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Decolonising the temporal and relational assumptions in contemporary science and science

policies

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Bio

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Abstract:

The concept of decolonisation was originally proposed as an epistemic project that focused on anti-

hegenomic endeavours to counter power imbalances. However in recent years, it has become a buzz

word across different fields in the Global North, often slipping into a tokenistic exercise. This paper

argues that the decolonising promise of moving beyond power asymmetries and acquiring the

ability 'to think from and with' others will not be fulfilled unless we take seriously the need for a

radical shift in recognising global others' epistemic status.

Drawing on empirical case studies of China's and India's rise in the life sciences and their

respective impacts on Anglo-American policy discussions, this paper demonstrates what

decolonising our temporal and spatial (or relational) assumptions of contemporary science could

mean in practice. More importantly it argues that decolonisation in the pluriverse of contemporary

science should simultaneously be a radical and prudent project. As such, to decolonise is not only a

challenge for the Global North but also for the Global South. The decolonisation project argued for

in this paper is conducive to a fresh ontological attention of critical policy studies and a recalibrated

relational focus of governing practices.

Keywords: Life sciences, governance, relational turn, pluriverse, decolonisation, contemporaneity

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What does decolonisation mean for science policy and critical policy studies? Modern science is built on colonies (Basalla, 1967, Harding, 1998). At one level, this refers to the how Western science has established its global dominance through colonial and imperial influence. But on a more important level, this refers to the fact that modern science has largely operated through scientific 'colonies', in which individual practitioners are bonded by institutionalised power structures and well-defined material and discursive relationships (Collier and Ong, 2005, 4-12). Yet at least in the field of emerging life sciences, science is spinning out of control form conventional colonies of authorities. An expanding multiplicity of incentives and diverse societal resources are enabling cutting-edge biomedical research to be conducted outside of conventional institutional science. The arrival of the world's first 'three-parents baby 'in 2016 and the world's first germline genome editing on human (the as known also'CRISPR Babies' scandal) in 2018 are recent examples where national policies and international guidelines were caught 'off guard' (Hamzelou, 2016, Cyranoski and Ledford, 2018). The 'decision space' of how science is regulated seems to be *out of sync* with the 'action space' of how science is practiced.

This increasing incongruence underlines a 'decolonial imperative' of global governance (Zhang and Datta Burton, 2022). That is, a radical rethinking of how we govern, as a collective, and in recognition of the heterogeneous, contingent, dialogical and situated nature of contemporary science practice.

However, what 'decolonisation' means to science governance and policy discussions is not evident and requires unpacking. The concept of decolonisation was originally proposed as an epistemic project that focused on anti-hegenomic endeavours to counter power imbalances (Quijano, 2000, Harding, 2016, 2019; Mignolo and Walsh 2018). At the risk of oversimplifying post-colonial

theorisations, for the purpose of this paper, it could be argued that while both are rooted in colonial experience, decolonialisation encompasses a wider intellectual agenda that goes beyond the temporal and spatial scope of colonial memory (please see Bhambra, 2014, de Sousa Santos, 2021, Colpani, Mascat and Smiet, 2022 for a more in-depth comparison between postcolonial and decolonial theorisations). In striving for rendering Global Others fair epistemic status, it actively pursues 'epistemic disobedience' through 'de-linking' from hegemonic discourse, while cultivating a new form of 'thinking *from and with*' and not simply '*about*' people, subjects, places and their relations (Mignolo, 2009, Walsh, 2018: 32-25).

But in recent years, 'decolonisation' has become a buzz word across different fields in the Global North, often slipping into a tokenistic exercise of inclusion or diversification, emptied of serious reflection on epistemic limits and biases (Moosavi, 2020, Marshall, 2022). How decolonisation can or could be translated into transforming practices of how we perceive and react to real-world challenges remains unspecified. As rightly pointed out by many, merely 'thinking differently' is not sufficient to bring meaningful change (Braun, 2016, 110-111, Stingl, 2022). The decolonising promise of moving beyond power asymmetries and acquiring the ability to think with alterity and from exteriority requires substantial effort to engage with the interlocking of values, cultures and knowledge ways of global others (Mignolo 2011, Tlostanova and Mignolo, 2012).

