

GALEN: WRITINGS ON HEALTH

Galen's *Health* (*De sanitate tuenda*) was the most important work on daily exercise, diet and health regimes in antiquity. This book presents the first reliable scholarly translation of this work in English, alongside the related theoretical work *Thrasymbulus*. A substantial introduction and thorough annotation elucidate both works and contextualize them within the framework of ancient health practices, conceptions of the body and debates between medical and philosophical schools. The texts are of enormous interest from three points of view: (1) the wide range of insights they give into ancient everyday lifestyles, especially as regards diet, bathing, exercise and *materia medica*, as well as aspects of daily intellectual life; (2) the light they shed on ancient debates within medicine and philosophy, on fundamental conceptions of the body and the relationship between body and mind; (3) the enormous influence that *Health* had in medieval and early modern times.

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CAMBRIDGE GALEN TRANSLATIONS

General editor: Philip van der Eijk

Galen's works represent one of the most impressive monuments of Classical medicine. They dominated medical theory, teaching and practice in the mediaeval European and Islamic worlds and remained a key source of medical wisdom down to the twentieth century. But his works also concern themselves with all the philosophical issues involved in understanding the human body, soul and health, and in diagnosing and treating illness, and Plato and Aristotle were key influences on his thought. Furthermore, as the court physician of several Roman emperors, Galen is an important source of information about social and cultural life in the early Empire.

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GALEN: WRITINGS ON
HEALTH

Thrasylbulus and Health (De sanitate tuenda)

TRANSLATED WITH INTRODUCTION
AND NOTES BY
P. N. SINGER



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*To Piero
in friendship and memory*

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Series editor's preface

The works of Galen of Pergamum (129–c. 215 CE), ‘the Prince of Physicians’, constitute one of the most impressive monuments of Classical medicine. They comprise all areas of medical theory and practice, ranging from anatomy, physiology, pathology, diagnosis and prognosis, dietetics and regimen in health, therapeutics, pharmacology and surgery, gynaecology, embryology and theory of reproduction to psychiatry and ethics. In addition, they cover philosophical and methodological aspects fundamental to the acquisition, systematization and communication of medical knowledge, such as logic, terminology, epistemology, philosophy of nature and theory of causation. And however voluminous and wide-ranging, they are bound together by an intrinsic and coherent (if eclectic) comprehensive theory of the human body, the human psyche, their place within the natural world, the nature of medical knowledge and the technical and ethical components of medical expertise.

Galen’s works were of enormous influence on the subsequent history of medicine and science, both in the West and in the East, and Galen’s authority remained powerful until well into the seventeenth century and, in some respects, beyond that. Yet, more recently, Galen’s works have also found strong resonance beyond the domain of medical history. Galen was, after all, not only a brilliant doctor and prolific writer but also the court physician of several Roman Emperors, a keen public debater and dissector and an active participant in social and cultural life, first in Pergamum and subsequently in Rome. It is therefore not surprising that Galen’s work commands a rapidly growing interest from classicists, ancient historians and students of Greek and Roman literature, philosophy and society; and his writings are being exploited as a rich source for the social, cultural and intellectual history of the early Imperial period.

Yet Galen’s works are difficult to access. Many are available only in old editions that do not meet current standards of classical scholarship, such as the nineteenth-century edition by Carl Gottlob Kühn (Greek text with

Latin translation), which is still the most recent edition aspiring to completeness but which is universally regarded as unsatisfactory; and, in spite of its title *Opera omnia*, it lacks a number of Galenic works preserved in Latin or Arabic adaptation or deemed lost but later discovered (such as the recently found *Avoiding Distress*). For only a handful of Galenic texts have the basic modern philological requirements of a critical edition with translation and commentary been fulfilled; and although Galenic scholarship of the last decades has seen significant improvement, it is still the case that large parts of Galen's work are not available in English translation. While interest in Galen thus seems greater than ever before, the language skills required to read him in the original are becoming more and more scarce.

