

A stylized, grey-toned graphic of a tree with a thick trunk and several branches, set against a light grey circular background. The tree is positioned on the right side of the page, partially overlapping the main title text.

“To Miss the Wood for the Trees”. A Conversation with Jonathan Harwood about the History of the Green Revolution

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The Green Revolution is back on the spotlight among historians and social scientists. Today, biotechnologists and philanthropists promise “new Green Revolutions” for the Global South, bringing back the politicians' discourse during the 1960s and 1970s. In this context, historical knowledge becomes crucial in warning scientists and policy makers about the social and environmental risks of these new technologies. Despite the growing literature on the Green Revolution, the debate about its nature - global or local -, and its historical roots goes on, as proves this interview. Professor Jonathan Harwood delves into the hypotheses and arguments of that new literature about the Green Revolution. Among other things, he posits a reevaluation of the technical innovations explored before WWII and discarded by the Green Revolution's success.

Professor Harwood is a distinguished scholar on the field. He is Emeritus Professor of the History of Science & Technology, Center for the History of Science, Technology & Medicine, University of Manchester (UK). Born in the United States, he studied biology at Wesleyan University (Connecticut), and completed a doctorate in Molecular Biology at Harvard University. In 1970 he emigrated to the UK where he studied Sociology at Bristol University and spent a year at the Science Studies Unit at Edinburgh University before moving to the University of Manchester where he spent his career teaching History of Science and Technology. Since the 1990s he has been a guest scholar at the Max Planck Institute for the History of Science in Berlin on numerous occasions as well as a fellow at the Dibner Institute, MIT.

INTERVIEW

- 1. You had a rather heterodox disciplinary formation. Your first studies were in Biology, but your main interests have been Sociology as well as History of Science and Technology. Among your studies are the history of genetics² and, in the last decades, a book and several articles on the Green Revolution. To what extent your original formation as a biologist shaped your approach to your contributions to these fields, usually linked to the Social Sciences, especially history?**

JH: Since path-dependency is such a common phenomenon, it seems inevitable that my original education in the biological sciences would have had a formative effect on my subsequent work. The fact that I had a doctorate in a natural science, for example, is probably one of the things which attracted me in the 1970s to the (then new and controversial) work of the ‘Edinburgh School’ on the sociology of scientific knowledge. For my scientific background – common among members of the school at that time – equipped me to look closely at technical issues in cognitive change in a way that those trained in the social sciences or humanities would have found more difficult. But as early as my undergraduate years I have also had a strong interest in issues related to heredity, probably stimulated by an excellent biology lecturer I had. As a result, problems of inheritance have been a recurring theme in nearly all of the projects I have undertaken since the 1970s.

² Jonathan Harwood. *Styles of Scientific Thought. The German Genetics Community, 1900-1933* (The University of Chicago Press, 1993).

Imagen 1. Jonathan Harwood, Manchester (UK), 2013.



Fuente: Interviewee's personal archive.

2. In your evolution as scholar, when, how and why did you focus your attention in the Green Revolution?

Until about 2000 I had only a limited familiarity with the secondary literature on the Green Revolution (GR). My work from the 1990s had been on the history of plant breeding in German-speaking Europe, and I was then writing on a book on that subject³. But in 2003, while organizing with colleagues at the University of Manchester a

³ Jonathan Harwood. "The rediscovery of Mendelism in agricultural context: Erich von Tschermak as plant-breeder". *Comptes Rendus de l'Académie des Sciences - Series III - Sciences de la Vie*, Volume 323, Issue 12 (December 2000): 1061-1067.

conference on US foundations and globalization, I took responsibility for planning a session on the GR. In order to find good speakers, I sat down and read all of the available histories of the GR I could find, and it gave me a big surprise. I discovered that many of the problems which GR experts had been addressing (with little success) had already been dealt with quite effectively by European breeders a half century earlier. Unaware of the earlier European work, however, GR experts seemed to be reinventing the wheel. As a result of this realisation, I abandoned my plan to write a rather conventional history of European plant breeding and decided instead to write a comparative book which would explore the similarities and differences between green revolutions 'then and now'. The book was thus conceived partly as a comparative analysis of agricultural revolutions aimed at historians, but I also wrote it for scholars and practitioners in the field of Development Studies, hoping to alert them to the value of history: in learning from the past which kinds of development interventions 'worked' and which didn't, but more generally in providing perspective on the whole development enterprise. Since that book appeared in 2012⁴, my work has been focused almost entirely upon the limitations of the GR.