This paper addresses the gap described above between the *theorisation* and the *doing* of decolonisation in science policies, with a focus on the life sciences. The 21st century has been dubbed 'the Age of Biology' by the OECD as life sciences play a key role in tackling global challenges (Glover, 2012). Relatedly, the regulation of life sciences has raised many epistemological questions and has been a centre of decolonial contentions in both academia and global politics (see Fan, 2022, Harding, 1998, Zhang, 2012). The decolonisation project argued for in this paper is conducive to a fresh ontological attention of critical policy studies and a recalibrated

relational focus of governing practices. It is necessary to first bring to the foreground two often ignored but important points on the role of decolonisation in policy-making and policy research. Firstly, in terms of its spatial scope, decolonisation as an epistemic project is not limited to bringing reparative justice to the Global South. Rather, it strives for epistemic clarity that is beneficial to all of us, regardless of our geopolitical belongings, for such struggles can 'take place between different cultures and social position...even within Western Europe and Northern America' (Anderson and Adams, 2008, 184). To put it in another way, a decolonial turn for policy-making and critical policy studies means that, in addition to being critical of the technocratic forms of thought and practice in policy, we also need to be more critical of the underlying temporal and spatial assumptions we make about social reality (e.g. how ideas travel and how science could be organised). Secondly and relatedly, in terms of its temporal scope, the impact of decolonialisation is not limited to identifying past wrongs, but more significantly lies in shaping our interpretation of *contemporary* practices and strategisation of *future* ones. The political-ethical humility embedded in decolonisation is an Eliasian awakening to the relational aspects of power and the fallacy of a fixed centre-periphery assumption (Elias, 2008). The necessity to 'delink' from a linear vision of Eurocentric modernity as decolonial theorists have argued, is to enable a relinking of our thinking and action through a more accurate conception of our global interconnectedness (Mignolo, 2011, Fúnez-Flores, 2022). Needless to say, a more accurate view of contemporary configurations of global science is a prerequisite to make science policy more response-able.

In what follows, I first set out two key limits in existing decolonisation discussions of science, namely an implicit temporal distance and a spatial binary, which render our conception of the pluriverse of contemporary science only 'half-baked'. In sections two and three, I respectively discuss how the temporal and spatial assumption can be decolonised and what they mean in practice. More specifically, I draw on my previous studies of China's and India's rise in the life sciences and their respective impacts on Anglo-American policy discussions to demonstrate why a

decolonised way of thinking with alterity and from exteriority would make science policy more response-able. Section four highlights that decolonisation is a challenge to Global South authorities too, before the paper arrives at its conclusion on why decolonialisation is needed for science policy to remain relevant and effective in a technologically and culturally fast-changing, and increasingly ideologically, fragmented world.

Decolonisation and the pluriverse of contemporary science

Science and technology studies (STS) has long championed the heterogeneity of science and innovation in a multi-polar world. Science constitutes not only 'one and only desirable and universal' framework dominated by the West, but consists of a pluriverse of practices (Harding, 2019: 49). Yet decolonial discussions of science often remain 'half-baked' due to a habitual designation of the Global Other in particular temporal and spatial confinements.

On the one hand, there seems to be a common ignorance or avoidance of pluriveristy within contemporary (Western-dominate) science. That is, there remains an implicit act of keeping the Global Others at a temporal distance. For instance, the most frequently cited examples of the multiplicity of scientific practices are cases of indigenous science or traditional medicines. One paradox in the half-baked decolonial discussion of science is that while we seem to be able to coexist with Global Other's historical practices, we are still expecting uniformity and universality of doing science in the present. This is not to deny that for science to establish credibility, some uniformity and consensus-seeking is required (Ziman, 1978). Nor is this to say all contemporary scientific practice are necessarily equally valid or of equal value. But this is to highlight an implicit yet persistent Western-Northernly proclivity over the with whom that consensus should be established and where norms should come from.

On the other hand, the old West/Rest spatial binary remains a constrain on de-terrioriality of contemporary science. It has been widely observed by empirical studies that scientists actively 'shop for' or cultivate socio-political environments that can accommodate their cutting-edge research ventures (Russo, 2005, Sleeboom-Faulkner, 2019). The rise of the East and the diversity and multiplicity of bottom up civic funding have further made such 'shopping' possible (Prasad 2005; Regal 2018). However, even academic studies of non-Western research community's deviance from the Western mainstream have a tendency to 'recycle certain tropes that can be traced back to European imperialism—e.g., exotic nature, tropicality, and backward peoples and cultures in 'other parts of the world' and 'reinscribe the West/Rest dichotomy' (Fan 2022, 2, 5). This is further elaborated in the 'de-terrioriality and the commoning of science' section

