the idea of bio-objects emerged in Europe). While the geographic heritage of both approaches is not surprising, it is important to reflect on this and find ways to expand both arenas, striving for a more global playing field.

Finally, all our presentations and discussions expressed a love for life. Eco-love. Affection for life, living, and the living, expressed through careful observation, analysis, and reflection. We also enjoyed some excellent talk and tastes of gastro-objects: truffles and cheeses.

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EXPERIMENTS WITH "NEW MATERIALISMS" – WORKSHOP REPORT ON "SOCIOLOGY AND NEW MATERIALISMS"

Katharina Hoppe, Benjamin Lipp

SUMMARY: The workshop "Sociology and New Materialisms" was driven by two interests: one genealogical and one experimental. The former arose from the observation that new materialisms are linked with existing debates on materiality and social sciences. We were therefore interested in the dis/continuities between neo-materialist approaches and existing materialisms in social theory. The experimental interest derived from a desire to shift the debate on new materialisms away from purely theoretical concerns towards the question how these concepts could make a difference empirically. We therefore asked our participants to employ neo-materialist approaches to let them prove themselves vis-à-vis qualitative field research. As a preliminary result, this report points out five problematizations of materiality which promise to be fruitful both for further conceptual work and empirical enquiry: apparative, de/stabilizing, multiple, withdrawing, and contested materialities.

Our workshop "Sociology and New Materialisms" was motivated by two interests: one *genealogical*, one *experimental*. The former interest arose from the assessment that the general discussion about new materialisms entered an intellectual climate where, at least in some disciplines, materiality was already a well-discussed matter of concern. We were therefore less interested in the fact that new materialisms put 'matter' on the table than we were in *how* authors from a variety of fields such as Karen Barad (2007), Jane Bennett (2010), Andrew Barry (2001), Rosi Braidotti (2013), Bruce Braun (Braun/Whatmore 2010), William Connolly (2013) and others have raised the question of materiality differently. We wanted to think about the dis/continuities which are marked by neo-materialist contributions with regard to the broader debate on materiality in the social sciences. Our experimental interest derived from a desire to shift the debate on new materialisms away from a handful of well-established theoretical concerns. We therefore asked our participants to employ neo-materialist ideas and concepts to let them *prove themselves* vis-à-vis empirical field research.

One re-occurring insight throughout the workshop was that there is no easy answer to the question whether new materialisms are really new or even what they are precisely. The materialist challenge cannot be dissolved into exclusively conceptual answers. We found frictions through theoretical debates and empirical cases, we saw cracks in theories and methodologies, and we experienced the limits of our linguistic capability to express material ontologies and entanglements. The workshop left us with at least five problematizations which mark possible paths for further inquiry, research, and experimentation.

Apparative Materialities

A first problematization points to the question of how we can capture the material conditions of possibility, which are embedded in and constitutive of apparatuses. This challenge aims at a neo-materialist description of society which, on the one hand, goes beyond the anthropocentrism of classical approaches (e.g. Marxism) and, on the other hand, avoids focusing local phenomena.

Here, Sascha Dickel diagnosed an incompatibility between neo-materialist approaches and theories of society. Whereas materialist approaches focus on the social as a local materialization, theories of society stress its articulation in immaterial relations between people. Dickel then showed how digital devices such as the smartphone escape *both* of these analytical lenses because they constitute relations and collectives through mediation of the material and the immaterial. Therefore, if one wants to grasp the apparative im/materiality of digitalized society, neo-materialist thought should seek to make a difference in the development of both a theory of society and critical social theory.

One take on this problem is the concept of the apparatus, which was addressed in Thomas Lemke's paper. He developed the notion of *apparatuses of government*

drawing on Foucault's concept of governmentality and neo-materialist approaches of apparatuses, especially the approach of Karen Barad. He argued that this kind of synthesis properly takes into account the performativity as well as the constitutive entanglements of subjects and objects and opens up new forms of critical engagement: a neo-materialist inspired critique for him is an experimental critique of mapping what is and what might be possible. Hannah Fitsch also used Karen Barad's notion of the apparatus to analyze and problematize the materiality of computed pictures. She stated a re-materialization of digital images in which actors neglect the implicit and presupposed inscription of gender differences: These are incorporated into the very materiality of the apparatus. While she sees the notion of the apparatus as an important tool for the feminist critique of science she also challenged a neo-materialist critique that merely maps apparative conditions of materialization. She raised the question how such a project might profit from other critical projects such as Critical Theory.

