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Can We Look at Refused Knowledge Differently?

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2.1 Introduction

Recalling that the distinction between science and society constitutes a kind of original matrix from which a long series of other distinctions—which have oriented and fed theoretical reflections and empirical research on knowledge in the context of modern Western culture—were later derived may somehow appear scholastic, and thus obsolete, but it is nevertheless important. Some well-known examples include dichotomies such as science/non-science, science/lay or popular knowledge, science/anti-science and science/scientific illiteracy.

Understanding why the science/society distinction is so deeply embedded in our culture, and so prolific, goes beyond the scope of this study. Fortunately, a number of STS scholars have made a great many contributions in this regard, amongst which *We Have Never Been Modern* (Latour,

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F. Neresini et al. (eds.), *Manufacturing Refused Knowledge in the Age of Epistemic Pluralism*, https://doi.org/10.1007/978-981-99-7188-6_2

1991) occupies a leading position. In this introductory chapter, I will therefore limit myself to acknowledging the existence of such a distinction and the strength of its roots, a strength which continues to this day, although signs of its weakening are increasing and continuously emerging from the recent post-truth debate, for example (Fuller, 2018; Lynch, 2017; Sismondo, 2017).

What needs considering here is the main consequence of the science/society distinction on the analysis of what we have defined in the introduction as *refused knowledge* and the social worlds of which it constitutes the main reference, i.e. those we call *refused knowledge communities* (RKC). This distinction has progressively generated a negative qualification of most types of knowledge falling outside science—including refused knowledge itself—albeit labelling these in various ways, such as weakness, approximation, irrelevance, falsehood, distortion, contamination and even danger. Separating science from society has therefore generated a twofold tendency to homogenise the differences between the various types of non-scientific knowledge by treating them as residual to scientific knowledge and evaluating them negatively.

Non-scientific knowledge constitutes actually a variegated universe, not only because it encompasses visions of the world that are often very distant and, in any case, never fully overlap, as they are rooted in a highly varied spectrum of practices, but also because its attitude to science is a very varied one.

Take, for example, common knowledge, sometimes also referred to as lay, popular or vernacular knowledge (Eglash et al., 2004). Wynne (1996) initially defines this in opposition to expert knowledge, but he later clarifies that its counterpart is not science but rather the ‘social assumptions and models framing its objectivist language’ (p. 59). Lay knowledge, therefore, is not just all knowledge lying outside science but rather local, contextual and informal knowledge that is more flexible than science, by which I mean that it can capture aspects and changes which the more universal and hence more abstract scientific understanding usually cannot. In enabling individuals to exert ‘adaptive control’ (Wynne, 1996, p. 70), lay knowledge is extremely useful and relevant to the everyday life context. It has also been observed that, within such a context, the importance of personal experience is growing as a criterion with which to assess

the relevance and reliability of knowledge claims; thus, ‘the truth is *in* there’ rather than *out* there, as it must be proven ‘in the self, in personal experiences and feelings, in subjective judgement, [and] in individual memory’ (van Zoonen, 2012, p. 57).

All the same, lay knowledge is not overtly opposed to science on the ground; but this is not the case of science-related populism, another type of knowledge that lies outside science.

In fact, science-related populism has been defined as an antagonist perspective based on the supposition that there are virtuous ordinary people who oppose the illegitimate claims made by a non-virtuous academic elite (Mede & Schäfer, 2020). In this view science-related populism is thus a morally driven set of claims—generally not very widespread, unlike political populism (Mede et al., 2022)—in contrast with the local and informal lay knowledge to which common people turn for answers to practical problems. Recognising the differences between consolidated popular knowledge traditions and ‘the claims of an actress that vaccines cause autism’ would therefore seem possible (Oreskes, 2019, pp. 62). While the latter pertains to a repertoire of claims accompanying a pre-conceived stance of moral superiority that rejects science as part of the establishment, the former represents a possible alternative to science with which a collaborative relationship is sometimes possible. This is why traditional knowledge is not always rejected a priori by science and some of its parts can be seen as open to reconfiguration within scientific knowledge, albeit with some reluctance.

This is what happens, for example, with complementary and alternative medicine (CAM), which is regarded as a set of knowledge derived from popular traditions and/or their more recent re-elaborations, often through a syncretic process which reorganises some elements of different cultures into a new organic whole. In fact, science sometimes recognises that CAM has the potential to address certain pathologies and some of their symptoms which modern biomedicine cannot provide answers to (Brosnan et al., 2018). Thus, for example, for the US National Center for Complementary and Integrative Health, a non-mainstream practice used together *with* conventional medicine is considered ‘complementary’,

whereas a non-mainstream practice—which may even be the same one—used *instead* of conventional medicine is considered ‘alternative’.¹

However, the difference between complementary and alternative knowledge remains nebulous and non-definitive. Knowledge claims not validated scientifically and supported by unlikely subjects, i.e. those lacking adequate socially recognised credentials, if not openly dishonest, are used in everyday life contexts to respond to sense-making needs revolving around coping with highly uncertain situations that the most legitimate knowledge—primarily science—fails to counter.

This was frequently observable during the pandemic.

Moreover, alternative knowledge is regarded as a synonym of counter-knowledge and this is indeed sometimes the case. However, counter-knowledge is marshalled mainly when groups and people mobilise around specific issues, giving rise to a *counter-public* (Hess, 2016). This again implies many different configurations of the relationship with science, ranging from demands for partnership with scientists to fill a knowledge gap relating to issues that are important to laypersons (see the concept of *undone science*; Hess, 2016) to situations in which the latter decide to ‘do it themselves’, as in the case of popular epidemiology initiatives, although some scientists and/or physicians are sometimes also involved in this (Allen, 2003; Brown, 2007; Krimsky, 2000).

What lies outside science, therefore, is a multifaceted complex of varying types of knowledge with differing attitudes to science. But what all these non-scientific types of knowledge share is a condition of inferiority to science.

