UNIVERSITY OF LEEDS

This is a repository copy of *Hans-Jörg Rheinberger and Staffan Müller-Wille, The Gene: From Genetics to Postgenomics. Translated by Adam Bostanci. Chicago and London: The University of Chicago Press, 2017. Pp. 147. ISBN 978-0-2265-1000-2. $25.00 (paperback).*.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/135645/

Version: Accepted Version

Article:
Aylward, A (2018) Hans-Jörg Rheinberger and Staffan Müller-Wille, The Gene: From Genetics to Postgenomics. Translated by Adam Bostanci. Chicago and London: The University of Chicago Press, 2017. Pp. 147. ISBN 978-0-2265-1000-2. $25.00 (paperback). British Journal for the History of Science, 51 (3). pp. 534-535. ISSN 0007-0874

https://doi.org/10.1017/S0007087418000699

© British Society for the History of Science 2018. This article has been published in a revised form in British Journal for the History of Science https://doi.org/10.1017/S0007087418000699. This version is free to view and download for private research and study only. Not for re-distribution, re-sale or use in derivative works.

Reuse
Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown
If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

White Rose university consortium
Universities of Leeds, Sheffield & York

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk/

Rheinberger, Hans-Jörg, and Müller-Wille, Staffan, *The Gene: From Genetics to Postgenomics.* Translated by Bostanci, Adam. Chicago, IL; London, UK: University of Chicago Press, 2017. Pp. 147. ISBN 978-0-226-51000-2. $25.00 (paperback).

DNA was, until the middle of last century, thought to be far too simple to play the role of the hereditary material (p. 60). How could a molecule composed of only four units – the nucleotide bases A, C, G and T – account for the manifest complexity of living organisms? We might similarly wonder: how much of note can a slim volume of 120 pages possibly contribute to the already much-documented history of the gene concept? Quite a lot, it turns out.

Hans-Jörg Rheinberger and Staffan Müller-Wille's own important contributions to the history of genetics range widely in period and place, standing them in good stead to synthesise for us a vast array of historical, sociological and philosophical literature pertaining to over 150 years of scientific investigations of biological inheritance. And they do so with great sophistication and balance, seamlessly blending the findings of contemporary STS scholarship with those of the half-century-old tomes, penned by the scientists who figured centrally in the developments they recount. The basic technical knowledge required to appreciate their historical arguments is accurately and engagingly summarised, and incorporated smoothly into the narrative, which in ten brief chapters takes us from nineteenth-century speculations on heredity, through the 1900 'rediscovery' of Mendel's work, the success of classical, then molecular, genetics, and the transformations of the genomic and postgenomic eras. Anyone needing a one-stop-shop on genetics in its historical context which they can digest in an afternoon could hardly do better than *The Gene*.

What is most impressive is the way in which the authors' account – ably translated from the original German by Adam Bostanci – not only assimilates existing work, but also provokes reflection and poses new questions, especially pertaining to how it is that starkly different conceptions of what genes are have long and fruitfully coexisted. There is much to ponder in

the final chapter, 'The Future of the Gene', about whether or not this undoubtedly successful scientific concept has had its day in the sun, and should be consigned to history. It is perhaps telling that these questions still occupy our foremost thinkers despite decades-old iconoclastic calls for us to 'go beyond' the gene. The authors do not come down hard on either side, musing that 'whether and how long biological models will continue to be predominantly gene-based, remains an open question' (p. 120). This neutral conclusion is far from a shirking of authorial responsibility; it is surely the most warranted inference from the story they tell over the preceding hundred-odd pages. Indeed, one of the authors' major contentions is that the messiness one confronts in any attempt to come up with a definition of 'the gene' is nothing new, and hence need not compel us to abandon the concept.

Since Wilhelm Johannsen introduced the term to the biological landscape in 1909, the gene concept has always been a blurred one. Moreover, this fuzziness, the authors convince, has been central to its success. The radical pliability of the gene's conceptual boundaries has meant that it has continually, and sometimes unpredictably, been of great utility to life-science researchers in a great range of fields and sub-fields, including transmission genetics, molecular biology, biochemistry, evolutionary biology, developmental biology, medical genetics, genomics, and more. Rheinberger and Müller-Wille's narrative provides glimpses of the complex, productive negotiations undertaken within these different research traditions, as practitioners borrowed, grappled with, and transformed the gene concept, whilst turning it to use in answering the questions which occupied them. The authors set out to write the history of a scientific concept. Arguably – considering the gene's many lives, as a unit of transmission, of development, of evolution, of function, and much else besides – the result is a history of the coming into (co)existence of a motley group of distinct concepts, united in name and genealogy, but little else besides. Indeed, one might come away from reading this volume, as I did, wondering whether the definite article in its title is somewhat disingenuous.

The authors are unwilling to predict, nor incite, the future disappearance of genes from the life sciences. Their account provides good reason to think that, in the scientific arena, genes might stick around a while longer. But it is not just the future of the gene, but also its past (or should that be pasts?) which remains uncertain. The voluminous literature in the history of genetics notwithstanding, this small volume raises a variety of historiographical questions, big and small, which promise that genes will continue to populate the pages of history of science journals for years to come. *The Gene* will serve as a useful primer for entrants into these discussions.

Alex Aylward

University of Leeds