The *Cambridge Galen Translations* series aims to address this need. The purpose of the series is to provide a co-ordinated series of scholarly English translations of works of Galen in a uniform format consisting of introduction, translation, explicative notes, glossaries and indices. The series has been planned in close co-ordination with other ongoing Galen projects, such as the *Corpus Medicorum Graecorum* (CMG) at the Berlin-Brandenburg Academy of Sciences,¹ the Galen volumes in the Budé series published by Les Belles Lettres (Paris),² and those in the Loeb Classical Library published by Harvard University Press,³ in order to minimize duplication and, where possible, to promote international collaboration. Indeed, the translations in the present volume and in those to follow are based on critical editions that have been published, or are being prepared for publication, in the CMG, or Belles Lettres, or in some cases by other publishers (such as, for *Thrasylulus* in the present volume, the Teubner series).

¹ A list of works published in the CMG (which was founded in 1907) and of works in preparation can be found on the CMG website at <http://cmg.bbaw.de/Startseite.html>.

² See J. Jouanna and V. Boudon, 'Présentation du projet d'édition de Galien dans la Collection des Universités de France', *Bulletin de l'Association Guillaume Budé* 1993, pp. 101–135. So far, ten volumes have been published: *Ars Medical/Protrepticus* (Boudon, 2000), *De ossibus ad tirones/Dissectione musculorum* (Garofalo and Debru, 2005), *De libris propriis/De ordine librorum suorum/Quod optimus medicus* (Boudon-Millot, 2007), *De dissectione nervorum/De dissectione venarum et arteriarum* (Garofalo and Debru, 2008), *Introductio sive medicus* (Petit, 2009), *De indolentia* (Boudon-Millot, Jouanna and Pietrobelli, 2010), *De alimentorum facultatibus* (Wilkins, 2013), *De theriaca ad Pisonem* (Boudon-Millot, 2016), *In Hippocratis De diaeta in morbis acutus commentarium, liber I* (Pietrobelli, 2019) and *De theriaca ad Pamphilianum* (Boudon-Millot, 2021).

³ So far, twelve Galenic works have been published: *De naturalibus facultatibus* (Brock, 1916), *De methodo medendi* (Johnston and Horsley, 3 vols., 2011), *De constitutione artis medicativae, De methodo medendi ad Glauconem* and *Ars medica* (Johnston and Horsley, 2016), *De sanitate tuenda, Thrasylulus* (Johnston, 2018), *De temperamentis, De inaequali temperie, Quod animi mores corporis temperamenta sequantur, De optima corporis constitutione* and *De bono habitu* (Johnston, 2020).

Yet the novelty of the project lies not only in its provision of English translations. It also aims to make a new contribution to international Galenic scholarship, especially through substantial introductions, notes and glossaries, which are intended to provide resources for the study of Galenic language and thought, and indeed for Greek medical terminology at large. In this regard, the format of the series is closely modelled on Richard Sorabji's *Ancient Commentators on Aristotle* (now published by Bloomsbury), from which it has drawn much of its inspiration, and on the CUP series of translations of Proclus' *Commentary on Plato's Timaeus*. Moreover, the project is meant to open up Galen's work to other disciplines beyond Classics and History of Medicine, such as the History of Philosophy, the History and Philosophy of Science, Cultural History, Linguistics and Literary Studies, and to readers with a medical background.

Galen's work is vast, and the series will therefore, in the first instance, give priority to works that have not yet been translated into English (or indeed in any modern language), or to works for which an English translation exists which, however, is out of print,⁴ or in need of revision or replacement in the light of recent developments in Galenic scholarship. A further consideration in the planning of the series has been the interest of the texts to be included and their relevance to some of the major issues that Galen's work raises.

Thus the texts translated in the present volume, *Health* and *Thrasylbulus*, are of central importance for Galen's views on the preservation of health and the promotion of a healthy style of living, and on the status of medicine as the authoritative discipline dealing with this area. They are also of great interest to issues in today's medicine and healthcare. They are here presented with an elaborate introduction and notes elucidating their content, method and structure and placing them in the tradition of Greek medical writings on health and in the social (and competitive) context of health practitioners in early Imperial Rome. The volume offers extensive discussion of Galen's theory of health and its relationship to his physiological ideas more generally, his practical measures for the management and improvement of health and his consideration of people's individual circumstances. It also provides detailed discussion of the psychological aspects of health and the soul–body relationship against the background of earlier philosophical approaches, especially in the Platonic and Aristotelian traditions.

