

Hahn criticises one metaphor and replaces it with another ('itinerary'). Even after a critical discussion of the biography concept, a word like 'lifecycle' is still used in Joy's chapter (p. 135). K. P. Hofmann speaks about things that are "*in Geschichten verstrickt*" ('enmeshed in stories') etc. We might perhaps also say that scholars studying material culture are 'enmeshed in metaphors', and I side with her to question whether this is a problem at all as long as it makes scholars creative and looking for new ways to make sense of material culture from the past. Many contributions in this book show that the biography concept – whether they consider it a useful one or not – has at least helped them to carry out interesting and thought-provoking research.

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**NIEDERSÄCHSISCHES INSTITUT FÜR HISTORISCHE KÜSTENFORSCHUNG (ed.), Marschenratskolloquium 2012. Flint von Helgoland – Die Nutzung einer einzigartigen Rohstoffquelle an der Nordseeküste / Marshland Council Colloquium 2012. Flint from Heligoland – the Exploitation of a Unique Source of Raw-Material on the North Sea Coast, 26.–28. April 2012.** Siedlungs- und Küstenforschung im südlichen Nordseegebiet 37. Verlag Marie Leidorf, Rahden / Westf. 2014. € 49.80. ISBN 978-3-86757-855-4. 202 pages with 138 figures and 16 tables.

Lithic raw material sourcing, procurement, distribution and utilisation studies have traditionally been published as single journal articles or book chapters. This poses a challenge to research, particularly when the distribution of a raw material crosses international borders, with studies published in regional or national journals in different languages that are not always easily accessible to people living in other countries. The challenge increases when a single raw material has been utilised throughout different periods of time, crossing multiple period specialisations; how does a specialist in the Final Palaeolithic understand the specific contexts of the utilisation of the same raw material type in the Bronze Age?

To my knowledge, these challenges have been circumvented almost for the first time with this book on the sourcing and diachronic distribution and utilisation of flint from the island of Heligoland in the southern North Sea basin (cf. the book on flint from southwestern Germany by M. J. KAISER, *Werkzeug, Feuerzeug, Edelstein: Die Silices des südöstlichen Oberrheingebietes und ihre Nutzung von den Anfängen bis zur Gegenwart* [Stuttgart 2013]). This volume is the product of a working group that has been developed over the last decade to "systematically record finds and develop sourcing methods" for flint from Heligoland (H. Jöns, preface). The leaders of this network, Sönke Hartz, Martin Segsneider, and Jaap Beuker, need to be highly commended on this extraordinary effort that will last as a foundational model for Heligoland flint research for years to come. It not only stands as a model for Heligoland flint research, but for all lithic raw material sourcing, distribution, and utilisation studies.

This book is the outcome of a workshop held in Wilhemshaven, Germany, from April 26–28, 2012, called "Flint from Heligoland – the exploitation of a unique source of raw material on the North Sea coast". Funding by the "Marshland Council for the Promotion of Research in the North Sea Coastal Area" enabled 25 researchers from heritage offices, museums, research institutes, and universities in Denmark, Germany, the Netherlands, and Sweden to come together to "discuss various research approaches and to agree on future research" (H. Jöns, preface).

Typical of all books published by Verlag Marie Leidorf, this hardcover book is of the highest quality, with excellent colour figures throughout, essential for a book focused on raw materials of distinctive colours, such as the famous red Heligoland flint. I found the colour to be especially helpful for the papers discussing the grey tabular flint (Helgoländer Plattenflint) from Heligoland, specifically when comparing this variety against other grey Scandinavian flint varieties.

The book has 16 chapters. Ten are published in German, six in English, with abstracts in both languages. The order of the book is excellent, starting with the geological history of the formation and ending with the social significance of red Heligoland flint. The contents are comprised of one chapter on the geological history of the Heligoland island, one chapter on the variability of Heligoland materials and their utilisation, one chapter on the knappability of Heligoland flint varieties, three chapters on petrographic and different geo-chemical sourcing methods, five regional case studies, three site based case studies, and two final chapters on social significance.

The first chapter by Martina Karle is titled “Zur geologischen Entwicklung von Helgoland – Ein Überblick / On the geological history of Heligoland – an overview”. This chapter details the formation of the red and grey-to-black flint varieties during the Upper Cretaceous period. It highlights how the island of Heligoland, and the red sedimentary rocks (‘Lower and Upper Buntsandstein’) and shelly limestones (Muschelkalk) that make up its formation were uplifted by salt-tectonic movements during the Cretaceous period to form the only rocky cliffs off the German North Sea Coast. This chapter develops the context for all subsequent chapters. The figures are very illustrative for the reader, particularly figure 5 that details the formation and subsequent inundation of the Helgoland-Düne islet during the Early Holocene. Indeed, as many chapters in the book illustrate, one of the most fascinating questions of research on the long-term utilisation of Heligoland flint is that the island would have been accessible by walking during the Late Upper Palaeolithic period, but only by boats after the Early Holocene.

