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G. Tipaldo

La societa' della pseudoscienza. Orientarsi tra buone e cattive spiegazioni [The Pseudo-Science Society. How to navigate among good and bad explanations], Bologna, il Mulino, 2019, pp. 311

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The red thread running through this book is the idea that sociotechnical controversies – where scientific and pseudoscientific knowledge claims are clashing in the public sphere – follow a typical causal structure. Such a structure makes recent oppositions to vaccines or beliefs in alternative cancer therapies very similar to local conflicts against big infrastructures – those well-known as exemplars of the so-called NIMBY (Not In My Back Yard) or BANANA (Build Absolutely Nothing Anywhere Near Anything – or Anybody) syndromes.

According to Tipaldo, while commonalities prevail, two features distinguish more recent controversies from NIMBY and BANANA conflicts. The first distinguishing feature concerns the issues at stake. Issues at stake in NIMBY used to be undesired land uses (LULU, Locally Undesired Land Uses, is actually a more neutral acronym than NIMBY to identify them); recent controversies are mainly focused on collective decisions affecting individual personal bodies – through public regulation/intervention about health, food, personal habits. "Not in my body" (NIMBO) is the best-suited synthesis for them.

The second distinguishing feature concerns the role played by science. In NIMBY or BANANA controversies, scientists used to play a secondary role and they only came on stage when called by public administrators and politicians to support their own decisions. In recent technoscientific controversies, instead, scientific experts are positioned at the center of the stage – as sharing with governmental bodies the responsibility of public decisions – while opponents support the so-called fake scientific

knowledge. The first part of the book (Chapters 1-3) is devoted to explain the different syndromes: NIMBY, BANANA and the new NIMBO type. In the second and third part of the book (Chapters 4-7), the author's declared intention is to identify the vocabularies of motives underlying the controversies to understand what kind of subjective good reasons are driving hostile attitudes against scientific expertise supporting public decisions. This understanding is a necessary presupposition for any sound sociological explanation of these phenomena, while at the same time being useful to deconstruct false representations of scientific claims opponents. It is on these misrepresentations that the choice taken by many scientists to avoid opening overt controversies with them – as mainly not experts – has been grounded ("science is not democratic!" is the standpoint emblematically made by immunologist Roberto Burioni, intending not to debate with assumed not qualified speakers), as already had happened towards LULU opponents.

According to the author, prevalent explanations of opposition to expert knowledge follow three main theoretic models: a) the deficit model of scientific communication; b) the agenda-setting theory of mass media, depicted as spreading alarmism and sensationalism; c) the particularistic vs universalistic values model, related to the NIMBO syndrome and extended to pseudoscience followers.

To deconstruct each of these models, Tipaldo uses data from official statistics and sociological research. Comparison between the Italian context and the rest of Europe is carried out using a mix of secondary data analysis of national and international studies and of primary data analysis of research results produced by the University of Turin's team which he belongs to. The chapters of the book dedicated to this aim (ch. 4 and ch. 5 describing case studies and especially ch. 6, deconstructing mainstream explanatory models) are rich in details and quite sophisticated in the empirical deep deconstruction of previous accounts of those cases. They are the most valuable contribution of the book and are worth reading for anyone interested in this field of study, based as they are on the author's sound research experience on the issue.

The first explanations being discussed are those referring to the deficit model. Tipaldo shows that in specific controversies, for which data have been collected about people enacting anti-expert behaviors, those who decided to act against experts' advice were more educated than the rest of the population (the cited case regards parents who didn't vaccinate their children because distrusting general or pediatric practitioners). Moreover, their judgments about scientific knowledge were extremely positive. However, they didn't trust scientists' advice as experts, considering the economic interests of pharmaceutical companies as a structural bias of the field, which prevail on disinterested expertise. According to the author, what parents trusted (too) much, in their exitance towards vaccines, were their cognitive capabilities: they were excessively confident in their ability

to navigate the Web to catch the correct information about any field of scientific expertise relevant to their personal and to their relatives' health needs.

The second kind of accounts submitted to scrutiny entails the agenda setting theory. Tipaldo confutes the opposition between traditional media agenda setting theory and the theory of social media as non-mediated communication platforms. The role of mass media has radically changed, as the web 2.0 has transformed what used to be the public into several potential influencers. Communication platforms now use to channel communications flows into echo chamber bubbles, through agenda setting and agenda cutting strategies aimed at making people stay within the platforms longer and longer, feeding firms' marketing and commercial interests. Traditional mass media re-mediate information when it spreads more diffusively than expected so that at the end of the process cross-media echo chambers reciprocally feed the information flux from social to traditional media and from the last ones to the internet by aggregating and polarizing beliefs, attitudes, and vocabularies of motives. The main stage where controversies are played is the re-mediated public sphere in which communication platforms and traditional mass media set the frameworks within which opposite narratives are enacted and circulated by actors. Actors' visibility and success opportunities are filtered by the rules of the audience and by web reputation. On that stage, scientific experts are captured within a game which they do not dominate, as science and pseudoscience controversies are situated within the frame of *par condicio* as if they were representative of opposite political parties.

As his third analytical move, Tipaldo empirically dismantles the hypothesis of low civic attitudes as a feature of people trusting pseudoscientific knowledge. When data were purposively collected to assess its plausibility – he argues – they show pseudoscience activists being concerned not only about avoiding perceived disadvantages (as the NIMBY acronym would suggest for LULU conflicts) but also about pursuing collective and more general interests (as the BANANA syndrome, but also the shift to public action in many of the controversies, reveals). What they lack is generalized trust in other people, in institutions, and scientific expertise. As the author stresses, this result is recurrent in recent data diffused by Eurobarometer, concerning Italy but not only. The problem with scientific expertise is that it is considered to be too much tied to big companies' economic interests and to political power to be considered reliable.