DE/STABILIZING MATERIALITIES

In a second problematization the inquiry into the apparative function of materialities was confronted with the question of how materiality has destabilizing effects in socio-material settings. Benjamin Lipp showed how empirical research on social robotics might be guided by neo-materialist thought. Drawing on Simondon's philosophy of technology and Karen Barad's notion of intraaction he developed an 'analytics of interfacings'. In conceptualizing interfacing as a process of rendering things in/disposable for one another he argued for a neo-materialist perspective on the techno-material conditions of social robotics. Here, Lipp described how in the course of human-robot interaction materialities have destabilizing effects, which exceed accounts of materiality as stabilizing social order (e.g. Latour's hotel key). Especially in the course of human/robot interfacings the 'eventful' character of materialities comes to the fore.

Drawing on Karen Barad's agential realism Athanasios Karafillidis problematized implicit presumptions of human/technology differences in projects of prosthesis. In scientific research practice, he argued, the first agential cut between human and technology is usually always already made. Here the very practical problem lies in the challenge how neo-materialist accounts of intra-actions as material-discursive events can help to infuse alternative differences into the development of assistive technology. Going beyond cybernetics (but also pointing out convergences of cybernetics and new materialisms), Karafillidis proposed to begin observations and analyses with relatively indeterminate phenomena: importantly for the sociology of technology, organic-mechanic couplings in the case of prosthetics emerge through processes that dis/enable users. Processes of boundary drawing are not only stabilizing processes and neither are prostheses simply stabilizing or enabling devices to begin with. Thus neo-materialist concepts might inspire to account for these ambivalent processes of technologies such as prosthesis.

MULTIPLE MATERIALITIES

Many contributors pointed out the multiplicity of emergent materialities and ontologies. Jan-Hendrick Passoth whose paper engaged with the materiality of digitalization suggested that the politics of digitalization would have to deal with their multiple ontologies and their implied politics. He distinguished between three forms of materiality with regard to digital processes: hardware, software and runtime. Where the first materiality lies in the installation and maintenance of physical systems, the second can be found in the resisting materiality of software codes, e.g. in the case of updates. As a third type of materiality Passoth conceptualized 'runtime' as practices and apparatuses of prototyping, testing and evaluation. While these material enactments certainly intersect with each other empirically they also engender different versions of the political. In a similar vein, Sabine Maasen focused on multiple materialities with regard to the (re-)construction of selves through neuro-objects. Here, Maasen employed an analytics of milieus of subjectification in which neurofied subjectivities are co-produced through neuro-technologies such as neuro-feedback and brain-computer interfaces. The manifold materializations of neuro-selves enforce a thorough work of synchronization in which identity needs to be reconstructed and refitted again and again through divergent material circumstances.

In an ethnomethodological critique of materialist thought, Thomas Scheffer showed how multiple materialities emerge in *actu*. He argued that materialist thought all too often draws overarching ontologies without attuning its vocabulary to the situated character of material events. In order to be able to empirically see emerging materialities one would have to abstain from the ascription of absolute characteristics to matter. Matter is not. Rather *matters* exist.

WITHDRAWING MATERIALITIES

Departing from the multiplicity of materialities, in another problematization participants argued that materiality does not only exist, it also withdraws, fades and becomes fractious. In other words: To not take an agentive or vital account of materiality for granted but conceptualize its capacities one would also have to focus materiality from the side of its disappearance. For example, Ignacio Farías and Laurie Waller showed how certain phenomena are not adequately described in terms of multiple ontological enactments - especially if one takes into account the withdrawnness of objects (Harman). Taking noise as an example, they argued that this is an object of non-tology. In this sense they radicalize the theorizing of 'withdrawnness', because they see withdrawn materialities not as a relational effect but rather as indifferent materiality, which provokes speculative practices attaching noise to things. In a similar spirit, Andreas Folkers employed Heidegger's account of 'Gestell' to think about renewable energy infrastructures. Problematizing phantasies of infinite resources, he focused the withdrawing materiality of wind and its consequences for the management of energy supply. Consequently, he argued that the withdrawnness of objects and matter cannot be grasped through the question of what withdraws but rather how the withdrawnness is rendered visible and/or problematized.

