

Guerre di confine. Autorità epistemiche e società in transizione [*Border wars. Epistemic authorities and societies in transition*]

by Sinapsi (Giuseppe Tipaldo, Flavio Ceravolo, Valentina Moiso, Nico Pitrelli, Mariacristina Sciannamblo and Mariachiara Tallacchini) (eds.) (2023) Milano, Meltemi, pp. 217.

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The opening publication of the series *Sinapsi – Intelligenze e conflitti in rete* (in English: *Synapses – Networked intelligence and conflict*) dedicated to studies on technoscience, politics, media and society, offers a new reading of five essays, regarded as milestones in the Science and Technology Studies tradition, translated for Italian-speaking readers. Each essay is accompanied by as many critical introductions framing its relevance and meaning in the contemporary historical and cultural context, characterised by conflicts and misalignments that affect the institutional boundaries and social reliability of scientific knowledge, relating to media and politics.

In the Introduction, the editors provide a clear contextualisation and rationale for the collection. Covid-19 pandemic, the war in Ukraine and the spread of regional conflicts, the increasingly devastating manifestations of the climate crisis, exacerbated the perception of future insecurity, highlighting instability as a macro feature for societies. Even areas that had for decades enjoyed better conditions of wealth, industrial development and social guarantees are facing daily manifestations of economic risk, everyday violence and environmental disruption. Such factors outline the traits of transition societies where a general crisis of meaning, widespread risk perception, and the cognitive and psycho-social challenges it poses, become defining factors of everyday life and the public sphere. Scientific production and its applicative results have not only acquired a hypertrophic dimension but have also been more than ever exposed to public attention, thus sparking off narratives with strong evaluative connotations. The margins of contestation for epistemic authorities in the public sphere (institutions, organisations, professionals) are widening. The conflict lines between the recognition of official epistemic sources of technoscience and expert knowledge, and the mushrooming of heterodox scientific sources (traditional know-hows, popular beliefs and anti-scientific practices) are being multiplied. The former's difficulties in providing rapid, unambiguous and effective solutions to emerging problems are compounded by the latter's reaction in consolidating sense communities driven by sentiments of diffidence or open defiance towards technoscience's institutional boundaries and practices, sometimes claiming alternative epistemic authorities (and political representation).

These epistemic conflicts are framed through cultural, media, and political dimensions. The “cyberbalkanisation of knowledge” (p. 12) refers to the multiple polarisation of public

debate on socially relevant facts. This is characterised by phenomena of homophily and radicalisation of contrasts, flanked by rhetorical violence, simplifications and spectacularisations of media representations. Furthermore, the assertion of authority of the political agenda based on the soundness of expert knowledge contrasts with the contemporary exposure of its abuses and failures, highlighting its conventional, socially constructed nature, and exposing it to controversies and contestations.

Editors argue that appropriate education about the dynamics underlying the construction of scientific knowledge as a social institution constitutes a fundamental condition for a deeper awareness of the necessary plurality of rationality forms interacting in the public communication field of expert knowledge, without undermining its interactions. This approach constitutes an antidote to the tendency of reducing the field of knowledge production and social reception to a confrontation between scientific and anti-scientific stances. Such a dynamic progressively deteriorates the relationship between science and everyday life, by eroding both the public's willingness to place trust in scientific institutions and the capability of exerting a critical reception of discourses conveyed through media and political arenas.

Among the STS critical conceptual tools, editors identify the co-production method, which allows one to consider the concurrence between science and other systems that contribute to defining the structures of social cohabitation and recognizes the entanglements between descriptive and normative dimensions intervening in the establishment of the epistemic order. Furthermore, they emphasise reflexivity. Such approach encompasses the perspective of social research itself in examining the performative nature of scientific activity and its capacity to co-create the worlds it observes, and questions empiricist realism towards an "ontological multiplicity" conception.

In the selection of essays, curators express renunciation of indulging in recentism and sensationalism (as in current AI debates), while turning towards consolidated critical tools, revealing their relevance with regard to the urgencies raised by the aforementioned context for the sociology of science and technology.