Looking for alternative explanations based on perceived "good reasons" and legitimated vocabularies of motives adopted by involved actors (although sometimes the author's harsh irony – especially about the Di Bella case – clashes against his interpretative claims), the theoretical framework within which Tipaldo moves is that of the mediated public sphere. Although the contemporary scene on which much of the controversies are played is that of dis-intermediated social platforms, the author's attention

in the seventh and conclusive chapter of the book is mainly focused on traditional mass media. Such controversies reach traditional mass media and pertain vocabularies of motives supporting the relationships among the main actors moving on those mediatic scenes, as representatives of politics, scientific expertise, and pseudoscientific knowledge claims. This is the framework that makes comparability possible among the different case studies he refers to (going from the Bonifacio to the Di Bella and Stamina therapies and then to the anti-vax movement). Within that framework, vocabularies of motives governing relationships among Politics, Science, and the Media are especially those implied in processes of scientization of politics – supported by the rhetoric of evidence-based policy – and politicization of scientific expertise supported by the rhetoric of public engagement of science.

The mediated public sphere is the frontstage in which public controversies acquire visibility and pseudoscience is legitimated according to symmetric narrative strategies enacted by the media. Within a wider arena, comprehensive of a relevant backstage, mutual dependency among Politics, Science and Society is crucial to understand how the struggle for democratic consent, on the one side, and lay people's trust in science and politics, on the other side, are caught in a vicious circle through which the first one erodes the second. This vicious circle is, according to Tipaldo, the process through which what was intended to be a knowledge society is transforming itself into a pseudoscience society.

Following the model of Propp's Morphology of the folktale, the author reconstructs the scripts through which different knowledge claims, coming from the backstage, arrive on the frontstage through the voice of a Spokesperson (the Protagonist) and acquire public resonance while being refuted by official science that is their main Antagonist. The media, the public and politics are all represented in this common narrative structure through which public trust in science is notwithstanding eroded, while the voice of pseudoscience is eventually defeated.

However, many of the subtleties which the reader is introduced to in the *pars destruens* of the book are left aside in the *pars construens*. The representation of Politics, Science, Society and the Media as distinct – although intersecting – systems is too simplistic to fit the STS perspective, which the author claims to be the chosen framework for his inquiry. His analysis may hardly be said to appear consistent with an advanced understanding of the distinctions either of Politics and Science or of Science and Society as specific and never fully accomplished aims of Modernity (Latour 1993). Indeed, drawing on plenty of research and on the very same data he refers to in chapter 6, one can say that the ground of pseudoscience is not mistrust in *science* nor in *scientists* but in officially sanctioned *experts* addressing issues of public relevance.

Furthermore, the temptation – which Tipaldo in the end does not resist – to discard current discourses supporting pseudoscientific and conspiracy

theories by introducing logical counterarguments is, at best, useless and misleading, especially if contextualized within his refutation of the deficit model and his claim of adhering to the STS perspective. STS classical studies (by Collins & Pinch, Wynne, Gieryn) shed light on the apparent difficulty in resolving controversies between established scientific knowledge and knowledge claims refuted by science as coming from outside its boundaries. Recent analyses point to the necessity to elaborate, new strategies of inclusion in order to face the complexity of conflicts concerning environmental issues, among others - that cannot be solved only through logic argument and communication policy (Sarewitz 2004; Pellizzoni 2006).

The tale of the battle between Science and Pseudoscience is a metaphor for what Tipaldo apparently thinks is the real battle: the one between Democracy, on the one side, and Populism, on the other.

However, recent results from survey and interviews data on Italian antivax and vaccine hesitant parents (Lollo 2020) apparently challenge the interpretative ground of a perspective reducing to populism the whole spectrum of positions going from antivax, to vaccine hesitancy and trust in alternatives to mainstream bio-medicine, while suggesting the need for an articulated and more nuanced insight of these movements.

As Fuller (2018) remarks about post-truth, pseudoscience cannot be equated to anti-science. It rather indicates the overarching acknowledgment that if science plays a crucial role in one's life, hence it cannot be left entirely in the hands of others. In this view, science is undergoing a sort of Protestant Reformation. It is becoming "Protoscience", that is science "taken personally […] as a life-shaping form of knowledge", whereby self and world are rearranged "to enable one to live – or die, as the case may be – with whatever one happens to believe" (Fuller 2018, p. 107). As a result of its "increasing visibility in public affairs, [which] coincid[es] with the ability of people to access the entire storehouse of scientific knowledge from virtually any starting point on the Internet", and their increased education, science is now becoming "the target rather than the agent of secularization" (p. 108). Consistently with these attitudes, science is actually becoming "customized", being transformed in "idiosyncratic interpretations and appropriations of scientific knowledge that, to varying degrees, contradict the authority of expert scientists" (p. 7), building on the distinction "between what one 'knows' (that is, has learned), and what one 'believes' (that is, acts upon)" (Fuller 2018, 184; see also Pellizzoni 2019).

As convincingly argued by Tipaldo, NIMBO movements settle themselves at the convergence of the avoidance of feared individual negative consequences of public health choices, on the one hand, and, on the other, the perceived denial of the opportunity for citizens to freely access promised (although yet not validated) therapeutic alternatives ("my body, my choice"), through the monopolistic closure imposed by public policies and legitimated science and expertise. It is then necessary to admit that what is

actually at stake is not science but the scientization of the implied value controversies as a way of concealing them, while using science to legitimize value choices. Maybe this would be a more intriguing path to suggest to Tipaldo for next time, along with looking for the vocabularies of motives underlying hostile attitudes against scientific expertise supporting public decisions.

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