- 3. You have the hypothesis of several "green revolutions": in Germany during the late 19th century and early 20th century, in Mexico during the 1940s, and in Asia during the Cold War. Is the Green Revolution a flexible concept liable to use for different temporal and spatial contexts? What advantages or disadvantages stem from using such concept to refer to different historical processes, as well as to different social and ecological contexts?**

Yes, it can be a flexible concept if the historian chooses to 'think big'. By contrast, occasionally one finds historians who define the concept very narrowly, e.g.

⁴ Jonathan Harwood, *Europe's Green Revolution and Others Since: The Rise and Fall of Peasant-Friendly Plant Breeding* (London: Routledge, 2012).

as an approach to increasing agricultural productivity which relies upon semi-dwarf high-yielding varieties. Others define the terrain more broadly, regarding ‘the GR’ as a set of agricultural development programmes sponsored by US foundations and other donors since the 1940s. While both of these conceptual definitions are perfectly legitimate in principle, it seems to me that the historiographical costs of drawing the conceptual boundaries so narrowly are too large. For in doing this, one overlooks the similarities between ‘GR programmes’ as narrowly defined and a very wide range of comparable attempts to boost agricultural productivity in other times and places. One thinks, for example, of the introduction of high-yielding varieties and commercial fertilizer in late 19th century Europe or Japan; of the promotion of ‘scientific agriculture’ in Turkey, China or Colombia after 1918; or of the Marshall Plan’s promotion of hybrid maize in Europe from 1947. The advantage of focusing upon a wider range of contexts is that one is less likely to ‘miss the wood for the trees’. That is, much of what we have focused on in studies of individual GR programmes is not peculiar to those local contexts but are instead recurring features of agricultural modernisation programmes in many places. The reasons for the origins of such programmes, the ways in which they proceed, and their outcomes, therefore, are to be sought in processes at the macro level rather than at the micro. I find it productive, for example, to think of GR programmes as a special case of the widespread commercialization (or commoditization) of agriculture in both global North and South since the 19th century.

4. On the same subject, Raj Patel has the hypothesis of a “long Green Revolution”⁵ which in his view spans from the 20th to the 21st Century, a series of capital accumulation. What is your reaction to Patel’s hypothesis?

I think Patel’s paper is certainly a useful contribution to the literature, partly because it explores continuity and change between the classic GR programmes of the

⁵ Raj Patel. “The Long Green Revolution”. *The Journal of Peasant Studies*, 40:1 (2013): 1-63, DOI: <https://doi.org/10.1080/03066150.2012.719224>

1940s and '50s and the more recent attempts to launch a 'new GR'. Moreover, in demonstrating that claims for a new GR's feasibility are based on false claims of the earlier programmes' success, Patel also shows us how historical analysis can contribute to contemporary debates over policy. More generally, however, I don't think Patel goes far enough in 'stretching' the concept of the GR both temporally and geographically. The most wide-ranging attempt to do this is Harry Cleaver's dissertation which, to my knowledge, is the first book-length treatment of the GR and still eminently worth reading⁶. In it Cleaver dismissed the claim that the 'origins' of the GR lay in the Mexican programme and instead looked back to earlier programmes of agricultural transformation, also funded by Rockefeller philanthropies: in the US South before World War One and then in China during the interwar period. Underlying all of them, he argued, was basically the same strategy of technical 'modernisation' via the use of commercial inputs. Both Patel and Cleaver, to be sure, viewed this history through a Marxist perspective, and some historians will probably be put off by that kind of conceptual apparatus. But it would be a mistake to dismiss their work on that basis because both authors offer not only empirical evidence of historical continuity across the 20th century, but also demonstrate the value of looking at the GR from the general perspective of political economy.