This paper underlines the implicit temporal and spatial binary embedded in such discussions means missed opportunities for science policy. As the following sections demonstrates, a true decolonisation of science policy and related discussions should be both radical and prudent. It should be radical in the sense that it takes a step further than provincialising one's positionality (Stingl, 2022). The counter-hegemonic endeavour is fulfilled through seeking new grounds on which to weave our way of life with 'other modes of thinking' so as to make our decisions correspond with and our actions better co-respond to shared challenges (Savransky and Lundy, 2022, Fúnez-Flores, 2022). It provokes not only self-reflexivity, but an ontological skepticism by asking questions such as 'what are there to be observed and governed in the first place?' 'When does deviance signal a need for correction and when it does it signal a new reality?'. Decolonisation in science governance also necessitates prudence in the sense of having a realist view and avoiding the same illusion of a 'zero point' epistemology as the colonisers once had, which assumes a view of nowhere and everywhere (Castro-Gomez, 2021, Haraway, 1988). This is particularly pertinent to regulatory and governance discussions. To suspend the epistemic privilege of dominating policy norms is not to completely sever one's ties and denounce existing infrastructures as completely

invalid (Spivak, 2003; de Jong, 2022). Rather, as Donna Haraway (2016) pointed out, it is to hold prevailing epistemologies 'lightly', which renders oneself to be sensitive to evolving social circumstances, and new connections. In other words, before we make an attempt to address concerns to make 'an imagined future safe', and transform 'universality' into 'pluriversality' of 'becoming with each other, thanks to each other and at the risk of each other', we must first 'learn to be *truly present*' in the world (Debaise and Stenger, 2022, 416, Haraway, 2016, 18, added emphasis).

Contemporaneity in non-linear yet entangled modernity

To decolonise our perception of science as a linear progression is critical to truly grasp the coconstitutive and pluriversal nature of global policy discourses and its impacts. But to see the Global
Others as 'contemporaneous', or to 'be truly present' in the world with Others may be less
instinctive than one thinks (Haraway 2016, 18). Around forty years ago, German anthropologist
Johann Fabian (1983) pointed out a habitual 'denial of coevalness' in modern epistemology, a
denial of contemporaneity of the contemporaneous by dismissing their experiences as belonging to
a different historical epoch. For example, in the case for science governance, it is not uncommon to
hear stakeholders from both the Global North and Global South make comments such as 'China is
20 years behind the West' or 'India has a 10-year gap to catch up'. But what if catching up is not
about competing along a *linear* scientific progression or a particular ordering of how science should
be done? The elephant in the room is that we are contemporaneously faced with similar sociotechnical uncertainties and an absence of foresight.

Thus decolonising our temporal assumptions of contemporary science first and foremost means to restore alterity's contemporaneity. This is a prerequisite of recognising the value of 'thinking with' global others. Policy scholars such as John Clarke and colleagues (2015) have pointed out that

policy doesn't just 'transfer', but is actively interpreted and inflected through an intricate web of relations. If we forgo a linear conception of modernity, and forgo being the 'benchmark' of time, it is perhaps easier to see that the global scientific norms are not established through diffusion, but through a process of 'diffraction'.

Diffraction is originally a concept that describes the superposition of waves when they encounter an obstacle or an interference. It was developed by Donna Haraway (1997, 2008) and Karen Barad (2007) as a 'critical consciousness', a step-up from 'reflexivity'. Whereas reflexivity or reflection implies a symmetrical mirroring of existing epistemology with fixed standpoints, diffraction recognises 'the history of interaction, interference, reinforcement, difference' (Haraway 1997, 273). It makes visible the relational aspects of our epistemology, especially through our articulation and re-articulation of differences (Campbell, 2004). In other words, diffractive knowledge production is not just 'co-production' of knowledge, but also refers to the fact that the knowers and the resulting knowledge, the producers and produced, are co-constitutive. A diffractive framing brings visibility to how encountering differences diffracts both non-Western and Western epistemology on how life science innovations should and could be governed. For example, UK-India scientific exchanges are not one-sided. Although British influence significantly shaped India's modern science, as it did many other countries in the Global South, it has never operated under the 'a hegemonic wholesale "colonial episteme" but has always constituted 'waves of heterotopia' (Green, 2018, 871). That is, a contact zone of plurality of epistemic and political positions which disturbs, challenges, and potentially overturns the familiar assumptions of those who enter it (Green, 2018). Similarly, while China's national policy on embryo research is significantly shaped by British discussions (Zhang, 2012), the influence has been mutual. Chinese scientist Huizhen Sheng's 2003 hybrid embryo research was a key factor used in the UK's Government Proposals for the Regulation of Hybrid and Chimera Embryos in 2007 (Zhang, 2012). Junjiu Huang's 2015 success in delivering world's first genetic modification of human embryos for research purposes prompted the UK HFEA to grant

licences to allow similar research (Cressey, Abbott and Ledford, 2015). While there remain distinct cultural and structural differences between the UK and China's life sciences, their research context is better comprehended in connection with one other. In short, a decolonised temporal assumption of contemporary science makes visible of our co-constitutiveness as contemporaries.