From an initial distinction between scientific knowledge and social knowledge, an only apparently obvious semantic shift has therefore reduced all forms of scientifically unaccredited knowledge to a single category—that of non-science. At the same time, the definition of this category as residual to science has ended up devaluing it.

¹ <https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name>

Consequently, on one hand, both common and academic discourses tend to treat non-scientific knowledge as subjective and thus often false, if not downright fraudulent, on the other, knowledge labelled scientific is thus objective and true, precisely because it has nothing to do with the heterogeneous context of its production and use. It is true because it is a-historical and a-social. Similarly, a lack of scientific literacy is a deficit to be dealt with through appropriate education and communication initiatives or, at best, through dialogue and involvement (Bucchi & Neresini, 2008; Callon, 1999; Wynne, 1995).

Non-science is therefore depicted as a desert in which all differences are levelled out—a single great void to be filled, an empty counterpart to the fullness of science.

This negative connotation sometimes emerges from the labels used for some types of non-scientific knowledge, such as junk science, pseudo-science, fringe science and science at the margins. In all these cases, the boundary work carried out to deal with the demarcation problem (Gieryn, 1983) clearly relies on rejecting and devaluing such types of knowledge.

Even more interesting is that this negative portrayal of non-scientific knowledge tends to emerge even when its relevance and thus its value are acknowledged. All the adjectives with which we seek to non-negatively define the various types of non-scientific knowledge run the risk of connoting them negatively. That is, differentiating themselves from science inevitably takes them to the opposite side and in a condition of inferiority from which they must be protected. Indeed, current perspectives adopting terms such as *complementary*, *alternative*, *traditional* and *heterodox* to contrast with *conventional*, *orthodox* and *official* confer intrinsic epistemic dominance to science. Given the persistence of the underlying science/society dichotomy, these binaries tend to generate inaccuracies, blind spots and simplistic representations of both science and other forms of knowing, as we have seen in the case of CAM.

Is an approach to the different kinds of non-scientific knowledge which avoids falling into the semantic traps set by the science/society distinction possible?

2.2 Labelling, Positioning, Knowing: The Symmetry Principle in Exploring Refused Knowledge

One approach to the above quandary is starting with the labelling issue. Deciding how to name what we are interested in is no trivial matter. In fact, the label we use says a great deal about our perspective on the matter in hand—about its collocation within a classification system that defines its relationship with us and with other entities, as well as about what is important and unimportant to us. Naming is part of a classification process, i.e. the way we accord categories to ourselves, and others, which determine the identity, relevance and behaviour of everyone and everything (Bowker & Star, 1999). Therefore, naming is not a neutral act of description but a bidirectional process of construction. The names we give to what we are talking about have effects on both the *object* under observation and the subject observing it. The ‘looping effect’ (Hacking, 1999) operates contextually on the observed and the observer; they are mutually co-constructed, as STS has repeatedly noted.

There is certainly nothing new about knowledge as a question of positioning. The so-called *linguistic turn* in twentieth-century philosophy underlines that reality, or, even better, what we refer to as such depends on our language and, therefore, our point of view. At the same time, the sociology of knowledge in general and STS in particular are both constantly engaged in analysing how knowledge results from a process which is always embedded where the knower is located.

Like anthropologists, STS scholars are also very aware of the ‘native’s point of view’ issue (Geertz, 1983), i.e. that the way we understand how scientific knowledge is constructed depends on our perspective on it. This is not solely the core quandary in laboratory studies, as Latour and Woolgar discuss in depth in the introduction to *Laboratory Life* (1986), but has been addressed on many other occasions and within various contexts, such as at the crossroads between STS and post-colonial studies (Banu et al., 2017; Harding, 1998, 2008; Law & Lin, 2017; Verran, 2001).

The *positionality* of any knowledge claim also plays a pivotal role in feminist thinking on science. Haraway (2018), for instance, pointed out

that not only is ‘science [...] the result of located practices at all levels’ but also that ‘location is not the concrete to the abstract of decontextualization. Location is the always partial, always finite, always fraught play of foreground and background, text and context, that constitutes critical inquiry. Above all, location is not self-evident or transparent’ (pp. 36–37). Thus, being aware that all knowledge is situated and depends on a specific point of view implies that the ‘god trick’ does not work and that choosing a partial perspective is the necessary premise to achieving ‘an objective vision’ (Haraway, 1988, p. 583).

The concepts of *standpoint epistemology* and *strong objectivity* are also relevant here. These were developed by Harding to show that not only does a diversity of perspectives enrich scientific enquiry, but it also reinforces it, thus transforming the unavoidable influence exerted on scientific knowledge by individual values, experiences and social positions into an epistemological resource (Harding, 1986). At the same time, in her concept of ‘transformative interrogation’ Longino (1990) showed how inescapable individual prejudices potentially spawn a collective objectivity, and Fox Keller’s criticisms of the ‘dream of a science completely objective’ based on the reductive equivalence between ‘scientific and objective, on one hand, and masculine on the other’ suggests that both are a disputable assumption designed to maintain the illusion of a neutral point of view on reality in the search for objectivity (Fox-Keller 1985, p. 88).

Moreover, in many ways, feminist analysis of science invites us to focus our attention on another significant aspect in our efforts to define an adequate point of view on RKC, one that can be encompassed within the term *relationality*, as feminist scholars have repeatedly emphasised the relational character of all the entities—human and non-human—involved in the networks from which knowledge emerges. Consider, for example, the idea put forward by Barad that what we refer to as ‘interaction’ should be replaced by ‘intra-action’ to stress ‘the mutual constitution of entangled agencies’ (2007, p. 33). Thus, instead of assuming that separate singular actors precede interaction, intra-action enables these actors and their agency to be configured as emerging effects of the relationship between them: ‘agencies are only distinct in relation to their mutual entanglement; they don’t exist as individual elements’ (Barad, 2007, p. 33). This is the case for ‘all the entities in technoscience’ which

‘are constituted in the action of knowledge production, not before the action starts’ (Haraway, 2018, p. 30).² However, whilst relationality is deeply rooted in many STS approaches, it undoubtedly constitutes the hallmark of actor–network theory (ANT). This is clearly recognisable in the work of its founders and is summarised in statements such as ‘reality is a process’ (Callon, 1986, p. 207) and ‘Technology is society made durable’ (Latour, 1991).