5. In one of your last articles you suggested that the history of the Rockefeller Foundation's program during the 1940s has been forgotten in the dominant narrative about the Green Revolution⁷. Why was Latin America set aside in the histories of the Green Revolution, specially those written in Europe and the United States?

⁶ Harry McBeath Cleaver, Jr. *The Origins of the Green Revolution*. Dissertation, Stanford University, November 1974.

⁷ Jonathan Harwood, "Whatever Happened to the Mexican Green Revolution?". *Agroecology & Sustainable Food Systems*, 44(9) (2020): 1243-1252. DOI: <https://doi.org/10.1080/21683565.2020.1752350>

In that paper I showed that whenever scholars in Development Studies (at least in the Anglophone world) in the last decade or so use the term 'GR', they nearly always refer to Asia and/or to the 1960s. Mexico from the 1940s and elsewhere in Latin America from the 1950s are almost never mentioned, which is a strange omission since well into the 1960s the Rockefeller-funded Mexican programme was often described in the literature as a huge success. Without further research I cannot be sure quite why development experts have lost sight of the Latin American programmes, but in the paper I suggested that this may be because while the development community now regards the Indian GR as a 'success', many studies of the Mexican GR since the 1970s demonstrate that despite the revolution's boost to wheat production, it has failed to improve rural poverty and nutrition and has had a damaging impact upon the environment. Thus my hypothesis is that the Mexican GR is an embarrassment to the development community which has been conveniently 'forgotten'. Whether the same argument can be made for the programmes in Colombia, Chile or Ecuador I don't know. Perhaps recent studies of Colombia⁸ will provide an answer, as well as the current international online seminar/workshop on the GR, organized by colleagues in several Latin American countries⁹. I hope the seminar will make the work of Spanish- and Portuguese-speaking historians much better known to those of us in the English-speaking world.

6. There are several reviews on the new narratives of the Green Revolution. Considering those reviews, in your opinion is there anything new to study about the Green Revolution?

⁸ Timothy W. Lorek. *Making the Green Revolution. Agriculture and Conflict in Colombia* (The University of North Carolina Press, 2023).

⁹ See: "Inter-Institutional Seminar: The Green Revolution: A Global Perspective on its 80th Anniversary", organized by Netzahualcōyotl Gutiérrez, Diana Méndez, Alfredo Pureco, Pedro Urquijo, Timothy Lorek, and Antonio Chamorro, with the support of El Colegio Mexiquense, Instituto de Investigaciones Dr. José María Luis Mora, and Centro de Investigaciones en Geografía Ambiental at the Universidad Nacional Autónoma de México, 2022-2023.

Rather than commenting on those reviews, I'd like to outline three lines of inquiry which I find particularly promising. The first of these (following Cleaver) is to extend the scope of studies of 'GRs' to embrace both global South and North. This might be done via comparative history, but it also means being attentive to possible *interactions* between South and North, e.g. via the circulation of persons, organisms or techniques (as Tore Olsson nicely demonstrates in his "Agrarian Crossings", 2017¹⁰). Collaborative work, of course, is another way to gain such perspective, a good example of which is a forthcoming volume on rural modernization in both South and North, edited by Miguel Cabo, Lourenzo Fernández Prieto and Juan Pan-Montojo. A second trend I hope we will see in the next few years is for more work by non-English-speaking historians to be published. As has been said so many times, the dominance of a scholarly literature by authors writing in a single language is not good for the growth of knowledge since certain perspectives tend to predominate while others are lost from view. While there seems little prospect in the near future of persuading anglophone historians to learn Spanish or Portuguese (or any other language!), it should at least be possible to provide more financial support for the publication of work in English-translation. Finally, while there is general agreement that writing 'history from below' has often enriched our understanding, this perspective has been surprisingly lacking in histories of the GR. Almost all studies (including some of my own) have told the story of such programmes from the point of view of donor agencies or of northern agricultural experts (probably because readily available sources made this relatively easy to do). As a result, however, the experiences of actors in the South – e.g. of experts, officials, politicians, cooperatives, etc. – are usually left out, such that our historical accounts are one-sided and sometimes quite misleading. This has been forcefully brought home to me recently when reading Heinrich Hartmann's excellent history of the role of western experts in Turkey's programmes for agricultural modernization after 1918¹¹). If we want to understand why such programmes have arisen in particular places at particular times

¹⁰ Tore C. Olsson. *Agrarian Crossings: Reformers and the Remaking of the US and Mexican Countryside* (Princeton University Press, 2017).