CONTESTED MATERIALITIES

The withdrawnness of materialities points to another important concern. Emphasizing the fractious and also multiple character of materialities points to their contestation and the fact that particular materializations might stand in conflict with others. To address this contested and competing character of different materializations Andreas Folkers developed the notion of an onto-topology, an analytics of competing and co-existing ontologies. He showed that ontologies in recent debates are either conceptualized as too flat merely repackaging common constructivism with an ontological vocabulary or too deep analyzing historical formations as totalities that can be contrasted. In order to avoid both of these versions, he argued with Foucault and Heidegger for an onto-topology, that is, an analytical perspective that tries to analyze specific ontologies which are enfolded and can stand in conflict with each other. Folkers, thus, emphasized contestation as a mode of mattering.

Whether contestation is adequately theorized in more recent conceptualizations of politics, was one of the questions of Sven Opitz' paper on cosmopolitics in Bruno Latour and Ulrich Beck. He showed how both approaches operate with ontologies of entanglement, the global risk-community and "Gaia". In one way or another both approaches suggest that cosmopolitics are the necessary result of this global situation of interdependency. As a consequence, their cosmopolitics oscillate between an over- and a depoliticization but certainly miss a political middleground in which an analysis of concrete power relations and contestation is possible. A con-ceptualization of the political in a neo-materialist vein would have to avoid this tendency: An onto-topological orientation as suggested by Folkers might point in that direction.

It was never our goal to celebrate or dismiss the theoretical orientations framed as new materialisms. Thus, the workshop, to us, brought up more questions and a desire to further link the debates on new materialisms with sociological concerns, theoretically as well as empirically. For this, we proposed five lines of problematization which themselves can conflict: How can we capture the apparative conditions of possibility of materialities and at the same time retain a gaze for the event-character of materializations? How could this eventfulness be integrated in empirical research as well as theoretical accounts in order to be able to think the complex relations of de/stabilization? How can we observe and theorize the multiple modes of matter's existence, or better: it's enactment? Moreover, how can we distance ourselves from a concept of matter that just presupposes it as agentive or vital force; how can we integrate its contestation and its multiple ways of withdrawing into sociological analyses?

On the one hand, this range of questions shows that neo-materialist concepts and interventions can provide theoretical resources to tackle fundamental problems of social theory. On the other hand, referring to new materialisms does not provide us a definite answer to the question of the relation between materiality and the social. Instead we hope to have shown that this strand of discussion is open to and in need of further development across disciplines and theoretical traditions.

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Katharina Hoppe is a research associate in the "Biotechnologies, Nature and Society" research group at the faculty of social sciences at Goethe-University Frankfurt. In her PhD thesis she develops a relational reading of Donna Haraway's works. Her research interests involve contemporary political and social theory, feminist science studies, new materialisms and biopolitics.

k.hoppe@em.uni-frankfurt.de



Benjamin Lipp is junior researcher at the Friedrich Schiedel Endowed Chair of Sociology of Science at the Technical University of Munich. In his PhD thesis he inquires into the apparative formation of social robotics as a techno-scientific project. His research interests involve TechnoScience, gouvernmentality studies, social systems theory and new materialisms.

benjamin.lipp@tum.de

"Making and Doing" at 4S Meeting (Denver): Let's extend the experiment!

Julie Le Bot, Marianne Noel

SUMMARY: In this report from the 4S Annual Meeting in Denver (2015) we highlight the dynamics of the "Making and Doing" Programme. Conceived as a response to a growing trend among STS Scholars in engaging in scholarly practices that produce and express STS knowledge beyond the traditional outputs, it took the form of an interactive exhibition. Projects' initiators engaged dialogue with the audience, through original performances or carriers (websites, paperwork, videos, etc.). We shortly describe 15 initiatives (among 50) which have been embraced by collectives of all types and illustrate how STS insights are applied and implemented in practical processes of production, diffusion and utilisation of science and technology. We suggest to renew the experiment, in order to feed our common knowledge base with STS projects than can also used as case studies in courses and training sessions.

Conceived as "a response to a growing trend among STS scholars in engaging in scholarly practices that produce and express STS knowledge beyond the academic paper or book" (Amir, 2015), the Making and Doing Programme held its first session at the 4S Annual meeting in Denver in November 2015. The idea for this Programme developed from a discussion of scholarly making and doing STS at the Ecosite/4S meeting in Buenos-Aires (2014). More than 50 presentations were displayed at the 4S meeting. The Programme took the form of an interactive exhibition. Each project was allocated a space of approximately 2x2 meters. The Programme was attention grabbing, notably through performances such as that of Woelfle-Erskine's (UC Berkeley) "Tell a salmon your troubles" project. This report aims to give a flavour of the diversity and creativity of the exhibits. Despite the specificity of each, we gather them under different headings.



