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Introduction

Few other regions of the world have been studied in such minute detail as the Mediterranean basin. It was home to the earliest human urban communities and some of the earliest literate cultures; it has been the cradle of three great religions. Countless generations of scholars, from Herodotus and Pausanias to FERNAND BRAUDEL and DAVID ABULAFIA,¹ have devoted themselves to investigating the complex history and rich archaeological heritage of the civilisations along the shores of the Mediterranean and the Black Sea. The sea itself, too, has exerted a fascination since time immemorial, although systematic investigations did not take place before the early modern period. Whereas these early studies were motivated by a general scientific interest in the sea as such,² more recent studies of the Mediterranean waters have increasingly been driven by concern for the well-being of its marine life.³ For those who wish to understand better mankind's relationship with the sea around us and the ways in which our actions impact upon the marine environment, the Mediterranean-Black Sea ecosystem offers an incomparable store of information.

1. Mediterraneanism

Drawing on this rich set of data, anthropologists and historians have produced impressive syntheses describing how 'Mediterranean' societies and their relation to the environment have evolved.⁴ By and large, however, these have been concerned with the terrestrial environment to the virtual exclusion of the marine environment. For instance, an eleven-page survey of ancient Mediterranean environmental history by ROBERT SALLARES⁵ devotes only a few lines to life in the sea, a similar survey by ANDREW WILSON⁶ a single paragraph and the magisterial 800-page *The Corrupting Sea* by PEREGRINE HORDEN and NICHOLAS PURCELL a page and a half.⁷

Also, while concepts such as 'Mediterranean society', 'Mediterranean diet' or 'Mediterranean landscape' may be useful for analytical purposes, they, like all ideal types, carry with

¹ BRAUDEL 1949; ABULAFIA 2009.

² E. g., MARSIGLI 1681; KÖHLER 1832; SCHMIDT (ed.) 1912–39.

³ E. g., the studies in GERTWAGEN et al. (eds) 2008; GERTWAGEN et al. (eds) 2011; MACKENZIE and MARIANI 2012; see also, more generally, HOLM et al. (eds) 2001.

⁴ HORDEN and PURCELL 2000; ABULAFIA 2009.

⁵ SALLARES 2009: 165.

⁶ WILSON 2013: 275.

⁷ HORDEN and PURCELL 2000: 190–1.

them the risk of over-simplification.⁸ Certainly there are some common denominators, but there were also very important differences between life in Corinth and Malaga, or between the institutions of sixteenth-century Venice and Smyrna, just as today's Algiers is a very different place from Novorossijsk. Even under the Roman Empire, when they lived under the same ruler, the same legal code and used the same currency, there were significant differences between the 'Mediterranean' communities, differences which are not always apparent in the textual sources but come to light in the archaeological record.

Indeed, it is perhaps significant that while the ancients had terms – Greek *pontikos*, Latin *ponticus* – to identify those who dwelt along the shores of the Black Sea, they lacked a similar adjective for those living on the coasts of the Mediterranean. The sea itself was known as *he megale thalatta*, 'the Great Sea', to the Greeks; the Romans, with characteristic self-confidence, called it *mare nostrum*, 'our sea'.⁹ The adjective *mediterraneus*, from which the modern word is derived, simply means 'surrounded by land', i. e. 'inland' or 'landlocked'. Only as late as the seventh century AD is *Mare Mediterraneum* used in its modern sense by the Spanish bishop Isidore (c. 560–636). He was living and writing in Seville, beyond the Strait of Gibraltar: from his point of view it made sense to distinguish between the 'landlocked' sea to his east and the open ocean to the west.

For the title of this volume, we have taken the original sense of *mediterraneus* as 'inland' to describe the four seas that together form our field of study: the Mediterranean Sea, the Black Sea, the Sea of Marmara and the Sea of Azov. These seas are as different as the cities on their coasts, if not more so: in their geology (witness the contrast between the deep trench that forms the Sea of Marmara and the shallow Sea of Azov), in their hydrology (the clear waters of the Mediterranean against the anoxic depths of the Black Sea) and even in their history (that of the Mediterranean goes back millions of years, while the Black Sea as we know it is less than 10,000 years old).