In Boulding's re-reading (Chapter 3) of "Science: Our Common Heritage" (1980), introduced by Tipaldo's commentary (Chapter 2), the evolution of science is read as related to the noogenetic bifurcation in human evolution. Learning aptitudes (tools, techniques, etc.) and the ethical and cultural mutations they entailed, have generated an ethos specific to scientific culture, based on the combination of logical faculties and imagination, the empirical verification as a selective factor, and the truthfulness-trust relationship. Threats to science's legitimacy, Boulding argues, occur from potential tensions between the perceived image of the scientific community and the social environment surrounding and sustaining it (including political power). Such tensions, he shows, often emerge from internal contradictions, including a forced generalisation of techniques and methodologies, repetition of truisms, and epistemologically inappropriate impositions of taxonomies and disciplinary boundaries. Yet, they are influenced by exogenous processes, such as the increasingly dense entanglement between science and technological applications, and the economic implications of the products of scientific activity, that bring cost-benefit assessment to become a core element of the perceived and effective legitimacy of science. These circumstances are made particularly evident by ecological and military threats related to technological deployment.

In Jasanoff's essay (Chapter 5) "Technologies of Humilities: Citizen Participation in Governing Science" (2003) the historical and epistemological foundations of a "kind science", as outlined in Pitrelli and Tallacchini's introduction to the translation (Chapter 4), are discussed. Jasanoff anticipated issues that have become particularly urgent in the face of the pandemic, such as the need for a different conjugation between science and democracy, characterised by the capacity for dialogue, listening, openness to criticism, reasonableness and transparency, and the acknowledgement of uncertainties and limitations in cognitive and practical terms.

Accidents, catastrophes and other unforeseen events generated as consequences of techno-scientific applications stress crisis points in the predictive and management capacities within socio-technical systems. This calls into question the accountability of experts and decision-makers, not just regarding the consequences but also the aims of scientific activity. The crisis of the post-war "social contract" of science gave rise to the introduction and refinement of increasingly sophisticated systems for monitoring and evaluating scientific activity, reintroducing predictive analyses and objectivity claims as the basis for legitimate scientific institutions and their funding. Jasanoff looks at pitfalls of such "technologies of *hybris*" (p. 78): peripheral blindness to uncertainty, political neutralisation of predictive analysis, and limited capacity to internalise external challenges to their framing. She also offers a reflection around four focuses for reliable and socially integrated civic epistemology: theoretical framing of problems, involvement in defining vulnerability in social terms, distributional consequences across global societies and markets, and learning socialisation as the purpose of civic deliberation. Thereby, her proposal integrates the operational potential of science and engineering with ethical and political demands in decision-making, enhancing the focus on participation and transparency.

The re-reading of Star's essay (Chapter 7) "Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions" (1990) is particularly wide-ranging and dense. Pointed macro-themes revolve around certain questions raised by Actor-Network Theory, addressing the power issues in the observation of techno-scientific networks (research and development projects and institutions). In her introduction (Chapter 6), Sciannamblo posits the epistemological and methodological significance of situating analyses in those "high-tension zones" where maladjustments, resistances, and conflicts towards standards emerge. This approach enables a comparative examination of alternative possibilities in techno-scientific deployment. The observation no longer focuses on the heroic narrative of the man-scientist protagonist at the centre of the network, but on actors placed on the margins: those irreducible to purification and standards, paying the cost of ambiguity and adaptation resulting from belonging to different worlds. Indeed, Star argues for placing at the core of social enquiry the concerns of multiple memberships, cultural dualities, hybrid and heterogeneous statuses and identities, which characterise the potential of marginal positions in socio-technical systems' evolution. Regarding the dialectic between production and reproduction, Star looks at the invisibilised labour, pertaining to multiple figures conventionally considered marginal in techno-scientific networks (technicians, laboratory caretakers, administrative staff, wives), considering their functions in transduction and enrolment processes. She highlights how subjects that participate in invisibilised work manage to negotiate the trade-offs, partial involvements and encounters, which constitute the very factuality of scientific enterprise.