The second chapter by Jaap R. Beuker is titled “Die Flintarten von Helgoland und die Benutzung von Helgoländer Plattenflint / The types of flint found on Heligoland and the use of tabular Heligoland flint”. This chapter details the five different varieties of flint found on Heligoland and their relative utilisation for the long-distance distribution and production of stone tools. Beuker notes how, of the five available varieties, only two were mainly used for stone tool production: the famous red to brown-red variety (Type 1), and the grey-black tabular variety (Type 5: Helgoländer Plattenflint). The grey-black tabular variety came from nodules that were larger and easier to work, whereas the red variety was easy to work, but large pieces were rare. The red variety, as Beuker’s and many other chapters note, had undoubtedly important aesthetic qualities. The two most prominent tool classes that were made from both varieties were sickles (both ‘A-’ and ‘B-type’) and daggers. There is a great map that details the spatial distributions of both ‘A-sickles’ and ‘B-sickles’.

The third chapter by David C. Waldorf is titled “Heligoland flint from a knapper’s perspective / Helgoländer Flint aus der Sicht eines Flintschlägers”. This chapter is special because discussion of knapping qualities is disappointingly absent from some studies of long-distance distribution of exotic raw materials; social significance is often emphasised above performance qualities of the material. From the beginning, Waldorf notes the lack of emphasis on published experiments with the Heligoland materials despite 30 years of knowledge on the use of these materials. As with the chapter by Beuker, Waldorf notes that, of the five available flint varieties on Heligoland, the grey-black tabular (Helgoländer Plattenflint) and red varieties were the only utilised. Like Beuker also, he notes how the nodules of the red variety were small, in fact few exceeded 20–25 cm, in contrast to the tabular grey variety that is often found in the 30–40 cm length and 2–5 cm thickness range. Using the qualitative scale of Errett Callahan (1 = high; 5 = low), in unaltered forms, the grey tabular variety rates at a 3–3.25 and the red variety rates at a 3–4. Waldorf notes that heat treatment of

the grey tabular variety was not advisable, whereas heat treatment increased the quality of the red variety to around a 2.5. Conclusions of this study show that the red variety was much harder and difficult to work untreated, whereas the grey tabular variety was optimal and rivalled the high-quality Nordic flints. These challenging performance qualities of the red variety enhance interpretations of its important social role due to its distribution over large distances.

Three chapters focus on thin-section and geo-chemical analyses of both the red and grey tabular varieties. The first chapter by Hans de Kruyk and Jan Timmer is titled “New insights into tabular and red Heligoland flint by means of thin sections and SEM / EDX analyses / Neue Erkenntnisse zum Helgoländer Plattenflint und zum roten Helgoländer Flint durch den Einsatz von Dünnschliffen und SEM / EDX-Analysen”. The authors focus on a chemical comparison between the grey tabular flint and Senonian flints from Scandinavia. While thin-sections require destroying part of the artefact, they note that they only removed very small pieces for preparations of thin-sections. Despite having an admittedly small sample size, the authors identified that the tabular Heligoland flint has unique concentrations of metallic elements such as Cu, Pb, Sn, Sr, and Zr, as well as the rare-earth elements La and Ce. None of these elements were present in their Senonian samples.

The second geochemical sourcing chapter is by Anders Högberg, Richard E. Hughes and Deborah Olausson, titled “Chemical analysis of red and black Heligoland flint – initial results and comparisons with flint from Scandinavia / Chemische Analysen von rotem und schwarzem Helgoländer Flint – Erste Ergebnisse und Vergleiche mit skandinavischem Flint”. They too focus mostly on comparing the grey tabular variety with Senonian flints, but also compare to Rügen flint, as it too has similar macroscopic qualities. Expectedly, the red variety is unique from these other varieties due to its Fe content. This paper is particularly informative for future research because the authors employ non-destructive techniques, which are undoubtedly advisable for exotic raw materials that are often not present in relatively high abundance. If freshly broken, the grey tabular Heligoland flint is distinctive macroscopically from the other Scandinavian varieties due to its ‘starry night’ appearance with small white inclusions. Rügen flint is chemically differentiated from both Senonian and tabular Heligoland varieties by concentrations of CaO. Senonian and tabular Heligoland are differentiated by concentrations of  $Al_2O_3$ .