⁴ E.g., P. N. Singer's *Galen: Selected Works*, Oxford 1997; translations of a number of Galenic texts included there are revised, with extensive new introductions and notes, for the present series.

Further volumes to follow in the series will testify to Galen's views on the nature and methodology of medical prognosis and prediction (*Commentary on Hippocrates' Prognostic*); to his engagement with Plato's *Timaeus* (*Compendium of Plato's Timaeus*; *Commentary on the Medical Statements in the Timaeus*) and with the Hippocratic theory of human nature (*Commentary on Hippocrates' The Nature of the Human Being*); to his theory and therapeutic practice of simple medicines (*Simple Drugs I–V*); to his views on the structure and purposive arrangement of the human body (*The Function of the Parts of the Human Body*); and to his detailed understanding and use of the pulse as a diagnostic indicator (*The Distinct Types of Pulse*, *The Discernment of the Pulse*). All these works also provide insight into the ways in which Galen arrived at his views and tried to justify them, how he accommodated and appropriated the various intellectual traditions, both medical and philosophical, to which he was indebted, and how successful he was in his attempts to create a synthesis out of these often conflicting tendencies. Furthermore, they will give a lively picture of the social and cultural environment in which Galen lived and how it impinged on the formation and development of his ideas; and finally, they will be illuminating for Galen's activities as a writer and communicator, for the ways in which he presented his ideas, the consistency of his terminology, the audiences for whom he wrote, the genres he used to disseminate his ideas and the rhetorical strategies he employed to persuade his readers and to distinguish himself from rival doctors with whom he was in constant competition.

It is a pleasure to acknowledge the generous financial support of the Wellcome Trust through a History of Medicine Programme Grant, which allowed the appointment, at Newcastle University, of three designated academic staff for the first six years of the project. We are very grateful to Newcastle University for its institutional support during these years. We gladly acknowledge the support of the Alexander von Humboldt Foundation, the Deutsche Forschungsgemeinschaft and the Humboldt University, which have ensured the continuation of the project, and provided additional funding, after my move to Berlin. For the practical organization of the project, we would like to thank Cambridge University Press, and in particular its Classics Editor Michael Sharp, who has supported the idea right from the start and has been a patient source of help throughout the production of the volumes in the series.

Philip van der Eijk

Preface and acknowledgements

This book presents new translations of Galen's two major – but very different – works on the theory of health and the practices required for its maintenance.

They are not the first translations of these works into English: in the case of *Health* (or *Hygiene*), that honour goes to R. M. Green in 1951, followed by I. Johnston in the Loeb Classical Library series in 2018, while in the case of *Thrasylbulus* the first English translation appeared in my own 1997 Oxford World's Classics volume.

The nature and purpose of the present volume is, however, very different from that of those publications: namely, to provide a precise scholarly translation,¹ accompanied by substantial explanatory notes and introduction, which aim to elucidate Galen's arguments and theories; to address problems in their interpretation, including those which arise from difficulties in the manuscript readings; and to assist the understanding of Galen's work through a contextualization within both his intellectual – philosophical and medical – and his social milieu. The volume also offers substantial further scholarly aids and reference materials: a Greek word index, a glossary of English–Greek equivalents, a note on translation problems and a full bibliography, as well as a list of all Galen's works and their recent editions and translations. In the case of *Thrasylbulus*, the text presented here started life as a revision of that published in the 1997 Oxford World's Classics volume, but has ended up – in line with the above aims – as something more like a fresh translation.