It further brings clarity to the entanglement of modernity and how it could be used to direct our actions, and possibly enable some policy foresight. Political scientist Brian Salter (2008: 156), on the basis of examining stem cell governance in both China and India, concluded that, in contemporary global innovation 'no state can afford to be a political island'. Advancement in one part of the world often causes a rippling effect, shaking public confidence in scientific and regulatory credibility and putting perverse pressures on other national regulatory bodies to 'speed up' their policy consultation or worse, to 'catch up'. A recent example was Jiankui He's 2018 announcement at the Second International Summit of Human Genome Editing that he had successfully delivered the world's first two girls born with the illegal application of heritable genome engineering on humans. Despite the fact that his research was quickly denounced by both his international and domestic peers, this 'obscure' researcher nonetheless brought forward the global timeline of both scientific and regulatory discussions in this area. Most notably, it shifted the regulatory stand of the Summit's organising committee, a circle of predominantly North American scientific elites. That is, instead of seeking 'broad social consensus' before proceeding with any clinical use of germline editing to identifying 'translational pathways towards such trials' (National Academies of Sciences, Engineering, and Medicine, US, 2015, 2018). Yet there is another layer of contemporaneity of this case that needs to be highlighted. following Jiankui He's announcement, two DIY biologists in Austin Texas founded a human germline engineering startup, funded by Bitcoin with customer lined up (Regalado, 2019). Thus, as scholars familiar with this case have argued, it would have been misleading to see this case as a 'Chinese' scandal or simply a 'rogue' (Cohen, 2019a, Hurlbut, 2021). It reflects a deeper tension between cutting-edge science and its

stewardship (Dickenson and Darnovsky, 2019). That is, scientific authorities struggle to deliver ethically cogent and socially effective regulations that can keep pace with the pluralisation of new configurations of research practices, which are supported by emerging assemblages of social interests.

Why do we need to 'think with' global others (Mignolo, 2009, Walsh, 2018)? To avoid decolonisation sinking into tokenism, we need a health dosage of skepticism of what it proposes. But if we step away from colonies of habitual thinking and try to 'be truly present' when observing the world, it won't be difficult to notice the diffractive nature of global encounters and information flows. Unless we can miraculously sever all material and immaterial ties with the world, we're inevitably co-constitutive of each other in a non-linear yet entangled modernity. To recognise each other as contemporaneous is different from recognising each other as 'equal' or the 'same' as contemporaries. But it is a prerequisite to appreciate a pluriverse of contemporary science without relativism, to be conscious of other's values and influence without feeling threatened, to notice what there is to be seen in the current, so as to recalibrate our actions. It is in this sense that decolonisation's seemingly radical agenda of recognising global other's epistemic status is prudent. As an epistemic project, it is both simple and ambitious: it is about bringing our vision of science *in sync* with the contemporary world.

De-terrioriality and the commoning of science

For regulators, a new 'wicked problem' is the brought by the de-territoriality of contemporary science. That is, there are a growing number of new players who are outside of traditional colonies of expertise and authority but whose work nevertheless shapes how emerging science is perceived and received by the public (Zhang and Datta Burton, 2022). This increasing incongruence between

the decision space and action space of how we govern and do science, as this section argues, necessitates that we 'de-link' a territorial conception of governance as boundary-drawing, and relink governance with commoning the relational aspect of power. I demonstrate these points through two steps.

The de-territoriality of contemporary science is widely acknowledge by existing studies. The transdisciplinary and transnational nature of contemporary science, combined with streamlining of technical specialties, mean cells, animals, chemicals, patients, and scientific professionals travel and interact across borders (Song, 2017; Sleeboom-Faulkner, 2019). More importantly, the confluence of social, financial and scientific interests from the bottom up give rise to contingent and mobile research 'assemblages', new material, collective, and discursive relationships that challenge both disciplinary and judicial categorisations (Ong and Collier, 2008).

An illustrative example of how a radical rethinking of science governance, rather than merely 'extending' old governing tools to new research territories, is the case of Geeta Shroff and her Nutech MediWorld clinic in India which offered unproven stem cell therapies to patients worldwide. Trained as a gynaecologist, Geeta Shroff was emblematic of the unrelenting regulatory challenge of cracking down on private scientific ventures exploiting desperate patients. Her private clinic's rise to 'stardom', or more precisely, global notoriety, was through events such as her 2005 press conference claiming to have treated 100 patients with stem cell therapies. The claim was validated not by peer-review publications, but by the presence of political celebrities such as India's then Health Secretary, the Prime Minister's wife (PTI, 2005). While improved patients called their treatment a 'miracle', medical researchers called her a 'dangerous quack'.