Tell a salmon your troubles" project invites working scientists to relate to another critically endangered species, coho salmon, as affective beings who may notice and respond to human actions. "Tell a Salmon" injects feminist STS practices of reflexivity and reciprocity into scientists' inter-species thinking.

VISUAL AND SENSORY EXPERIENCES

Special attention was given to art for its way of dealing with human sensibility and science. Named "Visual and Sensory Approaches" by the organisers, these exhibits encouraged reflection on the place of the arts in science, the role of imagination in scientific comprehension and innovation, or simply how science can be a vehicle for artistic production of objects (or the opposite). Berenice Abbott's work (see figures p 35), presented by Hannah Rogers and Worthy Martin in the installation "Making Science visible"¹, is representative of this approach. As a photographer of the twentieth century (1898-1991), she produced pictures through scientific experiments, by using technologies of her time and designing a new kind of camera. She mainly worked with mirrors and magnets to create black and white graphic photographs. For instance, her work influenced the way we currently represent waves or the diffraction phenomenon in a prism. She aestheticized science.

¹ http://www.virginia.edu/ artmuseum/exhibition/ making-science-visible/





left: Light Through Prism, Cambridge, Massachusetts, from the series *Science*, 1958-1961

Berenice Abbott, 1898-1991

right: Soap Bubbles, New York from the series Science, 1945–1946

Berenice Abbott, 1898-1991

² http://video.adm.ntnu.no/ pres/53145c14456ec

³http://www.4sonline.org/md/post/ the_nowhere_project

⁴ http://www. iamstevehamilton.com/gallery/ the-anarchy-of-the-imagination/

⁵ http://limn.it/

⁶ https://turkopticon.ucsd.edu/

⁷ http://www.howsmyfeedback.org/

Similarly, work on medical imaging and its visual styles fascinatingly demonstrated the influence of art on scientific research. A striking example was a Norwegian mini-film of thirty minutes called "The Good, the True and the Beautiful" presented in the documentary "Film: Medical Imaging"².

The above are just two examples of projects focused on the importance of image and art. Other exhibits had different aims. For example, a digital installation titled "The Now(here) project"³ focused on re-presenting Borderline Personality Disorder and "Anarchy of Imagination"⁴ challenged ideas about shared space.

WRITING AND COMMUNICATING EXPERIENCES

A special concern in all the initiatives was the question of "living together": how can we make knowledge reachable and allow everyone to understand the complex issues of our world? Participants were encouraged to think about science outside textbooks and make it alive. How science can be fun, different, and closer to our everyday life? Innovation in making knowledge reachable relates to the method of communicating science. Some projects offer new forms of publication, of writing and communicating about scientific questions.

Limn magazine works in this direction, by focusing equally on the style and on the content. Limn⁵ is an annual magazine, shared in open-access on the Internet and also available in paperback. The articles are short, illustrated and the topics are diverse. Since its creation in 2011 Limn has addressed topics such as "Systematic Risks" (2011), "Food Infrastructures" (2014) or "Ebola's Ecologies" (2015). Limn is somewhere between a scholarly journal and an art magazine. The goal is to focus on contemporary questions, in an accessible style of reading but contributions are reviewed and carefully edited by the editorial team, as well as shared amongst the contributors.

The digital era has raised questions about accessibility, but moreover about the quality of knowledge. With the vast amount of information around us we need to be able to sort, to shed light on what is working and what is not. Two workshops presented initiatives about notation on the Internet. The aim is to allow its users to mark each other, for example in community sites selling products or services, and also to grade the sites themselves. These projects are "Matters of Care in Crowdsourcing"⁶ by Lilly Irani (UC San Diego) and co-authors and "How's my feedback ?"⁷ by Malte Ziewitz (Cornell University) and colleagues.

The idea of acting to better evaluate is used by lots of websites, but some initiatives were impressive in their ambition: thus, "How's my feedback" offers to grade some much used sites including "Amazon" or "Ebay". However, its implementation was challenging, and raised questions at the intersection of STS, design and engagement. Excitingly, these projects aim to show that becoming an actor is a collective endeavour rather than an actor being a receptor of information available on the Internet.