As a function of their content, intellectual aims and intended audiences, the works contained in this volume touch, either directly or indirectly, upon many of the most important topics raised by the study of

¹ On the principles of, and problems and challenges for, this translation project, see further Note on the translation.

this author: the underlying medical and physical theories; Graeco-Roman views on the nature, status and branches of medicine; medical-philosophical approaches to the relationship of soul and body; the nature of medical practice at Rome, and relationship between rival health practitioners; the performance, and technical language, of public intellectual debate at Rome; Galen's position in the history of medicine; his engagement with both philosophical predecessors, especially Plato and Aristotle, on the one hand, and a very wide range of medical authorities (including many whose work is largely lost) on the other; the chronology, genres and aims of his writings; and the broader social structures, attitudes and practices relating to health in imperial Rome, including *materia medica*, exercise, athletics, bathing, massage, food and leisure.

The above remarks are offered less as an overview of the content and interest of the treatises – on which more in the Introduction that follows – than as a partial justification of the length, both of the book's gestation and of that Introduction, which may function not just as a preamble to the treatises themselves, but also as an overview of Galen's career, physical theories, health-related practices and relationship with his socio-intellectual background.

The translation and related work on this volume commenced nearly ten years ago, and have occupied varying proportions of my time since then. I have incurred many debts over that period. Philip van der Eijk initiated the project 'Towards a Galen in English', within the framework of which the volume was conceived and the first phase of work carried out. I am hugely indebted to him for supporting my research within that project and beyond it, as well as for close collaboration on the principles, process and detailed content of the translation and commentary, and on the structure of the series more broadly. I have also greatly benefited from contact and discussion with many in his research group in Berlin, and from the collegial culture of collaboration that was created there, within the project 'Medicine of the Mind, Philosophy of the Body', and around it.

Institutionally, my thanks go to the Wellcome Trust, which funded both the above project, from 2009 to 2014, and a personal research fellowship, from 2016 to 2019; to Birkbeck, University of London for hosting that fellowship; to the Humboldt-Stiftung for funding periods of research in Berlin; and to the Einstein Center Chronoi, Berlin, at which I have held a number of fellowships since 2019.

I have learnt from and been guided by many during work on this volume, and cannot hope to name all of them. Let me at least record my

Preface and acknowledgements

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gratitude – for help on matters large or small – to Glen Cooper, Armelle Debru, Julien Devinant, Catharine Edwards, Jim Hankinson, Matyáš Havrda, Matteo Martelli, Lucia Raggetti and Thomas Rütten; and to Christine Salazar, whose death in the autumn of 2021 was an enormous loss – to the present project; to scholarship on Graeco-Roman medicine more broadly; and to all who knew her. She is sorely missed, as scholar and as friend.

A particular debt of gratitude is owed to a group of colleagues and friends who joined me in a series of online reading sessions of *Health* throughout much of 2020 and 2021, during which my draft translation and notes were subjected to invaluable scrutiny: Sean Coughlin, David Leith, Orly Lewis, Ralph Rosen and John Wilkins. They made many invaluable suggestions, generously offered me the fruits of their expertise and saved me from many errors. It goes without saying that those which remain are my own responsibility. There was, to be sure, a considerable irony in finding oneself immersed in an ancient magnum opus on the preservation of health during an unprecedented current global health crisis. I could not have wished for more helpful and supportive – albeit enforcedly distanced – colleagues during that phase.

Sincere thanks go also to participants in an occasional series of reading sessions earlier in the process, held mainly at Exeter University, including (in addition to some of those already named) Chris Gill and Robert Leigh.

In a final phase, I am very grateful to Dorothea Keller, Martin Müller and Sara von Seggern for assisting in the compilation and completion of the Greek word index, a task to which they devoted a large number of hours; and I owe a particular debt of gratitude to the Cambridge University Press copy-editor, Malcolm Todd, whose extremely meticulous and thoughtful audit of a very long and complex manuscript improved the book in all sorts of ways, and saved it from numerous errors. (Again, those that remain are of course my own responsibility.)

Thanks are due also to Michael Sharp at Cambridge University Press, for his patience and his support of the project.