Relationality also allows us to highlight the complementarity or, better, the *reciprocity* of the output of classification mechanisms.

Just as a border defines the presence of two separate but neighbouring territories, two territories necessarily imply the presence of a border, and any boundary work involves constructing and maintaining the two areas, with each distinction thus defining an identity and its alter ego. This is the ‘topological’ character of the assemblages we are interested in, where both the disposition of entities and their identities depend on their relationship (Law, 1999). Thus, science and non-science are always reciprocally established, i.e. the former cannot exist without the latter and vice versa. Likewise, lay knowledge cannot exist without expertise, but the latter acquires meaning and social identity only as a counterpart to the former.

But reciprocity does not automatically mean distributing epistemological resources equally (i.e. everything—whether material, symbolic or relational—that plays a part in the knowledge claim legitimisation process) and hence the epistemic authority from which the power to define the situation or to be seriously considered is derived. In other words, reciprocity does not correspond automatically to symmetry, because the latter requires recognising the same epistemological relevance, if not the same dignity, to both sides (see also Chap. 10 by Morsello in this book).

As is well known, the symmetry principle proposed by the Edinburgh School (Bloor, 1976/1991) is designed to provide an alternative epistemological perspective to the sociology of scientific knowledge, with a view to overcoming the so-called *sociological immunity* of science. This

²The relationship that generates reciprocally the researcher and to the *object* of his/her attention has been discussed and analysed by many STS scholars. See, for example, the ‘enacting’ and ‘never alone’ concepts developed by Mol in the case of medicine (2002) and the discussion of epistemology in a post-colonial perspective, as done among others by Kenney (2015).

means abandoning the epistemic privileges associated with science when science is considered true, rational and working successfully, or all the features that simply guarantee that there is nothing to understand about science, that is, that scientific knowledge is true and there is thus nothing to explain. On the contrary, in exploring science in the making, STS scholars point out that what is at stake in the scientific enterprise is less discovering facts that pre-exist in nature than translating local evidence into generally accepted scientific facts. In other words, the STS perspective is about explaining why, how and through which social arrangements the findings generated by a specific research group in a peculiar context (e.g. a laboratory) at a particular time can become universally accepted facts.

Within this perspective, the social sciences can add their interpretative value only if our approach to science and non-science is free of prejudice, ensuring that both are treated impartially, i.e. given the same relevance and dignity as objects of enquiry for social scientists. In its broad meaning within the STS field, symmetry can thus be seen as an attempt to re-establish epistemological equality, even when a distinction does not configure an equitable distribution of epistemological resources between concerned actors.

Furthermore, thanks to the principle of symmetry, not only do we give equal epistemological dignity to scientific knowledge and to that refused as non-scientific, but the reciprocity and potential inequalities regarding who knows and what is known in the cognitive relationship are also considered. Thus, the *principle of generalised symmetry* can be seen not only as an attempt to give both humans and non-humans the same relevance within the processes by which actor-networks are assembled (Callon, 1984) but also as an opportunity to rearrange the epistemological distribution of power between researchers and actors in the field, i.e. between observer and observed (Waytt, 2008). Applying the principle of symmetry therefore constitutes a useful premise on which to avoid assuming a privileged position within the knowing relationship, including when this privilege is based on prejudices of a normative nature, in line with the arguments of feminist and post-colonial critics too.

As in ANT, the symmetry principle also works like a 'machine for waging war on essential differences' (Law, 1999, p. 7) produced by applying

distinctions such as human/non-human, science/non-science, truth/false and so on and also observer/observed or knowing subject/known object. In other words, seeking to be symmetrical accords no privileged point of view to the researcher—knowledge remains the fruit of a process that depends on the positions of the actors taking part in it and thus on the classification systems, with their labels, that are adopted from time to time. This is why ‘nothing comes without its world [but] location is also partial in the sense of being for some worlds and not [for] others’ (Haraway, 2018, p. 37).

However, the post-truth debate that has recently developed within STS has revealed the existence of at least three different ways of using the concept of symmetry (Pellizzoni, 2019), its central role in the STS field from the outset notwithstanding. The first of these essentially accepts criticisms from scholars outside STS and invites them to accept that, albeit involuntarily, the application of the symmetry concept has favoured the affirmation of post-truth at an ontological level and its appropriation by those self-identifying as right wing who use it to delegitimise any scientific knowledge which goes against their interests (Collins et al., 2017, 2020). The second, by contrast, rejects these criticisms and sees them as based on what it views as a misleading reconstruction of the principle of symmetry for which it would be incompatible with the recognition of the validity of scientific facts (Lynch, 2020; Sismondo, 2017).³ Finally, the third reverses the terms of the question, arguing that STS must indeed be questioned but for reasons which are diametrically opposite to those of their detractors. This position is most radically supported by Fuller (2018), for whom the advent of the post-truth era is a positive demonstration that even minorities are learning to question established power and thus ‘a triumph of democracy over elitism’ (p. 181).

These post-truth controversy stances each correspond to different approaches to the principle of symmetry. For the first, the different knowledge claims must be considered equivalent on the ontological level in the sense that they have the same epistemological value. For the second, symmetry is a methodological move that suggests considering the

³In some ways, this echoes the so-called science wars when the *Sokal hoax* was interpreted as proof of the groundlessness of a relativist approach to scientific knowledge (Hilgartner, 1997).

different claims as if they were equivalent, without implying that they are or are not true. For the third, symmetry is rather to be understood as a political strategy with which to rebalance the various groups' unequal distribution of epistemological resources, to define the situation and thus the very rules of political confrontation. For the latter, the principle of symmetry is therefore neither an ontological nor a methodological option but a political move offering minorities greater potential for debate with the majority.