The third geochemical sourcing study is from Dirk Enters, titled “X-ray fluorescence analyses of flint – first results obtained with an Itrax XRF core scanner / Röntgenfluoreszenzanalyse von Flint – Erste Ergebnisse mit einem Itrax XRF-Corescanner”. This is a particularly interesting study not only because Enters is using another non-destructive technique, but this very high-resolution technique has not been utilised much thus far in the archaeological sciences. Yet again, the red and tabular varieties are compared to the Scandinavian flints. Enters finds the similar result of Högberg et al. that there are higher Fe concentrations in the red variety, specifically ratios of Fe/Si. The tabular variety has higher concentrations of Sr/Si ratios, while the Scandinavian flints had low concentrations of Fe/Ca, K/Ca, and Ca/Si ratios. Enters reports that the Itrax XRF technique is most useful for analysing elements with sufficiently high concentrations using count ratios.

There are three chapters that focus on finds of red and / or grey tabular Heligoland flint on individual sites. These three chapters represent the ends of the diachronic spectrum of finds of red and tabular Heligoland flint: two chapters focus on utilisation of red Heligoland flint by Late Glacial hunter-gatherers, and the other on the Late Bronze Age / pre-Roman Iron Age. The chapter by Jana Esther Fries and Stephan Veil is titled “Fernkontakte späteiszeitlicher Jäger und Sammler in der norddeutschen Tiefebene – Ein Klingenkern aus rotem Helgoländer Flint von einem Oberflächenfundplatz am Dümmer bei Damme, Ldkr. Diepholz / Long-range contacts of pleistocene hunters and gatherers in the North German Plain – a red Heligoland flint blade core from a sur-

face site near Lake Dümmer at Damme, District of Diepholz”. In this chapter, they use the typo-technological diagnostics of a single blade core to propose that red Heligoland flint was utilised by either Magdalenian or Hamburgian cultural groups. While a single find, if their diagnostic attribute analyses are correct, this would be the earliest evidence for the utilisation of red Heligoland flint, and therefore for visits to what would have been a prominent landmark in the North Sea basin, which was accessible by foot at the time. Importantly, they note that this core provides evidence of a ‘communication radius’ stretching over an area of more than 200 km. The second site-based chapter by Ingo Clausen is titled “Roter Helgoländer Flint in einer Station der Ahrensburger Kultur bei Klein Nordende, Kr. Pinneberg (Schleswig-Holstein) / Red Heligoland flint from an Ahrensburgian site at Klein Nordende, district of Pinneberg (Schleswig-Holstein)”. Clausen reports the find of a single flake in red Heligoland flint within a likely single-phase occupation Ahrensburgian assemblage of 204 total finds, around 130 km away from the Heligoland outcrop in the dry North Sea basin. He notes that the flake was knapped from a prepared blade core that was likely knapped on the site with a soft hammer, which is the common percussion technique of Final Palaeolithic blade industries. This single find provides further evidence for mobility to Heligoland and Dune, which would have had important resources such as birds and bird eggs. The final site case-study is by Julia Goldhammer, titled “Steinreich in der Marsch? Das lithische Inventar der jungbronze- bis früheisenzeitlichen Siedlung Rodenkirchen-Hahnenkooper Mühle, Ldkr. Wesermarsch / A wealth of stones in the marshland? The lithics of the Late Bronze Age to early Pre-Roman Iron Age settlement Rodenkirchen-Hahnenkooper Mühle in the district of Wesermarsch”. This chapter reports finds of both red and tabular Heligoland varieties, during a time when the North Sea had been inundated for millennia, which turned Heligoland into an island. Goldhammer notes that the quantity of lithics present on the site is the minimum that would have been required of a single household, and therefore they were likely brought from some distance to the site. Together, these chapters illustrate the enormous time depth of connections to Heligoland, first as likely long-distance communication and migration networks, and then as likely trade networks that would have entailed considerable travel over rather dangerous seas.