Within each of these, there are of course important differences. In particular, the Mediterranean is often conceived as a set of separate seas (the Pamphylian Sea, the Aegean Sea, the Adriatic Sea, the Sea of Sicily) within each of which there are again striking contrasts: between the southern and northern Adriatic, the southern and northern Aegean. In short, life in the sea is as varied as life on land. The one common feature of our seas is their being 'inland', connected to the world's other seas only through the Strait of Gibraltar and, since 1870, by the Suez Canal.

2. Ecology, history and ecohistory

Ecology, like economy, derives its first syllable from the Greek *oikos*, meaning 'household'. Originally a branch of biology, during the twentieth century it developed into a discipline in its own right drawing inspiration from other new fields of science, notably thermodynamics. The influence from thermodynamics is clearly seen in the groundbreaking and highly influential essay by THOMAS W. GALLANT, *A Fisherman's Tale*; the first attempt to view the history of Mediterranean fishing from a *longue durée* perspective.¹⁰ His focus on marine food as a

⁸ HERZFELD 2005: 47–8.

⁹ Originally used only for the western Mediterranean, the name was later extended to include the whole sea.

¹⁰ GALLANT 1985.

source of calories, i.e. energy, leads GALLANT to conclude that given the low calorific content of fish, it could neither have played any significant role in the ancient diet, nor in the ancient economy. But as later studies have pointed out, and several of the contributions to this volume underline, catching or consuming fish is not primarily a question of cheap energy: on the contrary, it involves conscious decisions motivated by complex social, culinary and cultural motives.

Human motives and actions are the subject matter of history. In his book *The Idea of History*, originally written in 1936 but published posthumously in 1946, the philosopher ROBIN G. COLLINGWOOD distinguished two kinds of events: 'mere events', which are governed by physical laws (gravity causes a stone to fall to the ground), and historical events, which are guided by human motives and decisions (a stone flies through the air because I threw it). 'Mere events' are predictable and can be replicated at will; historical events are not and cannot, since each event is essentially unique. 'Mere events' can be understood by reference to natural laws, historical events must be interpreted by re-enactment of the event in the historian's mind.¹¹

COLLINGWOOD's neat division of events into only two categories has been challenged by subsequent developments in the sciences. Behavioural psychology has demonstrated how some human actions are guided by natural instinct rather than reflection and decision; the social sciences have shown that human actions, while individually unpredictable (for which party will this particular individual vote?) may be predictable when aggregated (what proportion of *all* individuals will vote for this party?). Yet the basic distinction between events determined by natural causes and events guided by human decisions remains useful for defining ecohistory and distinguishing it from environmental history, with which it is often confused.

While environmental history normally takes both types of event into consideration, it does not have to; the history of global temperature variation until AD 1700, for instance, can be written entirely on the basis of natural laws. Although students of climate change will draw on traditional historical sources (e.g., narratives about extreme winters or records of the rise of the Nile at Cairo) these are explored in order to supply facts, not explanations. By this process, known as 'data mining', information recorded by human action is used to test hypotheses based on the laws of natural science. Conversely, while traditional political history can and often does take environmental factors into account, some important events – the death of Nero, to take one example – can be satisfactorily explained by re-enacting them in the historian's mind, without recourse to the laws of natural science.

Ecohistory stands at the interface between these two approaches to the past. Since it concerns itself with the relationship between humankind and the environment, it can afford to ignore neither 'mere events' of nature nor the motives underlying human actions. This also means that the student of ecohistory must strive to understand not only how environmental conditions *were* in the past, but also and sometimes more importantly, how they *were perceived to be*. Likewise, the researcher must attempt to recreate the unquantifiable factors, such as prestige and taboos, or the intangible networks of kinship and clientage, all of which affect the ways in which individuals exploit – or choose not to exploit – the resources around them.

¹¹ COLLINGWOOD 1946: 213–5.

Furthermore, ecohistory aims to trace the impact of human actions on the environment over past time, which raises the issue of finding sufficient and reliable source material. The problems involved are common to all branches of ecohistory, but they are particularly acute for the student of marine, as opposed to terrestrial, ecohistory; and for two reasons. First, the impact of human exploitation of the landscape for food or fuel is visible to the naked eye as deforestation and soil erosion, phenomena that were commented upon by Greek observers as early as the fourth century BC.¹² To the observer standing on the shore or the deck, on the other hand, the surface of the sea provides little information about the richness of its fish stocks nor about its environmental health. It is only by using proxy data that we can hope to gain some impression of life in the sea, its variation and its extent.