Taking a cue from this internal tripartition of the STS debate allows us to further clarify how the concept of symmetry can be used to improve analysis of RKC.

There are at least three good arguments in favour of the second option, i.e. the methodological one.

Firstly, interpreting symmetry as a methodological orientation allows us to avoid having to decide whether 5G is really harmful to health, for example, or whether alkaline water really serves to restore our psycho-physical well-being. This is not our job, and it goes without saying that by so doing we can remain faithful to the original STS mandate—understanding how what we treat as scientific knowledge is built, consolidated and possibly decays—rather than trying to establish whether or not it is an objective representation of reality.

Secondly, treating different epistemologies as if they were equivalent rather than actually equivalent puts us in the best position to understand the construction processes used in both scientific and non-scientific knowledge, as this takes for granted neither the goodness nor the soundness of either.⁴ As a consequence, 'embracing epistemic democratisation does not mean a wholesale cheapening of technoscientific knowledge in the process' but, rather, it is a matter of showing that the statement 'It could be otherwise means very rarely that it could easily be otherwise' (Sismondo, 2017, p. 3). That is, claims require a wide array of resources—material, discursive or relational—if they are to be accepted and ready to use.

Thirdly, the methodological option averts the risk—to which, by contrast, the political option exposes us—of not clarifying whether this

⁴ See also Chap. 3 by Volontè in this book.

symmetry concerns the epistemological or the ontological level and, therefore, of finding ourselves enmeshed in the post-truth controversy without drawing great benefits from it in analytical terms. The most appropriate approach to the issue of relativism to our point of view here and for our purposes is, in fact, Law's, because it constitutes the most general framework of reference and of longest tradition encompassing the more specific and recent post-truth debate. Indeed, Law underlined that 'To accept the reality of epistemological relativism and deny that there are universal standards is not to say that there are no standards at all: and neither is it to embrace moral or political relativism. As Richard Rorty so well demonstrates, the either/or postulated by those committed to absolutism (either absolute standards, or no standards, epistemological or moral) is a false dichotomy. Locally we may seek to distinguish truth from power, persuasion from force, and what is right from what is wrong' (Law, 1991, p. 5).

In a nutshell, 'Symmetry does not preclude noticing differences between the contending parties, their backgrounds, commitments, and arguments, but it does discourage using familiar, and all-too-easy, arguments to dismiss one or another position as irrational, ignorant, or dishonestly motivated' and, at the same time, 'This is not so much a policy of interpretive charity as it is a strategy for gaining insight into the practical actions, discourse, and institutional supports that give rise to and sustain the resilience of such public controversies' (Lynch, 2020, p. 58).

This idea also corresponds with Latour's call for a shift from 'matter of fact' to 'matter of concern' (Latour, 2004). This means not assuming that objective scientific truth is valid *per se* but rather taking actors' points of view seriously and recognising that what is most relevant for social scientists is the network of relationships between interested actors and that it is within such networks that what is objective and what is not is defined, including what is to be taken on board and what is to be excluded.

On the basis of the above, the *refused knowledge community* label constitutes a chance to talk about social worlds bringing together people who feel they share knowledge refused by science and by the majority of other people. This helps us to take a stance with which it is easier to escape the constraints and biases usually posed by the science/society distinction. At the same time, it frames our analysis in terms of relationality and

reciprocity and fosters respect for the symmetry principle. However, we should not confuse the methodological assumption of equidistance with an impossible epistemological neutrality, i.e. the existence of a privileged observation point devoid of conditioning.

RKCs are made up of people who feel on the ‘wrong’ side of knowledge because they are seeking to attribute legitimacy to claims that are considered false, unfounded or deviant by the gatekeepers of institutional knowledge. This claim cannot be simply defined as alternative or even complementary, the fact that these two adjectives highlight features that also pertain to refused knowledge notwithstanding. Those who do not identify with the scientific frame often try to propose an alternative system of knowledge and, at the same time, previously refused knowledge is sometimes integrated into the scientific corpus through processes of boundary reconfiguration. This is true of acupuncture, for example, and some of the therapeutic principles deriving from herbal medicine or some traditional forms of body manipulation later acquired by physiotherapy.

Moreover, the words ‘alternative’ and ‘complementary’ tend to echo the dominant scientific position, attributing less value and less solidity to other forms of knowledge, on one hand, and assuming science’s power to define situations, on the other, both of which supporters of non-scientific knowledge lack. Talking about refused knowledge, by contrast, allows us to stress that—as with conspiracism—it ‘can hardly be understood by its inherent or substantial characteristics, but only by the fact that it has been labeled as such’ (Harambam, 2020, p. 25).

It is more than a matter of finding an appropriate name, however. We also need to find a theoretical framework that allows us to analyse RKCs coherently with the name we have chosen for them.

2.3 Point of View as a Matter of Theoretical Framework

We have already mentioned Haraway’s (2018) argument that ‘Nothing comes without its world’. We now also need to consider the second part of her sentence: ‘so trying to know those worlds is crucial’ (p. 37).

So what is the theoretical framework most appropriate to the analysis of RKC's?

There are at least two promising candidates: the social world framework (SWF) and ANT. There are many reasons for this choice, but the most important relate to their epistemological congruence with what we have discussed as regards positioning, relationality, reciprocity and symmetry. Both SWF and ANT are fully consistent with symmetry and relationality. On one hand, they argue for the importance of considering all the actors involved in the processes of building, shaping and stabilising knowledge claims with no preconceptions regarding their truthfulness, rationality or objectivity. On the other hand, they share the idea that knowledge is not a static description of reality but the emerging result of ongoing processes to which many heterogeneous actors contribute and on which they also depend. These actors include researchers, whose positioning is part of the constitutive relationship that defines them and the *objects* they study.

