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David Pontille

Signer ensemble. Contribution et évaluation en sciences [*Signing Together. Contribution and Evaluation in Sciences*], Paris, Economica, 2016, pp. 206

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Since the 1980s we have seen the rise – if not the obsession – of evaluation policies of the academic production through the proliferation of performance indicators and devices to judge and measure contribution in sciences (bibliometric indicators, journal classification, and peer review). The translation of new public management theories into the academic field with the aim of tracing and measuring the individual contribution becomes problematic since every scientific activity – as *Laboratory Studies* had proved – implies the participation of human teams and the use of many instruments, artefacts and techniques. So the question is: how to distinguish the contribution of each one? How to decide who is legitimated to acquire the status of *author* signing the publication of research results? How to establish, without any doubt, what a scientific contribution is? The book *Signer Ensemble. Contribution et évaluation en sciences*, by David Pontille, analyses scientific contribution by simultaneously taking into account the issues linked to the knowledge production, the work organization and the evaluation policies for different historical peri-

ods and in three research fields: Life sciences, Medicine and Physics of particles. What makes this book original is that it combines some concepts and approaches coming from *Laboratory Studies* and *Actor-Network Theory* – i.e. the scientific work as a result of alignment of heterogeneous elements – with those belonging to the sociology of work. Pontille asserts that, with the exception of the book *Epistemic cultures* by Knorr Cetina (1999), *Science and Technologies Studies* tended to focus on the production of scientific authority by neglecting the fine grained analysis of processes that circumscribe contribution in sciences. Therefore, Pontille investigates the vocabulary of scientific contributions and practices of signature by inscribing them into what he calls "agencements" of scientific work, involving human, economic and technical resources, and analyses differences in work division, hierarchy of tasks and *technologies of attribution* according to specific organizational forms and epistemic cultures. As the author stressed in a previous publication – *La signature scientifique: une sociologie pragmatique de l'attribution* – researchers' names in scientific papers have been massively considered in a quantitative way by transforming signatures into bibliometric measurement units instead of documents to be opened. Seeing that name ordering is characterized by ambiguity (Zuckerman 1968) that researchers try to reduce through specific practices (alphabetic or decreasing order with the relevance of the last position), these names are not neutral recipients for the allocation of credit but allow the evaluation of the *agency* supporting scientific statements. Instead of considering researchers as the unquestionable origin of scientific production, Pontille grasps how human actors and instruments that inhabit laboratories are considered in the evaluation and how technologies of attribution come up by establishing some shared conventions. Another interesting aspect of the book is that these conventions are not fixed once and for all, but unstable: they change and are questioned along historical periods and according to specific forms of work organization and knowledge production, imply controversies among actors of the scientific scene (researchers, scientific journals, editors, professional associations) and represent a temporary resolution of conflicts for defining what a scientific author and a scientific contribution are. Pontille takes into account the epistemic and organizational transformations of scientific work by showing how new forms of knowledge change not only the way to conceive and circumscribe the pertinent phenomena to be studied, but also the modes of work organization and the way to evaluate and identify scientific contribution. Chapter by chapter, the book traces the stabilisation of three regimes of contribution with their own drifts, conflicts and changes: *Authorship*, *Contributorship* and *Membership*. As in the literary world, where the agency of an author (heir of the romantic figure of *genius*) is considered as an instantaneous and creative action instead of a long distributed activity involving other participants to the production chain (ty-