But what was curious about Shroff's experience was that for almost two decades since the founding of Nutech MediWorld, Shroff simply 'refused' to publish her work on stem cell therapy (Laurance,

2011). She was more interested in applying for patents and protecting commercial secrets. Of course there may be various reasons and not having sufficient or 'rigorous' data at the time could be one of them (see Zhang and Datta Burton, 2022 118-121 on how differentiated epistemological values assigned to clinical evidence has effected the perception of experimental therapy research such as Shroff's). However, the point is, she seemed to be content with remaining outside of the territories of institutional science. Her work may involved applying and tinkering cutting-edge science, but she was not a 'scientist' in the conventional sense. She was a business woman who happened to have substantial clinical skills and resources. If she did not see the relevance of the wider scientific community to her work, to what extent does she *need* the validation of peer-reviewed journals?

At the heart of the 'wicked problem' Shroff and many research practices outside of conventional institutions pose is that the de-territorialisation of science signals not just a change of scene or locality of where science is delivered, but a more fundamental change of social relations which pivot different sets of priorities and values in light of new experience and opportunities (Jennings, 2011,335 Collins, Weinel and Evans, 2010).

Does this mean that conventional scientific authorities and old governing tools have lost their power? Not quite. But it does necessitate a radical rethinking of where power comes from. As Norbert Elias famously put, power is always rooted in 'relationships of interdependence' (Elias, 1978, 2008, 137). Perhaps we could step away from the idea that governance is about guarding the integrity of a specific territory (e.g. stem cell science) or the authority of a colony of individuals (e.g stem cell scientists), and take a step towards seeing the exercise of power as nurturing and steering social interdependence between different social spaces and among different colonies of interests. Then it may be easier to see that Shroff's experimental therapy is not merely an 'enforcement' problem. The regulatory gap exposed cannot be addressed by casting out non-

conformity as rogue, but for regulatory bodies to 'think from 'exteriority, that is, to recalibrate its relevance to and actual leverage in these new social relations.

This leads to my second point on re-linking governance with the *commoning* of science. I borrow the term 'commoning' from political economist Elinor Ostrom. It refers to a regime of collective management of shared resources through regenerating people's social connections with each other. This is to say, if we de-link from conventional centre-periphery mindsets and take on a decolonial 'relational thinking - that of the relationship between place, knowledge and power' (Roy, 2015, 207), then we'd be able to see 'scientific commons' not as a given, but as an evolving set of social relations that are always a 'work-in-progress'. The primary focus of commoning, then, is better coordination of power-relations. A recent example is the nurturing of a 'Biogovernance Commons' amongst scientific and bioethical professionals against heightened political antagonism and alienation between the US and China (see Zhang, Ben Ouagrham-Gormley and Vogel, 2022). This case demonstrates that commoning is not so much about achieving agreement. Rather it is the base of where disagreement can be meaningfully discussed and negotiated. It recognises the fact that 'power is not an amulet possessed by one person and not by another', for there are no 'powerless' partners in a power-relation (Elias 1978, 74). Agreement is a byproduct of balanced relationships, a living document contingent upon our evolving interdependence. One example of commoning in response to the de-terrorialisation of science is that the upcoming Third International Summit on Human Genome Editing in 2023 (royalsociety.org) have dedicated sessions on the 'role of nonscientists in setting research agendas' and on the role of civil society and culture in shaping technological pathways. To be sure, commoning of science does not promise equality in and of science. For example, studies have shown that unless power imbalances in collective decisionmaking and actions are purposefully corrected, public participation in science governance could be 'more or less inconsequential' (Braun and Könninger, 2017, 689). Similarly, research on recent movements on open science has cautioned that 'public access is not open access' (Pariks, Malcom

and Moran, 2022). Infrastructural fragmentations and resource disparities set practical constraints on how communities in different regions or from different cultures can take advantage of open science (Leonelli, 2013, Ross-Hellauer, 2022). However the effort towards the commoning of science offers a pathway that better corresponds to how scientific practice is shaped and opens up new avenues for diverse stakeholders of science to co-respond to common challenges.

The application and exploration of science has long grown out of conventional research establishment. Yet such deterritoriality does not mean a replacement of institutional science. Similarly, while we need to decolonise our governance approach to recognise 'science commons' needs commoning, this does not mean that traditional boundary drawing and gatekeeping are no longer important. But it adds weight and substance to the relational turn of how we conceptualise science and its policy.

Decolonisation as a challenge for the Global South

To fully understand the radical nature of decolonisation is to recognise that 'de-linking' from hegemonic discourse does not come naturally even for Global South authorities. Residual and new forms of colonialism and a lack of 'epistemic will' are also barriers for Global South communities (Ude, 2022, 12, Dirlik, 2016).