Of course, SWF and ANT offer a range of concepts which cannot always and wholly be coupled as equivalent. However, I believe that we can benefit from what they jointly offer to understand the RKC's by means of a number of considerations.

The concept of *social worlds* itself provides solid premises for the recognition of the relational character of knowledge because they are defined as 'universes of discourse', i.e. 'shared discursive spaces that are profoundly relational' (Clarke & Star, 2008, p. 113). The focus, therefore, is on meaning-making processes in which many actors—individuals and more or less organised groups—perform collective action while also working with shared objects. Within the SWF perspective, what counts as meaningful clearly depends on its embedding in a specific social world, and this tends to be 'particularly attentive to situatedness and contingency, history and fluidity, and commitment and change' (Clarke & Star, 2008, p. 113). As a consequence, SWF is intrinsically relational and symmetrical and avoids attributing epistemological pre-eminence to any specific point of view.

At the same time, SWF endorses an *ecological gaze* (Star, 1995) not only because each social world relies on the relationships between many different elements but also because each social phenomenon requires

contributions from and interactions between many social worlds.⁵ This ecological organisation of social worlds around an issue of mutual concern and commitment to action is regarded as an *arena*. In our case, this means that RKC's cannot be properly analysed without considering the ecology of the relationships in and through which they are established and shaped. In other words, RKC's are what they are and act as they act because they participate in a network of interactions that mutually define who and what is involved. After all, the very definition of RKC's implies reciprocity between those who feel they belong to a social world that shares knowledge refused by others and those who consider such knowledge to be groundless, dubious, distorted and misleading.

Looking at RKC's as integral parts of one or more arenas contributes to highlighting that their compositions, configurations and actions constantly and inevitably depend on their interactions with other social worlds. This awareness allows for due consideration of the role of mass media, for example, and, to an even greater extent, social media, the former mainly as a stage on which RKC's configure their relationships to other actors (see also Chap. 8 by Morsello et al. and Chap. 9 by Giardullo) and the latter as an opportunity to feed shared discourses and meanings including between subjects who may never physically meet (and this was particularly true during the pandemic). It is therefore clear that social media constitute, on one hand, a space of vital importance for RKC's, and, on the other, a context that conditions their actions and attitudes. At the same time, however, avoiding attributing to social media the capacity to determine the characteristics and lives of RKC's is thus easier. In short, RKC's are not victims of social media, although without them—and therefore without coming to terms with the rules by which they function—they would probably not exist.

Considering RKC's as parts of social arenas also provides us with an opportunity to pay due attention to the heterogeneity that characterises the networks constituting them. Within this heterogeneity, SWF recognises the role of non-humans, in the configurations of both social worlds and arenas, although such a recognition is not entirely convincing, as in ANT. In fact, although it has been stressed on several occasions that social

⁵ See also Chap. 4 by Bory in this book.

worlds and arenas are made up of human and non-human actors which mobilise discourse and share meanings (Casper, 1994; Clarke, 2005; Star, 1988, 2010; Star & Griesemer, 1989), non-humans still tend to be framed as ‘product[s] of the symbolic interaction[s]’ (Blumer, 1969, p. 10) of humans. Thus, whilst it is true that the SWF was ‘among the earliest in STS’ to focus on non-humans (Clarke & Star, 2008, p. 130), it did so as a theoretical perspective centred on *meaning-making* and is inclined to consider these as passive instruments dependent on human interactions.

In the case of RKC, however, the role played by non-human actors is anything but secondary and difficult to regard as passive. In three out of the four case studies examined in our research, this is extremely clear. Firstly, it is precisely non-humans which constitute the fulcrum of RKC’s discursive universes and mobilise their actions. Secondly, the central importance of non-humans is tangible even in RKC’s names. Look, for example, at the RKC based on opposition to the 5G network, i.e. a socio-technical infrastructure which comprises antennas, electromagnetic waves, data transmission standards, control and regulation systems and smartphones, to cite the most easily identifiable. Attributing a secondary role to this set of non-humans is difficult because they are the basis of the 5G network, enacting everyday discourses and, at the same time, they are identifiable as a dangerous enemy to mobilise against.

Viruses, vaccines, masks, respirators, health systems, lockdowns and other policy measures played a similarly strategic role in the configuration and evolution of the pro vaccine-choice RKC (see Chap. 8 by Morsello et al.). Not only did non-human actors such as these encourage the adoption of behaviours aimed at countering the spread of the virus or reducing its effects on people’s health, but they also contributed to labelling those who cast doubt on them—vaccine-hesitant and convinced anti-vaccine individuals—as irresponsible, ignorant, irrational and even dangerous.

In the case of the alkaline water RKC, the same can be said of mixers, sales networks, promotional events and a great deal more, without forgetting alkaline water itself, of course.

It is, perhaps, a little harder to identify the relevance of non-humans in the 5 Biological Laws RKC, but still not overly challenging. In fact,

recognising the role played by disease and trauma, i.e. any event that—in the view of 5BL RKC—disrupts individuals' lives and determines imbalances from which a state of malaise will later originate will suffice, namely artefacts such as the table graphically representing the 5 Biological Laws via which traumas are linked up with certain pathologies or by reconfiguring viruses as *friends of man*, i.e. as actors to come to terms with rather than as enemies to defend oneself against (see Chap. 7 by Crabu).

The importance of non-humans for RKC is thus very clear, and this makes it impossible to leave these in the background. Consequently, while SWF constitutes a theoretical basis for an epistemologically aware analysis of the processual character of knowledge (relationality) and its dependence on a specific point of view (positionality), and is thereby methodologically marked out by the principle of symmetry, what we need is to seek out an integration that allows us to better identify the agency of non-humans. In this respect, the great attention paid to non-humans by ANT (Callon, 1984; Callon & Latour, 1992; Latour, 2005; Law & Hassard, 1999) would suggest looking in this direction but this requires great caution. Simply borrowing a concept from one theory—in this case, that of non-human agency—and inserting it into another would not be correct, unless a sufficiently broad common ground between the two that would justify some form of integration can be found.