Of course, my intellectual debts and gratitude stretch back far before the period of direct work on this volume, and again I cannot hope to record all of them. But I must at least mention Geoffrey Lloyd, who first stimulated my interest in ancient science, as well as shaping my understanding of it; the much-missed Paola Manuli and Mario Vegetti, from both of whom I learnt much; Tamsyn Barton, who for some reason refused to allow me to abandon these pursuits entirely; my excellent

teachers at the City of London School; and my parents Jean and Konrad Singer, who – alongside so much else – encouraged my first philosophical and scientific curiosity, and always supported my studies.

Finally, a special word about Piero Tassinari, who was a crucial member of the Cambridge Galen Translations team from its inception in 2010 until he left us, much too early, in 2017. He contributed hugely to the development of the project, as well as to ancient medicine studies more broadly. He was also a brilliant colleague and a constantly stimulating and inspiring friend, who enlivened scholarly study – and far more than just scholarly study – with his intellectual curiosity, his eclectic range of interests, the breadth and depth of his knowledge, and his zest for life. He is sorely missed. The present volume is dedicated to him, in friendship and gratitude.

Note on citations and abbreviations

Titles of works of ancient authors, if given in full in a discursive context, usually appear in English translation. Precise references in footnotes generally use the standard abbreviations of the *Oxford Classical Dictionary*, 4th edition.

Galenic works, however, are cited according to the abbreviations given in the List of titles, abbreviations, etc. at the end of the book. Such references are by chapter number, or where applicable book and chapter number, followed by page and line number of the most recent critical edition, the editor's name (usually abbreviated) and the volume and page number of the older edition of C. G. Kühn (1821–1833) (K.), where this is available. Typical references would thus be: *Hipp. Elem.* 2, 64,1 DL (I.420 K.); *Nat. Fac.* I.2, 103,18–105,9 H. (II.4–6 K.). Similarly, quotations from the works of the Hippocratic Corpus are identified by the volume and page numbers of the standard edition of E. Littré (1839–1861) (L.), as well as those of the most recent critical edition.

Throughout the translation, references to the Kühn page numbers (K.) are printed in the left-hand margin. References to page and line numbers of the modern critical editions used as the basis for the translation are printed in the right-hand margin: for *Thrasylbulus*, Helmreich (1893), abbreviated 'H.', and for *Health*, Koch (1923), abbreviated 'Ko.' The traditional division of the texts into chapters has also been retained, although this is not due to Galen. Thematic headings have been added to the chapters, or groups of chapters, by the translator, to assist the reader in following the sense and structure of the argument.

Note on the translation: principles and problems

Principles of translation and ‘technical’ terminology

The translation aims to stay as close as possible to the structure and syntax of the original texts, and to translate individual Greek words consistently with the same individual English ones, insofar as both these aims are achievable without departing excessively from normal or acceptable English idiom.

The glossary and the Greek word index both show the individual choices that have been made. It is of course to be understood that anything approaching one-to-one correspondence – especially in the direction of English to Greek – is not to be expected, and would take us far beyond the realms of a readable English translation. Especially in the case of terms with a technical significance within Galen’s medical and philosophical system, however, I have tried to choose a single equivalent in English, or at least a small and consistent range of equivalents.

The texts translated contain a considerable number of such theoretical technical terms, that is ones used by Galen in specific senses which can only be understood in close connection with his medical or philosophical theories and systems of explanation. A few prominent examples are: *apodeixis* (‘demonstration’), *araios* (‘porous’), *chreia* (‘function’, ‘utility’), *chumos* (‘fluid’), *diagnōsis* (‘discernment’), *diathesis* (‘state’), *dunamis* (‘capacity’), *duskrasia* (‘bad-mixture’), *epistēmē* (‘scientific knowledge’), *euexia* (‘good-condition’), *eukratos* (‘well-mixed’), *hexis* (‘condition’), *homoioimerēs* (‘uniform’), *kataskeuē* (‘constitution’), *ousia* (‘substance’), *pathos* (‘affection’, ‘ailment’), *pepsis* (‘coction’), *perittōma* (‘residue’), *plēthos* (‘build-up’), *psuchē* (‘soul’), *proairesis* (‘choice’, ‘decision’), *sarkoun* (‘fleshen up’), *summetros* (‘well-balanced’), *thumos* (‘spirit’), *zētēma* (‘enquiry’). For clarification of such equivalences, including sometimes discussion of the problems behind the translation choice adopted, and for discussion of the relevant theoretical background, the reader should

consult the English–Greek glossary in conjunction with the Greek word index. While the glossary lists equivalences, the Greek word index may then be used to trace both the main (in some cases, all) occurrences of that word in the texts, as well as the editorial notes discussing its connotations and translation.