For example, empirical examination of India's life science policies in the past two decades shows a regulatory culture in which epistemological prejudices are replicated or even exacerbated (Zhang and Datta Burton, 2022). Technical competence and the 'worthiness' of domestic opinions are evaluated by their affinity to Western norms. The designing and delivery of science policies remains easily trapped in what I termed a self- referential 'bureaucratic amplification of credibility', in which a small group of knowledge elites sit on different policy boards, gatekeeping what a

'modern' Indian policy should look like by amplifying the weight of a particular claim (Zhang and Datta Burton, 2022). Similarly China, despite of (or because of) being a neo-colonial power itself, struggles to see alternatives to preserving existing epistemic hierarchy. Its scientific and bioethical elites are more ready to import Western guidelines than to render 'epistemic justice' to its own people (Centre for Global Science and Epistemic Justice, 2021).

To note the Global South's struggle with decolonisation is important. Epistemology is entrenched in how we interpret the world and what we can see and experience. The subversiveness embodied in decolonisation is not so much an antagonism between West vs East or North vs South, but in tipping over fixed centre-periphery assumptions, so as to open our eyes to the pluriverse, and to free present and future possibilities.

Concluding words

What does decolonisation mean for science policy and critical policy studies? Depending on the specific field, there isn't and shouldn't be a uniform answer to this question. Similar to other key concepts such a globalisation, cosmopolitanisation or modernity, decolonisation itself is a loaded word, subject to different interpretations and different critiques (de Sousa Santos, B. 2021, Colpani, Mascat and Smiet 2022, Fan, 2022. Moosavi, 2020).

But at a fundamental level, decolonisation is about stepping out of colonies of habitual thinking. The decolonisation I think is needed for science policy is an epistemic project that puts old ontological convictions of 'what/who are *present*' to test, and overturns our conception of interdependence as an asset, not a limitation in navigating through entangled modern worlds.

I started the article with the problem of how science governance appears to be out of sync with the pace of research development. But decolonisation is not panacea. It is not to completely replace or denounce existing experience. It is to question epistemic privilege, so that we can 'hold them lightly' (Haraway, 2016, 18) so as to be in sync with new realities. To think with alterity and from exteriority itself does not transcend power imbalances or promise consensus (Walsh, 2018). But it enables a more accurate understanding of how our social-technical aspirations are shaped relationally, through processes such as diffraction and commoning. In short, to decolonise is to be

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truly present in the world, with others.

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References:

Anderson, W., and V. Adams, V. 2008. "Pramoedya's Chickens: Postcolonial Studies of Technoscience." In *The Handbook of Science and Technology Studies*, edited by E.J. Hackett et al, 181–204. London: MIT Press.

Barad, K. 2007. Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning. Durham, NC: Duke University Press.

Basalla, G. 1967. "The Spread of Western Science." Science 156(3375): 611-622

Bhambra, G. K. 2014. "Postcolonial and Decolonial Dialogues." *Postcolonial Studies* 17(2): 115-121, DOI: 10.1080/13688790.2014.966414

Braun, K. 2016. "Critique as a Two-dimensional Project." *Critical Policy Studies* 10(1): 110-112. DOI: 10.1080/19460171.2015.1129351

Braun, K and Könninger, S. 2017. "From experiments to ecosystems? Reviewing public participation, scientific governance and the systemic turn". *Public Understanding of Science*. 26(6): 674-689

Campbell, K. 2004. "The Promise of Feminist Reflexivities: Developing Donna Haraway's Project for Feminist Science Studies." *Hypatia* 19: 162-182.

Castro-Gomez, S. 2021. Zero-Point Hubris: Science, Race, and Enlightenment in Eighteenth-Century Latin America. Lanham, Maryland: Rowman & Littlefield Publishers

Centre for Global Science and Epistemic Justice (GSEJ) (2022) *The Ethics of Protecting 'CRISPR Babies': An International Roundtable Summary Report*. Canterbury: University of Kent

Clarke, J., A. Bainton, N. Lendvai, and P. Stubbs 2015. *Making Policy Move: Towards a Politics of Translation and Assemblage*. Bristol: Policy Press.

Cohen, J. 2019. "The Untold Story of the 'Circle of Trust 'behind the World's First Gene-Edited Babies." *Science*, https://www.sciencemag.org/news/2019/08/untold-story-circle-trust-behind-world-s-first-gene-edited-babies.

Collier, S., and A. Ong, 2005. "Global Assemblages, Anthropological Problems." In *Global assemblages: Technology, Politcs, and Ethics as Anthropological Problems*, edited by A. Ong and S. Collier. Malden, MA: Blackwell.

Collins, H.M., M. Weinel, and R. Evans 2010. "The Politics and Policy of the Third Wave: New Technologies and Society." *Critical Policy Studies* 4(2): 185–201.