Fortunately, SWF and ANT seem to offer this possibility. As Clarke and Star (2008) have observed, we can, in fact, consider 'these two approaches as kindred in many ways (especially compared with earlier approaches to the study of science) and yet also as offering quite different affordances and accomplishing different analytical ends' (p. 122). Their not always overlapping premises notwithstanding, SWF and ANT adopt perspectives in which relationality, reciprocity, symmetry and positionality are of key importance, as we have seen. For ANT, in particular, not only is 'reality [...] a process' (Callon, 1986, p. 207), but actors are also inseparable from the networks of relationships to which they belong. Actors and networks are both intrinsically process-related in nature and there are thus only actor-networks. As Venturini (2019) has observed, in the actor–network expression, 'The hyphen stands for an equal: actor=network' (p. 8) and vice versa.

However, ANT struggles to recognise the relevance of meaning-making processes which, by contrast, occupy a prominent place within RKC. We can thus reiterate here what we have just discussed regarding non-humans but with the SWF-ANT roles reversed. The de-anthropomorphisation enacted by ANT to accord importance to non-human agency runs the risk of leaving the construction and attribution of meaning processes which are so important for humans in the background. Moreover, these are central aspects for RKC, which are communities built precisely on the sharing of universes of discourse which generate a sense of belonging and solidarity, often strengthened by the presence of common enemies.

A shared search for well-being is, in fact, a strategic element for the alkaline water RKC, and a specific interpretation of health and disease is a fundamental ingredient in the Pro Vax-Choice RKC, often in strong opposition to science and scientific medicine. The same is true, albeit with specific modalities and values, for the 5 Biological Laws RKC, which reconstructs an entire universe of discourse parallel to that of scientific medicine. The meaning-making processes at work in the case of the Stop-5G RKC appeal to concepts, theories and interpretations of reality, in a word to a mix of knowledge claims legitimised by arguments and practices with which its members identify. Here, too, the presence of a multifaceted enemy plays a key role, and it can take the form of science, corporations and, sometimes, hidden powers that are not always readily identifiable.

As has recently been underlined, however, ANT struggles ‘to engage with the history of the present and [the] latter’s constitutive role in understanding the experiences and actions of different actors’ (Prasad, 2022, p. 105). The *history of the present* means reconstructing the link between what is happening today and what happened in the past according to the logic of Foucaultian genealogy. An analysis of this kind allows for an interpretation of the different ways to understand the same claim by actors who have different genealogies and to comprehend, for example, how it is possible that during the pandemic, the hypothetically dangerous nature of masks—built on the basis of scientifically refused arguments—found support both among African/American communities and among white supremacist groups, as Prasad has shown.

Therefore, understanding RKC's without seriously considering meaning-making processes is extremely difficult, perhaps even impossible.

However, ANT cannot be said to completely ignore the meaning dimension attributed by human actors to their actions and their involvement in specific interaction networks. In some respects, it could be argued that meaning-making can be interpreted as a particular case of a more general category of processes to which those ANT calls *translations* also belong. Thus, for example, when the interests of an actor are translated in such a way as to make them compatible with those of another, when one convinces others that by becoming an *ally* of someone else, they are only pursuing their own objectives, and when actors share a *point of obligatory passage*, processes that can also be interpreted as meaning-making are still recognisable.

Clearly ANT is not interested in using such processes as explanatory resources and what matters is the relationships between the network's actants and certainly not the motives of the humans holding together the assemblages they form part of. We are, therefore, not arguing that meaning-making processes explain social phenomena. However, this does not imply that they do not play a role within them, for example, in triggering and developing translation processes. In other words, we can avoid reducing the complexity of the assemblages we intend to study by not applying outside theoretical categories and not assigning motivations, attitudes and beliefs to actants. Nevertheless, whilst this is true from the researcher's point of view, this does not mean that the same is true of human actants, for whom meaning-making processes remain important. Indeed, there is nothing accidental about the fact that a 'matter of concern' is, by definition, a matter for someone.

This may appear to be stretching ANT too far but it cannot be said to be incompatible with it, provided that including the attribution of meaning by human actors in the framework of translation processes remains one factor in the network-building process amongst many others and does not become a second-level explanation. ANT, in fact, aims to avoid surreptitiously introducing abstract conceptual constructions in the form of social factors, which would otherwise reduce the complexity of association processes rather than deploying their richness, as explaining elements (Latour, 2005).

A role for meaning-making processes can therefore be identified in ANT without contradicting it.

Taking into account what has been discussed thus far, we have attempted to integrate SWF and ANT as theoretical perspective with which to analyse RKC. Indeed, RKC fit the definition of social worlds as universes of discourse that give rise to collective actions perfectly, even if they are not necessarily based on consensus. SWF allows all these aspects to be considered within a consistent and organic theoretical framework. At the same time, there are a number of advantages to be gained from ANT in considering the highly significant aspects implicated in the processes through which the claims of RKC are built and legitimised: the relevance of non-humans to the social worlds in which refused knowledge is accepted and used, the fluidity of the configurations in which actants are involved and assembled, and as concerned networks acting both as emerging results of actants' interactions and as conditions for actants' existence. Therefore, our approach has adopted SWF as its main theoretical reference whilst supplementing it with relevant aspects from ANT, such as the constitutive relationships between actors/networks and non-human agency.

Cross-fertilising SWF with ANT allows us to consider both the social and technological conditions underlying RKC and thus grasp the ways in which scientific knowledge and science-based ordering processes are questioned by human–non-human assemblages. The aim is to explore how networking activities come into being, which social worlds enter arenas, how humans and non-humans are involved, how actors are enrolled in RKC, how parts of them can be reassembled to form new ones and how RKC can achieve temporary stability, shaping and sharing refused knowledge.