EDUCATIONAL EXPERIENCES

A large number of initiatives have also been implemented to create innovative courses or tools that actively engage young people in moving to a more environmentally and socially sustainable future. Using a "public ethics" framework -where ethical issues are prioritised- the "Greening Chemistry"⁸ program at UC Berkeley is an opportunity to gather scientists, engineers, designers, business managers, social scientists and environmental health specialists at the graduate level, through a series of courses that interweave STS with practical problem-solving. In the same vein, "Crafting Digital Stories"⁹ initiative makes use of short videos to discuss concepts and ways of thinking around sustainability. Through digital storytelling, the Arizona State University and its Biodesign Institute disseminate STS theories and case studies among educators and students.

⁸ http://bcgc.berkeley.edu/ethicsand-decision-making-green-productdesign

- 9 http://sse.asu.edu/about-us/
- ¹⁰ http://solarspell.org/
- ¹¹ http://civiclaboratory.nl/
- ¹² http://theshorelineproject.org/
- ¹³ http://write2know.ca/



Paperworks, posters, tool kits... More than textbooks in the conference venue concourse.

The Programme as a whole offered concrete tools that sometimes work in tandem with educational projects. These tools aim at democratizing access to information and knowledge. For instance the "Solar Digital Libraries"¹⁰ project (by Laura Hosman) focuses on populations with no electricity or Internet connectivity: a self-powered plug-and play kit (SolarSPELL) was designed to provide access to a digital library over an off-line WiFi spot, with areas struck by natural disasters in mind. "Civic Laboratory: Plastics"¹¹ is an action-oriented initiative at Memorial University of Newfoundland (Max Liboiron), which aims to create low-cost, opensource methods for monitoring environment and marine plastics. There is a description of do-it-with-others devices on the CLEAR website, which are designed by the people who use them (most of whom are not accredited scientists or engineers) and incorporate politics and values of feminism. This initiative tackles the major problem of oceans and marine pollution in a region (Newfoundland & Labrador) where many scientific protocols don't work because of the extreme environment.

Similar issues apply to the context of "The Shore line"¹² (Elizabeth Miller, Concordia University). This project is a series of stories about individuals who are responding to the threats of massive developments, destructive storms, and rising sea levels in coastal communities around the world (Canada, the U.S., Panama, India, Bangladesh and New Zealand). This documentary is more designed as a collection of testimonies than a coordination platform but illustrates a commitment around which citizens are engaged on preservation issues. New forms of more meaningful civic engagement are emerging in these initiatives. The approach is for all actors to be involved, often to overcome the lack of information from the administration or government.

There are many ongoing "political" projects, which challenge the relevant authorities on scientific questions. In Canada, the "Write2Know Project"¹³ is a letter-writing campaign launched in response to the Canadian government's "war on science". Write2Know offers a platform for people to pose questions to federal scientists and ministers on matters of public and environmental health and ¹⁴ http://www.4sonline.org/md/post/ scientific_legislation

¹⁵ http://cienciaforenseciudadana. org/home-en/

This report has been jointly written

by Julie Le Bot, a bachelor student at

the CRI, Université Paris Descartes,

where Marianne Noel teaches

STS. While Marianne attended the

4S meeting in Denver, Julie was encouraged to review the Making

and Doing Programme from Paris,

during her short internship at LISIS.

She will give a feedback to her

classmates during the Spring term.

In addition to "traditional" courses based on readings, this will be a way to illustrate how STS insights are applied and implemented in practical processes of production, diffusion and utilisation of science

We hope it will also generate new

and technology.

initiatives

safety. The record was quite significant: over 4900 letters were signed by people at the time of the federal election in October 2015 in Canada. The Chilean project "Scientific legislation"¹⁴ moves into the same direction: Martin Perez Comisso and colleagues have developed a learning experience to empower undergraduate students in several disciplines with law creation techniques. Conclusions have been delivered to senators and congressmen. The creation of laws by citizens is a new practice for Chile, experimented with in the civilian-academic format. Last but not least, Citizen-Led Forensics (Ciencia Forense Ciudadana, CfC)¹⁵ is a remarkable humanitarian project directed by relatives of the disappeared in Mexico. It was created in August 2014 with the task of governing and managing an independent and citizen-led forensic DNA database.