Ironically, it is for the early, pre-literate periods of human history that we are most likely to possess reasonably reliable proxy data, thanks to the work of modern ichthyoarchaeologists analysing and counting fish remains on coastal settlement sites. From later periods, where we are in general better informed thanks to the existence of written sources, quantitative evidence for marine harvesting is largely absent. This is partly due to the social context of fishing as an activity on the margins of society, but also to a more general, and far more serious problem: that well into the twentieth century, even among the scientific community, it was believed that the effect of human harvesting was too insignificant to have any impact on marine life in the open oceans. Thus insofar as any registration of catches took place at all, its purpose was not to document life in the oceans but to ensure a just division of the fruits of the sea between co-owners; between owners and lessees of fishing rights; or between fishermen and the government. Especially the last category of sources – tax records – raises obvious and disturbing questions about potential bias and under-reporting. Furthermore, systematic division of catches is mainly relevant in a situation where fishing zones are territorialized or fishing opportunities limited: in estuarine and coastal fishing, not on the open sea. Given the quasi-total absence of precise scientific records before the modern period, most of our textual evidence for open water fishing is bound to be circumstantial and in many cases anecdotal.

In sum, there are daunting challenges facing this emergent discipline, and it is with good reason that we have chosen as the subtitle of this volume ‘*towards* an ecohistory of the Mediterranean and the Black Sea’.

3. Prehistory

The first two contributions, by ARTURO MORALES-MUÑIZ and EUFRASIA ROSELLÓ-IZQUIERDO on ‘Fishing in Mediterranean prehistory’ and by DIMITRA MYLONA on ‘Fish and sea-food consumption in the Aegean’, share an archaeo-ichthyological approach. By focusing on the actual remains of fish that were consumed on a site, the authors enter into direct contact with their primary data material and are able to construct time series reaching far back into the prehistoric period. As both papers stress, however, the fish assemblages found on coastal sites do not reflect what species were present in the sea. First, there are the problems of ta-

¹² E. g., Plato, *Critias* 111b on deforestation and soil erosion in ancient Attica: ‘what now remains compared with what then existed is like the skeleton of a sick man, all the fat and soft earth having wasted away’. For divergent interpretations of this passage, compare WILLIAMS 2000: 35 and NENNINGER 2001: 193–8.

phonomy: large individuals with robust skeletal structures will be over-represented in the material, while small fish and cartilaginous species will be under-represented. Furthermore, the authors find clear evidence for selection: fishermen and fish consumers did not mechanically target whatever was available in the sea. Thus variation in the archaeo-ichthyological assemblages over time need not reflect variation in species composition; it is more likely to reflect changing preferences for different categories of seafood. Finally, the papers highlight the methodological shortcomings that characterise older excavations where fish remains were either not studied at all or in an unsystematic fashion.

The following paper by CHRISTOPHE MORHANGE, NICK MARRINER and NICOLAS CARAYON, on ‘The ecohistory of ancient Mediterranean harbours’, likewise takes an archaeological approach but directs our attention to the points of contact between humans and the marine ecosystem: harbours. Properly investigated and interpreted – processes which require the combined efforts of many disciplines – harbour installations can yield important information not only about human activities (fishing, transport, evolution of construction techniques) carried on at the site but also about environmental events such as sea level fluctuation and coastal erosion or silting.

4. Fishing in context

With the following seven papers, we move from the archaeological evidence to the social context within which marine resources were exploited. As pointed out already in the first two papers of the volume, fishing, even in prehistoric societies, is a selective process directed at certain species and virtually ignoring others. This selection in turn reflects a variety of factors such as the legal régime governing the exploitation of marine resources (EPHRAIM LYTLE), the prestige associated with certain marine products and the technology available for producing marine derivatives such as purple dye (CARMEN ALFARO GINER), the demand for and production of salt-fish and garum (ROBERT I. CURTIS, DARIO BERNAL-CASASOLA and EMMANUEL BOTTE). Unlike fresh fish, which before the advent of refrigeration could only be consumed within a restricted time-space window, derivatives had a long shelf life; they could be, and were, transported by sea or land to distant markets (BENEDICT LOWE).