¹¹ Heinrich Hartmann. *Eigensinnige Musterschüler. Ländliche Entwicklung und internationales Expertenwissen in der Türkei (1947-1980)* (Frankfurt am Main: Campus, 2020).

and have had certain consequences, however, we cannot afford to ignore host country perspectives.

7. Some of your recent articles about the Green Revolution were published in periodicals such as *International Journal of Agricultural Sustainability*¹² or *Agroecology & Sustainable Food Systems*¹³. Was your aim to underline an interdisciplinary approach in the study of the Green Revolution?

Although an interdisciplinary approach would probably make good sense, that has not been my aim. When I retired about fifteen years ago, I decided that if my historical work was relevant to contemporary socio-economic/development issues, it was my responsibility to make that work more accessible to a much wider range of readers (than to the relatively small number of historians). In effect I chose to do what is sometimes called ‘public history’. That might have meant writing short pieces for newspapers, magazines or blogs, but I felt that my strengths lay in writing longer analytical pieces, so for the last ten years I have published my work in journals which are read by scholars and practitioners in both the development community and by those working on sustainable agriculture, in the hope that I can offer them both support and perspective for their own work.

8. In light of the current food scarcity, is it timely to write a new interpretation of the Green Revolution? May such endeavor help in rethinking the future of

¹² Jonathan Harwood. “Coming to Terms with Tropical Ecology: Technology Transfer during the Early Green Revolution”. *International Journal of Agricultural Sustainability*, 19(3–4) (2021): 305-318. DOI: <https://doi.org/10.1080/14735903.2021.1908747>

¹³ Harwood, *Whatever Happened*, 2020.

food production worldwide? Does history provide lessons for the current state of affairs?

Given the damage wreaked by industrial agriculture upon the environment and its reliance upon fossil fuels, one would have thought that rethinking the way we produce food would be a major issue on the policy agenda. In the never-ending discussions of climate change, however, it is striking how rarely agriculture’s contribution to global warming is mentioned, in contrast with that of transport or energy-generation, for example. Similarly, while the need for more environmentally-friendly technology in transport or construction is constantly in the media, comparable discussion of agricultural technology is rare. And although research on low-input or sustainable cultivation practices exists, it is funded at a remarkably low level, as though Agriculture Ministries thought that such technologies were ‘interesting’ but not worth supporting on a large scale. Under the circumstances, therefore, a radical shift of priorities in agricultural policy seems urgent.

But what kind of historical work might be helpful? Given most policy-makers’ assumption that there is no realistic alternative to ‘industrial’ or high-input cultivation practices, one task for historians is to demonstrate the social and environmental *failures* of GR programmes over the *longer* term. This is quite important because the development community tends to focus selectively upon what it sees as ‘successes’ and to assess them over the short-term, thus overlooking declining yields or other negative impacts which may only become evident after a programme has been running for decades. Another way to prompt a rethink is to devote much more time to the history of *alternatives* to industrial agriculture. One of the significant findings in a recent book by the agricultural historians Juri Auderset and Peter Moser¹⁴ is that over the first half of the 20th century a variety of promising alternative approaches to plant production and animal husbandry were being explored, improved and debated in Europe by both experts and farmers organisations. After 1945, however, such alternatives were

¹⁴ Juri Auderset and Peter Moser. *Die Agrarfrage in der Industriegesellschaft. Wissenskulturen, Machtverhältnisse und natürliche Ressourcen in der agrarisch-industriellen Wissensgesellschaft (1850-1950)* (Köln: Böhlau Verlag, 2018).

progressively marginalised, and the now familiar methods of industrial agriculture came to be taken for granted. Thus it is not the case that 'there is no alternative'; the alternatives exist but have been lost from view. An important task for politically-engaged historians, therefore, would be to retrieve that history so that it can be put back on the agenda.

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