A LARGE VARIETY OF CREATIVE INITIATIVES

To conclude, we were impressed by the enthusiasm with which diverse and creative initiatives have been embraced by collectives of all types. This summary has covered 15 projects only; we have made choices that are influenced by our interests in specific topics (arts and representation, pedagogy, etc.). Many projects have been completed, which make them easier to describe, but some are still going on. We were surprised that two thirds of the projects came from the North American continent. That has certainly to do with the cost of travelling to Denver. Is there also a link with specific learning methods, STS "styles" or traditions and the availability of funds in countries such as the U.S. or Canada? It is still too early to draw on conclusions.

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Julie Le Bot

Centre de Recherches Interdisciplinaires, Université Paris Descartes, France After studying philosophy and political sciences during three years at Université Paris 1 Panthéon-Sorbonne, Julie started an interdisciplinary bachelor in sciences at the CRI (Center for Research and Interdisciplinary). She is fascinated by relations between science and society and how they contribute to build our world.

julie.lebot@cri-paris.org



Marianne Noel, LISIS & IFRIS, Université Paris-Est, France

Marianne is a senior research engineer at CNRS, and a member of LISIS & IFRIS at Université Paris-Est, France. She holds a PhD in physical chemistry, a master's degree in history of science, technology, and society from the Centre Koyré (CNRS-EHESS) and has extensive industrial experience. Her research, anchored in STS and economic sociology, addresses the changing use of periodicals and their role in defining value in scholarly communication. Since 2014, she teaches STS in undergraduate courses at the CRI.

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EASST has a broad number funding schemes, including the EASST Network Fund, the EASST Event Fund and the EASST Conference Fee Waiver. All funding recipients are asked to submit a report on the supported activity to be published in this section.

TRACING SOCIOMATERIAL PRACTICES IN TECHNOSCIENTIFIC WORLDS. STAKES AND DIRECTIONS FOR STS

SUMMARY: The conference in December 2015 that celebrated the launch of STS Austria provided a colorful map of the field of STS and thereby an excellent opportunity to take stock of its current state and directions. Contributions to the conference provide a rich view of the ways in which STS makes sense of the sociomaterial practices that build the technoscientific worlds in which we live across many domains and levels. At the same time, a concluding discussion identified that STS has not always been equally successful in applying its perspectives to its own practices. There are therefore several challenges ahead for strengthening the field's solidity, impact and relevance; challenges that should be met with an open approach both within and beyond STS.

From 3-5 December 2015 the newly established national organization for science and technology studies *STS Austria* (see www.sts-austria.org) celebrated its launch with an international conference on the premises of the University of Vienna. This conference, organized with support from EASST and various other institutions, explored *living in technoscientific worlds*, as the title indicated, and thereto brought together a wide variety of researchers and their work from within Austria, Europe and beyond. From all their contributions emerged a colorful picture of what STS has to offer. Richly exhibiting the shared agenda of the field to make sense of the socio-material practices that surround us (as it was summarized in the closing panel), the conference made a strong case for the relevance of current work in STS. All the more reason for participants in a concluding discussion to consider how to strengthen not only research on sociotechnical practices, but also contributions to practices we study and the way we organize the practices of STS itself.

The title 'Living in Technoscientific Worlds' deliberately opens up a plethora of sites and ways in which people interact with science and technology in their daily



The closing discussion panel at the STS Austria Conference.

lives, and contributions to the conference did not disappoint in mapping many of these ways in great detail. From particular objects to so-called grand political challenges, the program covered the various facets of technoscientific worlds across many scientific disciplines, social domains and geographical locations. Without claiming to either be representative or do justice to this diversity, I came way with many interesting observations, lessons learned and new questions to ask.

As is tradition in STS, various presenters took specific mundane or novel objects and explored their relations to personal identities, social norms, economic ambitions or political imaginations. Among other things, we learned about the ways radio frequency tags in clothing are sold with the promise that they create effortless order and efficiency for the marketplace (or fashion store, as the case may be); how stem cells may be considered different things depending on the model for how to sell them as health care revolutions; or – as Judy Wajcman discussed in one of the keynotes - how our possibilities for digital communication enable the frantic, continuously connected lifestyle we were already committed to – rather than causing it.

Yet STS has also develop particular perspectives on how science and technology affect – and are affected by – sites and forms of living together that have traditionally drawn interest of other social sciences. Various policy-initiatives were critically interrogated, including the transnational travel of elite universities like MIT that turn out to change when traveling away from the US, rather than just being implemented elsewhere. Science also received its due as a profession in contributions interrogating how researchers 'choreograph' their interactions in interdisciplinary projects, or how they reflect on the differences and tensions between academic and industrial research from the vantage point of their own careers.