Five chapters focus on the cataloguing of finds of red Heligoland flint in five different regions. Klaus Hirsch concentrates on finds of red Heligoland flint in Denmark and Scania, Sönke Hartz and Martin Segschneider focus on Schleswig-Holstein, Jaap R. Beuker and Erik Drenth focus on Lower Saxony and the Netherlands, Daniel Nöslér focuses on the area between the Elbe and Weser Rivers, and Jan F. Kegler focuses on East Frisia. These chapters are filled with great maps, colour images, and tables of artefact types that enable a relative chronological understanding of the diachronic predominance of red Heligoland flint in these five different regions. While there are some limited finds reported from the Final Palaeolithic (Hartz and Segschneider), the predominant amount of finds come from the Late Neolithic and Bronze Age, in the form of axes, daggers, and flakes. All of the chapters highlight that the relatively small amount of finds in each region provide evidence for the important social role of red Heligoland flint. It was most striking for me to read in most of the chapters that, despite having important social value, these red materials from a far-off island were not reserved and unused, but were actually employed in everyday domestic activities. This highlights that the social roles of red Heligoland materials were employed in everyday communal practices, and likely, interpersonal status negotiations and power pursuits. In the future, hopefully there will be more utilisation of the important geo-chemical work presented in this text to better understand what is likely a much higher usage of the tabular flints, due to their greater abundance and higher knapping qualities. Like all the chapters in this excellent and very interesting volume, these chapters set the initial foundations for future research, particularly with people going back into museum and avocational collections.

The final two chapters provide a perfect ending to the volume, as they offer social interpretations that can serve as a baseline for future research. Johannes Müller writes on, “Bemerkungen zur sozialen Relevanz des roten Helgoländer Flints / The social significance of red Heligoland flint”. He highlights how finds of red Heligoland flint provide evidence for open sea travel during the Middle Neolithic Funnel Beaker (TRB) culture. However, Müller notes that the real social importance of this material is not discernable until later on during the Late Neolithic and Early Bronze Age with evidence from daggers being found at large distances away from Heligoland. This shows an important persistence of social memory in these societies, and how the contexts of red Heligoland flint were not static, but active and changing through time. The final chapter of the volume, by Annelou van Gijn and Daan C. M. Raemaekers, is called “Choosy about stone – the significance of the colour red in the Dutch Funnel Beaker Culture / Wählerisch bei Stein – Die Bedeutung der Farbe Rot in der niederländischen Trichterbecherkultur”. This is a great follow up to the chapter by Müller because it provides a broader contextual framework for why red Heligoland flint might have risen to a higher social prominence during the LN/EBA. I particularly like how van Gijn and Raemaekers lay a wider and more complex foundation for the more general importance of the colour red in TRB culture (as seen in the preferred choice of pink granite for megalith construction), and the specific way they do this by employing use-wear analysis. They analyse an axe pre-fab in red Heligoland flint that was found alongside two finished tabular Heligoland axes and two finished grey Scandinavian axes in a hoard at Een in the Netherlands. The other axes were used rather intensively as wood-working tools, while the red pre-fab showed no evidence for utilisation, only traces of wrapping. They note that while the number of finds is small and limits very extensive social interpretations, the find of this red Heligoland prefab in this hoard illustrates that it had some sort of special social value.

All in all, this book is exemplary for all long-distance lithic raw material distribution studies, as it runs the entire gambit, from geology, to geo-chemistry, to diachronic regional cataloguing, to social significance. More specifically, it will serve as the definitive foundation for all Heligoland flint studies for decades to come.

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**WILLEM J. H. WILLEMS (†) / HENK P. J. VAN SCHAİK (Hrsg.), *Water & Heritage. Material, Conceptual and Spiritual Connections*. Sidestone Press, Leiden 2015. € 145,- (Hardcover). ISBN 978-90-8890-386-1. € 49,95 (Taschenbuch). ISBN 978-90-8890-278-9. € 9,95 (E-Book). ISBN 978-90-8890-279-6. 434 Seiten mit zahlreichen Abbildungen.**

Das Meer steigt und steigt. Seit dem späten 19. Jahrhundert ist der Meeresspiegel um knapp 20 cm angestiegen, und Satellitenmessungen belegen, dass seit Beginn der 1990er Jahre noch einmal 8 cm hinzukamen. Was aus der Perspektive eines Lineals nur eine kurze Distanz ist, hat für Menschen, Tiere und Pflanzen fatale Auswirkungen. Besonders Flussmündungen und allen voran die oftmals dicht besiedelten Deltas, aber auch jeder andere Küstenabschnitt zeigen sich als besonders verwundbar. Neben den großen Überflutungen ist es zunehmend das „nuisance flooding“ im Zuge der üblichen Gezeiten, das nicht nur lästig, sondern zunehmend bedrohend ist. Wasser ist aber nicht nur bedrohend, es ist eine lebenswichtige Ressource. Ihr Überfluss wie ihre Knappheit ist für die Menschheit im Laufe der Jahrhunderte auch ein Problem gewesen, das man mit vielfältigen Formen von Wassermanagement in den Griff zu bekommen versuchte. Auch wenn es sehr plakativ