pographer, printer, editor), *Authorship* in science proclaims and recognizes only some genius in spite of a crowd of assistants and technicians, who remain invisible (Star and Strauss 1999) even they contributed to the scientific discoveries. The organization of work is based on vertical division of specialized tasks and on administrative hierarchy of positions (professors, researchers, post-doc, PhD students, engineers, technicians). The owner of a production unit – who synthesizes in his name the combination of epistemic, geographic, social and material elements – acquires the administrative management and the scientific responsibility. This conception, coming from the 17th century experimental science (Shapiro 1994), determines also the signature assigning the major part of work to the responsible of the team (the last name), who cumulates scientific prestige and institutional authority. However, the *Authorship* becomes progressively not adapted to the epistemic and organisational changes of medical research, and an alternative one emerges: the *Contributorship*, proposed as a solution to the excessive growth of signatures in scientific papers. In the 1950s researchers and chief editors argued that the writing of many impedes the identification of individual contributions. In the 1980s the increase of fraud revealed unacceptable practices in signing papers presenting false results and the multiplication of honorary signatories proved the loss of credibility of authorship. Moreover, when research projects become more multidisciplinary and require the association of several teams and geographical sites, it becomes more difficult to establish a hierarchy of contributions or disciplines. In this more horizontal division of work, the primacy of a only one leader tends to fade away by undermining the regime of authorship (Wray 2006). The crusade of chief editors of scientific journals for establishing an alternative option more adjusted to the new conditions of biomedical research lead to the systematic description of the contribution of each signatory to trace the scientific work in a more transparent way. *Contributorship* no longer recognizes the team as an epistemic, instrumental and geographical unit around the leader who hold the bigger part of credit and responsibility. The attribution shifts towards the project federating several teams for a period of time. These new distributed organisational forms give less relevance to the planning of tasks or to the hierarchy of positions and more importance to the fluidity of activity, the temporary combination of competencies and the flexibility of operators involved in ephemeral teams. The third regime of contribution – the *Membership* – is practiced in the Physics of particles where a project consists in fabrication, adjustment and maintenance of a giant instrument (accelerator and detector of particles) requiring a federation of teams coming from diverse research institutes over a ten years period. The minuscule, furtive and ephemeral entities emerging from the collision between particles demand innumerable tests, regulations and controls to identify their effective presence among the ground sound. Since the 1990s several laboratories from over the world

participate in the same project associating a detector to an assembly of researchers. As the project lies upon a large and durable collaboration and a decentralized supervision of experiments, the technology of attribution does not glorify some researchers with exceptional qualities. Actors contributing to the fabrication, assemblage, regulation and maintenance of technical infrastructure are all legitimated to sign scientific publications, without any distinction between technical or intellectual work. The collective name of the project talks with one voice for multiple research groups and institutions by privileging the common biography of a massive instrument and of a large work team.

The book shows that scientific signatures act differently and gain different value according to their graphical arrangement. In *Authorship* only some names acquire relevance while others remain insignificant, the more the list of names grows the more it is difficult to distinguish the principal author, each name is in competition with the others and any additional one undermines the value of others because of the risk of fragmentation. In *Contributorship* the names don't have the same value, the perimeter of each action is well delineated, the credit is distributed but the responsibility is individual and the evaluation considers the personal contribution. In *Membership* the collective name prevails over the list of signatories, signing means to be collectively an author (Galison 2003) and the more we add signatures the more positive it is. Three metaphors for these types of regimes are as follow: the *authorship* is like the literary author of an oeuvre, the *contributorship* is like the list of professionals appearing in film credits and *the membership* is like a group of people signing a petition.

Signer Ensemble also suggests an opportunity to reflect within our sociological discipline, also characterised by evaluation policies aiming to distinguish individual performance within scientific work and by tensions caused by the consecration of some researchers according to their hierarchical positions. Does the signature in sociology tend to favour and award those who are already well known? Are we faced with a field in which rivals fight each other to obtain scientific prestige by making (in)visible some of the heterogeneous elements participating to the scientific activity as, for example, the work of research assistants or the agency of technologies? Does this obsession with bibliometric indicators and individual evaluation discourage collaborative work and collective publications? Does it cause a fragmentation of knowledge in a multitude of brief articles on very well-known scientific journals to the detriment of a richer theoretical reflection?

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Simone Tosoni with Trevor Pinch

Entanglements: Traces of Science, Technology, and Sound, Cambridge, MA, MIT Press, 2017, pp. 200

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Science and Technology Studies (STS) are a compelling and heterogeneous interdisciplinary body of knowledge that has come a long way and continues to attract new generations of researchers. Despite in some geographical areas, such as Southern Europe, they are still relatively new, the maturity acquired after decades of intellectual debate and research efforts in the field are spurring moments of reflection and reflexivity among STS leading scholars, who do not dodge providing their own stories and viewpoints on the development of the field through conversations and interviews. In reading them, we come to know that, for example, Donna Haraway started reading St. Thomas when she was about twelve years old because of the advice of a Jesuite priest (Lykke et al.