Still further, at various points during the conference discussions moved to interrogating conceptual categories that describe the – perceived – major challenges contemporary societies deal with. 'Science' as a category itself is not excluded from this discussion. The challenges science confronts were explored in Maja Horst's keynote on the various levels at which attempts to communicate science seek to build a widely shared 'scientific culture'. In related, yet different terms several presenters took up the notion that governance of technoscience needs rethinking, exploring approaches rooted in reflexivity, anticipation, responsibility and engagement as pathways for more socially robust and responsive technoscientific advances.

Across all of the different places, domains and levels of technoscientific worlds addressed in contributions to the conference, presenters – in lively interactions with their audiences – persistently debated the possibilities and limits of the various concepts and perspectives in the toolkit STS provides. What are the differences and implications of the various adjectives for 'governance' that (in part) have emerged from STS itself? To what extent are our diagnoses of shortcomings in how scientists conceptualize their publics applicable on new areas? How do we maintain a focus on materiality when thinking about policies, strategies and imagination? What do we ourselves take for granted when trying to unravel the implications of lives in technoscientific worlds?

Questions like these were peppered through a closing session led by Ulrike Felt and Alan Irwin, in which all conference participants were invited to contribute, which formed a fitting conclusion to the conference. This panel both crystallized many of the discussions of the previous two days and provided a helpful baseline for STS Austria in building its presence - both in STS and in Austria – from its launch onwards. The conversation in this session revolved around various perspectives on both the idea and the practice of 'practice' and thereby helped in identifying some of the challenges STS (still) faces in claiming a place in conversing with its technoscientific environment.

One challenging dimension for STS as a field is how it relates to the structural demands of these worlds on how STS works. The field finds itself in a curious position in that regard, since many of its insights on scientific careers, funding mechanisms and indicators of quality and productivity barely find resonance in institutional strategies within STS. While we know that careers are precarious, or that funding requirements and publication scores may shape the issues we focus on and perspectives we develop, several contributions to this discussion implied

a variation to the tune that we nevertheless play the game. Can we do more to challenge a system of which we are acutely aware that it has severe limitations?

How scholars in STS collectively respond to this question has important implications for directions the field may take in the future. On the one hand, particularly scholars that find themselves in the transition from junior to senior positions indicated that they miss an awareness of the challenges confronting the next generations in the field – which include, for example, the absence of a perspective on long-term stability due to the short duration of research projects. On the other hand, similar observations were made about geographical expansion of the field and the question how to integrate colleagues from outside Europe, North America, Australia and a few pockets in Asia – and their perspectives on living in technoscientific worlds – in the shared intellectual endeavor of STS. How can STS develop ways to enrich its perspectives on sociotechnical practices into areas it has not (yet) seriously engaged with?

Finally, conference participants also observed how the ways STS engages with its surrounding technoscientific worlds is often influenced by assumptions we carry about 'outsiders'. Curiously, we often assume interlocutors such as policy-makers to neither understand our conceptual language, nor to be sufficiently reflexive to truly take on board the STS perspective. The question then, of course, is whether we are not too rigid in policing our intellectual tools, whether we aren't reproducing attitudes we have been critical of ourselves, and whether we thereby not put the potential of our field to participate in conversations on important sociotechnical questions and challenges at risk. As the rich demonstration of STS perspectives in this conference showed, we have many interesting and important things to say. Yet it is to no small degree also up to us to make our voice worth listening to. How then to take serious those 'outsiders' that think we can make fruitful contributions to their practices?

The colorful display of STS perspectives on the sociomaterial practices that build the world we live in not only showed why the field is relevant, but also that the questions STS asks are too important to be secluded to an exclusive academic field. If we can draw one conclusion with implications far and wide beyond national boundaries from this conference, it is that both the diversity of work presented and reflexive questions posed to conclude the conference confirm this. While the field of STS thus needs to confront the various challenges of its own technoscientific environment of a disciplinary academy, it simultaneously should remain open to new perspectives coming from new generations, locations or practices adjacent to our own. The concluding panel therefore finished with the observation that there is work to be done for STS in cultivating open encounters with diverse forms of life in technoscientific worlds.