I proceed to consider some challenges and problems arising in specific technical areas.

Disease entities and anatomical terms

Disease entities present a particular challenge for translation, and indeed for translatability. Our understanding of disease pathologies – in the ancient world as now – is closely dependent on our theoretical conceptions concerning the body and its functioning; there can thus be no direct corresponding modern term for an ancient disease category, for example *melancholia*, any more than there can be found a direct ancient equivalent of a modern category, such as ‘virus’ or ‘cancer’. The problem is further complicated, however, by the fact that, for historical reasons (most modern disease names derive, directly or indirectly, from the ancient Greek medical ones), there are many *apparent* such equivalences. Thus, a Greek treatise ‘about *onkoi*’ may well appear to be a treatise of oncology, whereas in fact *onkos* is a term of very broad application, to a wide variety of growths or swellings, and of course the ancients had no conception of cell multiplication nor any distinction between benign and malignant growths. *Melancholia*, meanwhile, has the apparent modern equivalent ‘melancholy’, which is itself an outdated term, medically speaking (such developments *within* the modern period of course provide a further layer of complexity to the problem); but we have no modern equivalent for a disease understood as arising from an imbalance of fluids involving excess black bile, and from the anatomically complex motions of such fluid through the body. Even apparently unproblematic equivalences will lead to misunderstanding: the ancient *epilēpsia*, for example, involves a number of manifestations and connotations which are significantly different from those involved in ‘epilepsy’ – quite apart from the fundamental mismatch in the causal accounts in each case; similarly, ancient ‘fever’ (*puretos*) involves a range of manifestations and varieties, and a whole conceptual framework, far beyond the simple notion of high temperature indicated by the modern term.

Other terms (e.g. *herpēs*) will be completely misleading if presented in their modern transliteration. A few (e.g. *haimorrhoides*, ‘haemorrhoids’)

are arguably sufficiently close in their sense that such transliteration is *not* misleading.

To avoid such anachronisms and misunderstandings, then, my policy is in general either to provide an English translation that renders reasonably accurately the ancient understanding of the term, or to give the term in transliterated form, but in italics: so, *marasmos* ‘withering’ rather than ‘marasmus’; *plēthōra* ‘fulness’ rather than ‘plethora’; and *melancholia*, *epilēpsia*, rather than ‘melancholy’, ‘epilepsy’. In a few well-known cases of a conventional equivalence (e.g. ‘fever’), I have retained the established translation, and occasionally, where there seems little danger of confusion (e.g. ‘haemorrhoids’), used the descendant English medical term. Again I have attempted to explain important conceptual issues, as well as likely sources of misunderstanding, in the notes.

Anatomical terms are less problematic, although here too caution must be exercised. There *are* fundamental differences in ancient and modern conceptions, even of such apparently unproblematic entities as veins, arteries and nerves; so, for example, we encounter several times the notion, which in itself makes no sense in modern terms, of the ‘first veins’; and the word *neuron* (with earlier connotations of ‘sinew’) is not always or unproblematically translatable as ‘nerve’. There are also specific cases where the structures observed are categorized or divided up in different ways. Specific examples are the *hupochondrion* and *epigastrium* – regions of the abdomen that have no precise equivalent in modern usage; and, to give two fairly unimportant examples which, however, illustrate the point, the Basilic vein and the *larunx*, neither of which, again, corresponds to an anatomical entity as now defined. Here too I have sometimes resorted to transliterated terms, though I have more often given the closest modern English (or medical Latin) equivalent. This has been done, however, on the basis that the above caveats should be taken into account; and again I have added notes *passim* explaining some of the difficulties, and in some cases indicating other texts where Galen gives explanations of the structures in question and his understanding of them.