This creates the analytical conditions by which to demonstrate that not only do RKC shape and mobilise claims challenging the monopoly of science in defining reality but they also offer new meanings and options in everyday life and this was especially true during the pandemic, a period marked by deep uncertainty and collective disorientation.⁶

⁶See, for example, Prasad (2022).

2.4 Claim Legitimation Strategies

Considering the principles of relationality, reciprocity and symmetry, which play a core role in our approach to RKC, it can be observed that the knowledge legitimisation strategies their members resort to are similar to those of science in many respects. These strategies correspond to concepts already familiar to the STS field, although they are framed in various ways and their degree of stabilisation thus differs.

The first, and extremely general, strategy concerns *boundary work*.

As we have seen, every time we encounter refused knowledge and other types of non-scientific knowledge, it means that boundary work is under way and that true, accepted, prevailing knowledge is being established. As one of its earlier definitions set out, 'boundary-work occurs as people contend for, legitimate, or challenge the cognitive authority of science—and the credibility, prestige, power, and material resources that attend such a privileged position. Pragmatic demarcations of science from non-science are driven by a social interest in claiming, expanding, protecting, monopolizing, usurping, denying, or restricting the cognitive authority of science' (Gieryn, 1983).

Vice versa, as required by symmetry and relationality principles, RKC also engage in defining what is to be regarded as true knowledge and what, by contrast, is bad science or junk knowledge spread by interested groups (e.g. Big Pharma and institutional science serving the establishment) and a-critically supported by most people.

An extremely important aspect of boundary work is that it can be almost invisible, although it is sometimes easier to observe. When the latter is true, a public controversy is almost certainly under way in which many different actors debate a sociotechnical problem and discuss how to define and address it, thus configuring what have been called 'hybrid forums' (Callon et al., 2001). In fact RKC can be regarded as expressions of controversies which, for the most part, take place around boundaries demarcating *true* knowledge from *other* knowledge. Such controversies tend to remain latent for long periods and then resurface, sometimes aggressively, with an example being the discussions around vaccines during the pandemic.

As STS has demonstrated, parties to techno-scientific controversies attempt to legitimise their points of view by weakening those of their

opponents, seeking either to demonstrate the groundlessness of their claims or transforming these into elements supporting their own arguments (Callon et al., 2001; Collins & Pinch, 1979; Venturini, 2010). Therefore, attempts to enrol scientists as supporters of RKC claims are not infrequent, with an example being Nobel Prize winner Luc Montagnier, who supported the therapeutic properties of alkaline water and became a hero of the Pro Vax-Choice movement. Attempts to incorporate theories or experimental results accredited by science into the framework of elements in favour of RKC claims are also common. In addition to the famous Wakefield study on the supposed connection between vaccines and autism, which was initially published in *Nature* but then withdrawn, a further example is the highly casual use of quantum physics by supporters of the 5 Biological Laws and of widely accepted scientific concepts, such as electromagnetic fields by the Stop-5G RKC.

Combining a range of elements to develop a convincing argument corresponds to a second strategy that can be described as *syncretism*. This legitimisation process comes into play when RKC members assemble activities, ways of doing things, styles of thinking, discourses and individual statements which come from different domains but are combined into a new configuration. Examples of syncretism can be found on both the science side—such as the inclusion of acupuncture in Western scientific medicine—and RKC side, with an example being ‘family constellations’ as part of the 5 Biological Laws.⁷

Syncretism is not a mere juxtaposition of heterogeneous elements. It is a patchwork with a shared discursive framework, new mixes which come across as meaningful and coherent to RKC members (see Chap. 6 by Picardi et al.). Therefore RKC members, like science, act as *heterogeneous engineers* (Law, 1987) committed to maintaining their claims through constant assembling of elements that are usually treated as belonging to different classes—human and non-human, scientific and non-scientific, individual and collective—and arguments otherwise belonging to different domains and delivered by various communication channels (scientific journals, blogs, social media, traditional media, laws and regulations and

⁷ Family constellation therapy is a type of psychological counselling based on the idea that problems can filter down through generations to cause stress in the present moment.

informal exchanges in the most diverse contexts, from scientific conferences to training meetings, assemblies to street protests).

If we then focus on the eminently discursive level, syncretism strategy can be viewed as a combination of contents, concepts and discourses from different narratives with a view to building a new narrative, which can also be more or less organic (see Chap. 5 by Tosoni).⁸ This is akin to what happens with a musical mash-up and many other forms of cultural hybridisation.

It is worth noting that one of the main components of the syncretism practiced by RKC's in support of their knowledge claims is *personal experience*. This is a validation criterion that is mentioned recurrently with regard to personal experiences of disease, for example. Full-blown personal experiences are not always required, and others having had such experience is sometimes enough, i.e. with the same disease or belonging to the same entourage as parents, friends and colleagues.

This epistemological resource based on personal experience is thus a crucial aspect supporting refused knowledge. Anything proving useful in dealing with a situation can be considered proof of RKC's knowledge claims, both by making it meaningful and by suggesting the most appropriate way to deal with it. The great value accorded to experience—fully personal or even just shared—thus assigns a prominent role to individual testimony within the refused knowledge legitimisation process. In fact personal experience as a criterion for judgement and validation seems to have acquired increasing importance in our cultural context, especially when people are faced with health problems of various degrees of severity (Brewer et al., 2017; Dubé et al., 2013; Kata, 2010; van Zoonen, 2012). Examples of this are tumours diagnosed, deciding whether to vaccinate one's children or clinically unexplained symptoms that might be interpreted as effects of exposure to electromagnetic fields. However, in these and many other highly emotionally charged cases potentially also comprising a biographical break, establishing whether the knowledge of scientific experts is significantly more reliable than direct experiential

⁸ However, we should not forget that the concept of syncretism is necessarily based on what has been called the 'bias of purity' (Law et al., 2013, p. 174) as it assumes that there are categories by which our reality can be organised unambiguously, forgetting that these categories are derived from constant *purification* efforts (Latour, 1993).

knowledge or the knowledge of people within one's own social world can be difficult. Therefore, intimate coexistence with what is framed as *a problem I have direct experience of* (e.g. when I vaccinated my son he had a terrible allergic reaction) makes it difficult to rely on the skills of a doctor which, whilst certainly based on scientific evidence, are, precisely for this reason, aseptic and therefore those of someone who has not experienced this same problem *first hand*.