Erik Aarden is a postdoctoral university assistant with the STS Department at the University of Vienna. In his research and teaching he is interested in the relations between science and technology, socio-political orders and implications for distributive justice, seen through a comparative lens and with a focus on biomedical research and innovation.

Erik.aarden@univie.ac.at

News from the Council

NEWS FROM EASST COUNCIL

The EASST Council (the elected body that runs our association) meets twice a year, last time in Munich in October 2015 and next in Copenhagen in April 2016. Issues which are currently being discussed and progressed include:

| Elections | The terms of office (normally 4 years) of the majority of Council members, and the President, come to an end this year. There will be a specific call for self-nomi- nations and details of the election process later in the year. However, if you want to know more about the Council you can see the current members from our website at https://easst.net/about-easst/easst-council-members/ and read the constitution at https://easst.net/about-easst/easst-constitution/. If you want to know more, please contact our secretary via estrid.sorensen@rub.de or the pres- ident at president@easst.net |
|-------------------------------------|---|
| Current Conference | There has been a massive response to the call for papers with over 2,500 received. Track Conveners and the Scientific Committee are busy assessing these. Students from 4S and EASST are working together to put together a Postgraduate Workshop to procede the conference. Both EASST and 4S have funds to support the conference attendance of students and those at early career stage who have had papers accepted. To keep in touch with developments follow the conference website at http://www.sts2016bcn.org/. |
| Future Conferences | A reminder that we issued a call for those interested in hosting EASST's next conference in 2018 (or at a future date). Council will be discussing this at the beginning of April so please get in touch straightaway if you are interested but have not yet told us. |
| Membership | A reminder that our membership year ends on 30th April. Those members who have a Futurepay agreement to cover renewals will receive a reminder about this – and an opportunity to cancel if you want to. If you know that your credit card has been renewed or changed over the year let us know and we can tell you how to update it. Others will receive an invoice as normal. A reminder that membership offers a discount on conference registration rates. |
| Awards for collaborative activities | Thanks for your nominations. Council is considering those and the awards will be made in Barcelona. |
| Science and Technology Studies | Our peer reviewed online journal has a new editor Salla Sariola. Thanks to Sampsa Hyysalo, the outgoing editor, for all his hard work. The journal has increased its issues from 3 to 4 per year based on the quality and quantity of submissions. Council is discussing other developments including an open journal platform and a pre-publication repository. |
| Website | We are currently making some amendments to our website to make its for- mat more compatible with mobile and tablet use. We will use this opportuni- ty to make some other minor changes. Look out for our new site soon. |
| EASST Review | We are always keen to hear your news via submissions to EASST Review. To discuss this contact our editor at ignacio.farias@tum.de |

President:

Fred Steward (University of Westminster)

Council of the European Association for the Study of Science and Technology:

Elected members:

Attila Bruni (University of Trento) Marton Fabok (University of Liverpool, student representative) Ignacio Farías (Technical University of Munich) Maja Horst (University of Copenhagen) Pierre-Benoit Joly (National Institute of Agronomic Research, Paris) Vicky Singleton (Lancaster Unversity) Fred Steward, President (University of Westminster) Estrid Sørensen (Ruhr-University Bochum) Harro van Lente (University of Utrecht)

Co-opted members: Salla Sariola (editor of Science & Technology Studies) Ingmar Lippert (manager EASST Eurograd list) Miquel Domenech (co-organizer 2016 4S/EASST conference) Lucy Suchman (President of the Society for Social Studies of Science, ex-officio)

EASST's Past Presidents:

Christine Hine, 2005-2008; Sally Wyatt, 2000-2004; Rob Hagendijk, 1997-2000; Aant Elzinga, 1991-1997; Stuart Blume, 1987-1991; John Ziman, 1983-1986; Peter Weingart, 1982.

Member benefits:

EASST organizes a biennial conference and supports a number of "off-year" events such as workshops, PhD summer schools and national/regional STS meetings. Members are entitled to apply for EASST Network and EASST Event Funds and are offered reduced registration rates for the biennial EASST conference and many other EASST events.

EASST awards three biennial academic prizes for excellence in various aspects of community-building – the Olga Amsterdamska award for a creative collaboration in an edited book or special issue in the broad field of science and technology studies, the Chris Freeman award for a significant collective contribution to the interaction of science and technology studies with the study of innovation, and the John Ziman award for a significant innovative cooperation in a venture to promote public interaction with science and technology.

EASST publishes the EASST Review and offers member access to the journal Science & Technology Studies.