Colpani, G., J. M.H, Mascat and K. Smiet 2022. "Postcolonial Responses to Decolonial Interventions." *Postcolonial Studies* 25(1): 1-16.

Cressey, D., A. Abbott, and H. Ledford 2015. "UK Scientists Apply for Licence to Edit Genes in Human Embryos." *Nature*. https://doi.org/10.1038/nature.2015.18394

Cyranoski, D. and H. Ledford 2018. "Genome-Edited Baby Claim Provokes International Outcry." *Nature 563:* 607-608.

de Jong, S. 2022. "Writing Rights: Suturing Spivak's Postcolonial and de Sousa Santos 'Decolonial Thought." *Postcolonial Studies* 25(1): 89-107. DOI: 10.1080/13688790.2022.2030596

de Sousa Santos, B. 2021. *Postcolonialism, Decoloniality, and Epistemologies of the South.* Oxford: Oxford Research Encyclopedia of Literature

Debaise, D., and I. Stengers 2022. "An Ecology of Trust? Consenting to a Pluralist Universe." *Sociological Review* 70(2): 402–415.

Dickenson, D., and M. Darnovsky 2019. "Did a Permissive Scientific Culture Encourage the 'CRISPR Babies 'Experiment?" *Nature Biotechnology 37:* 355-357.

Dirlik, A. 2016. "Global Modernity?: Modernity in an Age of Global Capitalism." *European Journal of Social Theory* 6(3): 275–292.

Elias, N. 1978. What is sociology? London: Hutchinson.

Elias, N. 2008. "Power and Civilisation." *Journal of Power* 1(2): 135-142, DOI: 10.1080/17540290802309540

Fabian, J. 1983. *Time and the Other: How Anthropology Makes Its Object*. New York: Columbia University Press

Fan, F. 2022. "From Postcolonial to Post-COVID: Midnight Thoughts while Waiting for the Dawn." *Science, Technology & Society* DOI: 10.1177/09717218221102614

Fúnez-Flores, J. I. 2022. "Decolonial and Ontological Challenges in Social and Anthropological Theory." *Theory, Culture & Society* DOI: 10.1177/02632764211073011

Green, N. 2018. "The Waves of Heterotopia: Toward a Vernacular Intellectual History of the Indian Ocean." *American Journal of Ophthalmology* 123: 846-874.

Hamzelou, J. 2016. "World's First Baby Born with New '3 parent' Technique." *New Scientist*. https://www.newscientist.com/article/2107219-exclusive-worlds-first-baby-born-with-new-3-parent-technique/

Haraway, D. J. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14(3): 575-599.

Haraway, D. J. 1997. *Modest_Witness@Second_Millennium.FemaleManβ_Meets_OncoMouse:*Feminism and Technoscience. New York: Routledge

Haraway, D. J. 2008. When Species Meet. Minneapolis: University of Minnesota Press

Haraway, D. J. 2016. Staying with the Trouble: Making Kin in the Chthulucene. Durham NC: Duke University Press.

Harding, S. 1998. *Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies*. Bloomington and Indianapolis: Indiana University Press.

Hurlbut, J. B. 2021. "Decoding the CRISPR-Baby Stories". *MIT Technology Review* https://www.technologyreview.com/2021/02/24/1017838/crispr-baby-gene-editing-jiankui-history/.

Jennings, B. 2011. 'Poets of the Common Good: Expert, Citizens, Public Policy." *Critical Policy Studies* 5(3): 334-339.

Laurance, J. 2011. "Stem Cells Allow Paralysed Man to Breathe Again". *Independent*, https://www.independent.co.uk/life-style/health-and-families/health-news/stem-cells-allow-paralysed-man-to-breath-again-835222.html.

Leonelli, S. 2013. Why the current insistence on open access to scientific data? Big data, knowledge production, and the political economy of contemporary biology. *Bulletin of Science, Technology & Society* 33(1-2): 6-11.

Marshall, J. 2022 "Review: Decolonization and Its Discontents." The World Today.

August/September. 2022: https://www.chathamhouse.org/publications/the-world-today/2022-08/review-decolonization-and-its-discontents

Mignolo, W. D. 2009 "Epistemic disobedience, independent thought and decolonial freedom". Theory, Culture & Society 26(7–8): 1–23.

Mignolo, W. D. 2011. *The Darker Side of Western Modernity: Global Futures, Decolonial Options*. Durham and London: Duke University Press.

Mignolo, W. D. and Walsh, C. E. 2018. *On Decoloniality: Concepts, Analytics, Praxis*. Durham and London: Duke University Press.