The experiential knowledge shared within RKC is, in fact, configured as a form of *knowing otherwise*, in which the direct and/or shared experience dimension is both a legitimisation criterion and an action resource. For these same reasons, RKC recognise authority based on *experiential expertise*, i.e. the expertise of those who are close to people in a RKC who have had similar experiences or who have met many people in the same condition. This authority is further strengthened when practicable solutions without too many techno-scientific mediations are offered, as these are more readily understandable and thus reassuring. Indeed, within the logic of experience-based legitimisation strategies, expertise based on institutional credentials (education, academic position and publications) is considered distant, abstract and useless, even harmful. The traditional expertise-building process is therefore turned on its head. Rather than expertise being an institutional credential enabling experience to be acquired, it is experience that certifies expertise (Heyen, 2020; Merkley, 2020; Vuolanto et al., 2020).

In some ways, the social worlds of self-help groups—from alcoholics anonymous to patient associations—move precisely in this direction. However, in the case of RKC, knowledge based on personal experience implies a watershed with scientific epistemology to the extent that only limited space is left to scientific knowledge, the opposite of what happens in the case of patient associations and groups (Epstein, 1996; Rabeharisoa & Callon, 2002).

However, RKC do not reject science totally or definitively. Rather they combine validation criteria based on experience with syncretism by selecting and inserting scientific knowledge—or portions of it—into the framework of their shared knowledge to generate something resembling a consistent whole. RKC are thus making instrumental use of scientific knowledge.

This reconfiguration of scientific knowledge not infrequently pertains to a further legitimisation strategy that seeks, in the sense of ANT, to translate the forms and methods of scientific research into RKC's discourse and practices. It is a matter not only of importing scientific knowledge into a new context but also of enhancing the credibility of this context by emulating official scientific practices. This is a strategy that can be described as *mimicry*, with consolidated scientific practices emulated in a functional way to confer credibility on refused knowledge.

This happens when RKC's use symbols, procedures and repertoires typical of scientific language to produce facts and evidence to support their claims. It is a strategy that has already been documented, for example, in the creationism-evolutionism debate (Park, 2001) or in the case of conspiracy theorists, who 'flaunt with academic credentials (professor, Dr, MD, etc.), publish books with scholarly sounding titles and adopt a style of writing that mimics mainstream academia [... so that they] make a parody out of science [... thus becoming] the pathological Other of modern science' (Harambam, 2020, pp. 13–14). This strategy also encompasses attempts to enrol scientific experts as supporters of refused knowledge or those with the scientific credentials which come with working, currently or in the past, in universities or research centres, perhaps in marginal positions, or even simply as graduates.

It should also be underlined that emulating scientific practices tends to take an idealised version of science as its reference point, portraying it as free of interests, exclusively devoted to the good of humanity and designed to achieve objective knowledge (Harambam, 2020; Jaspal et al., 2012; Prasad, 2022). At the same time, mimicry can concern the borrowing of scientific formats, such as the organisation of a training course in a typically academic style.

2.5 Conclusions: Why Should We Take RKC's Seriously?

One of the most interesting results which emerged from our research is that the strategies adopted by RKC's to support their claims are also clearly recognisable in the processes by which scientific knowledge is

constructed and legitimised. Is science not continually engaged in defining and maintaining boundaries? Think, for example, of those which separate it from heterodox cognitive practices or those which distinguish between disciplines, schools of thought and theories or paradigms. Is not the formulation of new concepts, research programmes and tools often derived from the hybridisation of different research fields, from their combination into a new organic framework of elements previously belonging to separate fields? Does not the history of science very frequently seem to proceed through processes of syncretism? Furthermore, could not research work in *normal science* à la Kuhn be interpreted in many ways as an effort to remain consistent with the dominant paradigm, even through mechanisms of mimesis?

From this point of view, refused knowledge legitimisation strategies truly resemble those adopted by institutionally accepted knowledge. After all, is this not one of the main acquisitions of STS? Is it not this similarity that underlies the principle of symmetry? Certainly, identifying differences, even remarkable ones, is by no means difficult. Such differences seem, above all, to concern differing interpretations of the expression *knowledge based on experience*. For RKC, what stands out is the reference to individual experience, the validation derived from subjective feelings and having *experienced something in the flesh*. Whilst such knowledge can then be strengthened by sharing it with others whose experiences are similar, the individual subject still remains the starting point in the cognitive process and the benchmark it returns to, to stabilise its outcomes.

As we know, scientific research also relies heavily on experimental practices, i.e. methods of legitimising knowledge based on experience. However, it is an experience built and implemented by reference to collective parameters that are programmatically defined for the purposes of going beyond the individual, despite the diversity of the epistemic cultures to which reference is made (Knorr-Cetina, 1999).

However, if this specific kind of reference to experience is science's determinant strength, it is precisely this specificity that makes it unattractive to many, especially in the face of difficult situations such as illness, uncertainty and loneliness. Scientific knowledge can thus appear aseptic, detached from subjective feelings and distant from people's living

experiences which are vivid precisely because they feel unmediated and thus open to personal interpretation.

It is exactly this distance from the everyday life sphere—which has grown over time, partly thanks to the development in science of languages and practices which feel increasingly esoteric for lay people—which gives RKC space and sparks their interest. However, all this makes RKC all the more significant to our understanding of the social processes in which we are embedded, rather than considering them as exotic objects pertaining to a tiny minority and thus to be studied with the curiosity of arrogance.

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