Godechot's essay (Chapter 9) "Le bazar de la rationalité. Vers une sociologie des formes concrètes de raisonnement" (2000), resumes one of the earliest ethnographic works on the world of financial trading practitioners. The reasoning and actions of the participants involved in the study, including the uses of certain techniques (e.g., reading charts), devices (e.g., mathematical formulas and press reviews), and disciplined knowledge (e.g., economics, mathematics), result from the combination of cultural and educational resources (family background, education type and degree), acquired knowledge, beliefs, and the power and prestige of the various organisational positions, understood as *habitus* in Bourdieuan sense. Drawing on empirical study of the concurrence of causes that determine economic rationality and the practices that define it, Godechot deconstructs the ideal type of the *homo oeconomicus* of neoclassical economics, shedding light on its heterogeneity and ambivalence. In Moiso's commentary (Chapter 8), the contestation of the univocity of the rationality notion and the enhancement of STS approach, regarding knowledge construction processes, is underlined. Moiso notes how the rationality that guides action within certain organisations and contexts is probed through the inclusion of other social research tools that embrace different dimensions: power positions, economic inequalities, reference culture and socialisation processes. Such analysis results a useful tool to de-naturalise instrumental rationality as the absolute orientation of economic choices, presented and legitimised as a technical, neutral and depoliticised solution, focusing instead on economic inequalities, the corporeal and emotional dimension and cultural differences.

Jenkins' essay (Chapter 11) "School science, citizenship and the public understanding of science" (1999) and Ceravolo's introduction (Chapter 10) discuss the role of scientific education in the redefinition of educational policies and programmes. If scientific knowledge is a constitutive element of the very citizenship rights – namely, the exercise of critique and effective control over public and private choices involving sciences – what kind of scientific teaching should be offered to school students in order to foster their awareness and empower their agency? Jenkins' intervention belongs to a long-running international debate on the effectiveness of educational strategies for scientific knowledge introduced in school curricula, still relevant and unsolved. The remarkable display of the scientific debate during the pandemic stressed pivotal controversies arising from both the claims of official science prescriptions and compelled consent toward results. This deteriorated public trust in scientific activity, already compromised by the insufficient dissemination of adequate tools for reception and understanding of the functioning dynamics of scientific construction and consequent generalised disorientation. Jenkins critiques the inadequacy of science education based on theoretical and manualistic transmission of notions. This form results unable to stimulate interest and instil critical awareness of scientific problems related to everyday life experiences. He points out the importance of prioritising knowledge of scientific activity as a human endeavour, through an approach that facilitates the understanding of its meanings and procedures. Furthermore, he criticises the transmission of a positivistic and thaumaturgic image of science and its institutions, as an obstacle to the formation of a real scientific culture, advocating for a prudent and critical representation of it.

This collection offers reasoned insights into how tools and approaches from the STS can address specific epistemological and social demands regarding knowledge and public educational institutions, as summarised in Saracco's Afterword: "From the engineering of humanity to the humanisation of engineering". These include the reaffirmation of critical thinking

as a tool for participation in public life; the tailoring of the role of universities to current issues (social and ecological justice, psychological well-being); the critique of hyper-specialisation, of disciplinary segregation between techno-scientific and humanistic knowledge, and of the determinism of social engineering, in favour of interdisciplinary contamination and dialectics between complementary or competing visions, approaches and methods. Such an open *episteme* would involve techno-scientists and humanists, manage the confrontation with policy-makers, and integrate wider society (even across media and educational institutions).

The reading of this anthology provides a toolbox, for scholars and students alike, that summarises the indispensable contribution that STS represent for understanding the mediations and conflicts between technoscience, politics and society. The essays' collection and the editors' commentaries provide a historicised actualisation of problems, methods and concepts, as well as revitalising their reception in Italian. Indeed, the book interprets the conflicts between the epistemological boundaries of the techno-sciences not only as a subject for specialists but as a social issue affecting the public sphere and people's everyday lives.

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