Moosavi, L. 2020. "The Decolonial Bandwagon and the Dangers of Intellectual Decolonisation." *International Review of Sociology* 30(2): 332-354, DOI: <u>10.1080/03906701.2020.1776919</u>

National Academies of Sciences, Engineering, and Medicine. US (2018) *Statement by the Organizing Committee of the Second International Summit on Human Genome Editing*. National Academies, US 28 November. https://www.nationalacademies.org/news/2018/11/statement-by-the-organizing-committee-of-the-second-international-summit-on-human-genome-editing.

National Academies of Sciences, Engineering, and Medicine. US (2015). *International Summit on Human Gene Editing: A Global Discussion*. Washington, DC: The National Academies Press.

Glover, A. 2012. The 21st Century: The Age of Biology. OECD Forum on Global Biotechnology, Paris 12 November 2012. https://www.oecd.org/sti/emerging-tech/A Glover.pdf

Ostrom, E., 1990. Governing the commons. Cambridge, UK: Cambridge University Press.

Parikh, S. Malcom, S.M and Moran, B. 2022. "Public access is not equal access." Science, 377(6613): 1361.

Prasad, A. 2005. "Scientific Culture in the 'Other 'Theater of 'Modern Science: An Analysis of the Culture of Magnetic Resonance Imaging Research in India." *Social Studies of Science* 35: 463-489.

PTI. 2005. "Clinic's Embryonic Stem Cell Therapy Worries Govt." *Press Trust of India*. https://www.rediff.com/news/2005/nov/16stem.htm.

Quijano, A. 2000. "Coloniality of Power and Eurocentrism in Latin America." Nepantla: Views From the South 15(2): 533–580.

Regal, B. 2018. "Demythologising the 'Liberalisation' of Clinical Trial Regulations in India: A Practitioner's Perspective." *Science, Technology & Society 23:* 463-484.

Regalado, A. 2019. "The DIY Designer Baby Project Funded with Bitcoin." *MIT Technology Review, 1* February. https://www.technologyreview.com/2019/02/01/239624/the-transhumanist-diy-designer-baby-funded-with-bitcoin/.

Ross-Hellauer, T. 2022. "Open science, done wrong, will compound inequities." *Nature*. 603:363

Roy, A. 2016. "Who's Afraid of Postcolonial Theory." *International Journal of Urban and Regional Research* 40(1): 200-209.

Russo, E. 2005. "Follow the Money—The Politics of Embryonic Stem Cell Research." *PLoS Biology 3*(7): e234.

Salter, B. 2008. "Governing Stem Cell Science in China and India: Emerging Economies and the Global Politics of Innovation." *New Genetics and Society* 27(2): 145–159.

Savransky, M., and C. Lundy. 2022. "After Progress: Experiments in the Revolution of Values." *Sociological Review* 70(2): 217-231.

Sleeboom-Faulkner, M. 2019. "Regulatory Brokerage: Competitive Advantage and Regulation in the Field of Regenerative Medicine." *Social Studies of Science* 49: 355-380.

Song, P. 2017. *Biomedical Odysseys: Fetal Cell Experiments from Cyberspace to China*. Princeton University Press.

Spivak, G. C. 2003. Death of a Discipline. New York: Columbia University Press.

Stingl, A.I. 2022. "From Provincialisation to Decolonial Options: A Methodology of Infrastructural Genealogy." *Science, Technology & Society* https://doi.org/10.1177/09717218221102893

Tlostanova, M., and W. D. Mignolo 2012. *Learning to Unlearn: Decolonial Reflections from Eurasia and the Americas*. Columbus: Ohio State University Press.

Ude, D.M.C. 2022. "Coloniality, Epistemic Imbalance, and Africa's Emigration Crisis." *Theory*, *Cultures and Society* 39(6): 3-19.

Walsh, C. E. 2018. "The Decolonial For: Resurgences, Shifts, and Movements." In *On Decoloniality: Concepts, Analytics, Praxis*, edited by W.D. Mignolo and C. E. Walsh. Durham and London: Duke University Press.

Zhang, Y. 2022. "Reconsider Data Protection Governance, Promoting International Collaboration Structurally." *China Scitechnology Think Tank* 2022(9): 22-25.

Zhang, J. Y. 2012. *The Cosmopolitanization of Science: Stem Cell Governance in China*. Basingstoke: Palgrave Macmillan

Zhang, J. Y., S. Ben Ouagrahm-Gormley and K. Vogel. 2022." *Creating Common Ground With Chinese Researchers*", *Issues in Science and Technology*, 38(4): 45-48.

Zhang, J. Y. and S. Datta Burton. 2022. *The Elephant and the Dragon in Contemporary Life Sciences: A Call for Decolonising Global Governance*. Manchester: Manchester University Press.

Ziman, J. 1978. *Reliable Knowledge: An exploration of the Grounds for Belief in Science*. Cambridge: Cambridge University Press.