In this respect, the harvesting of tuna with mobile or fixed nets poses special challenges. It requires the coordinated efforts of many hands working together and will, on occasion, produce windfall catches far too large to be consumed by the fishing community or its hinterland; thus it also requires the organisational skills and capital resources – both far beyond the capacity of the small-scale family business or the craft fisherman – necessary to process the catch at short notice and transport it to urban markets. The social context of ancient tuna fishing is discussed by EPHRAIM LYTLE in his paper and ENRIQUE GARCÍA VARGAS explores its history in the western Mediterranean from the second to the eighteenth century AD.

5. Regional studies

The papers that follow have a regional rather than a thematic focus. TØNNES BEKKER-NIELSEN discusses the present state of our knowledge of Black Sea fishing and fish processing in antiquity, and the potential contribution of fish deposits from the sea’s anoxic depths to the study of its faunal history.

CONSTANTIN ARDELEANU traces the evolution of Danube fishing in the *longue durée* from antiquity to the twentieth century. As we move into the early modern period, the first fishing statistics in the form of market and tax records emerge, enabling historians to assess the quantitative evolution of fishing with more confidence. It becomes possible to trace patterns of growth and decline, and to assess the negative effects of overexploitation or the positive consequences of new fisheries policies such as that implemented in Romania at the turn of the twentieth century.

Studies of fishing in the eastern Mediterranean basin and the Levant coasts have, by and large, been scarce and somewhat patchy, partly due to the misconception that the eastern Mediterranean is poorly stocked with fish, thus *a priori* unlikely to support a fishing industry; and partly to the nature of the textual sources, written in a variety of languages (Greek, Hebrew, Arabic, Latin) and divided among archives and libraries from Cairo and Istanbul to Venice and Genoa. As RUTHY GERTWAGEN'S paper reveals, fishing activity was rife along the Levant coast and in the north-eastern Mediterranean; it is documented by a rich body of texts, much of which still awaits the attention of scholars. Likewise, Venetian and Genoese archives offer important insights into the – otherwise poorly documented – fish processing industry in the northern Black Sea, and complement the information of the Byzantine sources about fish trade and consumption in Constantinople.

SABINE FLORENCE FABIJANEC provides an overview survey of fishing and fish marketing on the mid-Adriatic coast in the fifteenth and sixteenth centuries, and an analysis of their social context. In early modern Dalmatia, as in Sicily, the activities of the fishermen were embedded within a complicated framework of informal and formal relationships of ownership, patronage, kinship, religion and political authority. The urban communes played a particularly important role in Dalmatia, levying taxes on the fishermen and serving as arbiters – not always impartially – between rival fishing interests.

6. History and environmental change

In the concluding chapter, FERDINANDO BOERO demonstrates how a better understanding of the past ecohstory of the Mediterranean-Black Sea ecosystem can lead to informed decisions affecting the future of the world's oceans, whose waters are joined together by a great oceanic 'conveyor belt' (thus vindicating the ancient Greek belief that a single Ocean surrounds the entire inhabited world). The Mediterranean has its own 'conveyor belt'; it is, in a sense, a small-scale replica of the oceanic system. Studying the effects of global warming on the Mediterranean – or as a case study, the Adriatic – provides insights which could guide decision-makers of the future. The Pope's clear statement on the need for sustainability and the success of the COP21 meeting in Paris gives BOERO grounds for cautious optimism that humanity will be able to make informed choices in accordance with the laws of nature.

A pessimist would point out that whereas the international community has demonstrated ability to take concerted and effective action against some of the threats facing humanity (the eradication of smallpox and the phasing out of CFC gases are notable examples) it has been unable to deal in a similar manner with the problems of commercial whaling or overfishing of Mediterranean tuna. Here, the decision-makers have allowed the laws of economy to take precedence over the laws of nature.

So at the end of the day, it all comes down to motives and decisions. Human motives and decisions are important not only for understanding the past but also for shaping the

future. And as BOERO points out, action will in any case, sooner or later, be taken to reduce the human impact on the global environment. If we, the human species, fail to do so, nature will.

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