Minerals, plants and animals

The translation of ancient words for minerals, plants and animals, and products made from them, also presents methodological difficulties, to some extent overlapping with and to some extent distinct from those just outlined. In the particular case of plants (although similar problems apply in the other two cases), the problem is a complex and layered one.

It is not just a question of trying to establish *which* plant is referred to by a particular Greek plant name. To frame the question in that way is to ignore two further questions: (a) did people in the ancient Mediterranean have the same plants available to them that we find in modern botanical works, or indeed that are found in the Mediterranean region today? (b) did they draw the line between different species or varieties in the same places that we do, i.e. can we expect a one-to-one correspondence between an ancient plant name and a modern plant (even assuming a positive answer to the first question)?

It seems clear that, at least in some cases, the answer to both questions will be 'no'. In the first case, specific factors to be taken into account are evolutionary developments in the plant population over the last 2,000 years and the later date of introduction to the Mediterranean of many plants now considered common, and in some cases referred to by ancient names (or their descendants). Recent research has shown – to take just two examples, that go no further than the cucurbit family – that our cucumber was absent from the ancient Mediterranean (although the word still frequently appears in translations), and that the varieties of melon known in the ancient world bear little relation to those familiar to us by that name.¹

The second question is also pertinent: before modern taxonomical procedures, different species and varieties will have been referred to under a single term, and vice versa. This problem applies also in the animal world, where species identification was in our terms approximate, as well as doubtless involving regional variations (although as it happens there are a lot fewer animal than vegetable examples in the texts translated here). Principles of classification – for example, the perceived or expected properties of the plant or animal in question – may also affect naming and identification. For example, Galen identifies a distinct category of fish 'of the rocks' (*petraioi*), by which he means those that swim in shallow waters, and the term *oniskos* (conventionally translated 'cod') bears some relation to that, but the equivalence is unlikely to be precise; birds are also classified according to habitat, which is thought to have a fundamental effect on their physical composition, for example, 'birds of the marshes'.

Moreover – and especially in the plant world – there are considerable problems, in terms of modern scholarship and modern identifications, even if the above two questions were left to one side. That is: even if we

¹ See Janick, Paris and Parrish (2007).

accept that the correspondences we produce will be at the most approximate ‘best guesses’, the particular guesses arrived at by early twentieth-century scholarship, and therefore present in standard dictionaries, were not always very good at all. The problematic scholarly history which led to a fundamental unreliability in the equivalences offered by the standard Greek–English lexicon of Liddell and Scott (LSJ), as well as the methodological problems raised above, were analysed by John Raven in the 1970s.²

Research subsequent to LSJ, in particular that on a number of ancient authors with pharmacological content, contemporary with or subsequent to Galen – Dioscorides, Oribasius, Aëtius – has at least made some of the guesses more probable. Such research proceeds partly through consideration of equivalences that were established later, partly on the basis of what seems plausible on the basis of the description and properties ascribed to the plant in question. In the latter case there is, of course, some risk of circularity; and in all cases the provisos given at (a) and (b) above must always be borne in mind.³

Thus, names of ancient plants and animals should be taken as to some extent conventional, and certainly provisional and to be treated with caution. In general, I have followed the names arrived at by Lily Beck in her translation of Dioscorides,⁴ but I have also consulted Sean Coughlin, to whom I am indebted both for his advice and guidance in this area and more specifically for sharing some results of the work in progress on Aëtius.

Minerals, finally, present a set of problems which again overlap with but partially diverge from those already mentioned. Straightforward identification is not always easy, but even when we believe that identification has been successful, it is important to avoid anachronistic scientific terms which imply a conceptual framework wholly foreign to the text,

² In his 1976 Gray lectures at Cambridge, published in updated form with further scholarly contributions as Raven, Lindsell and Raven (2000).

³ Important contributions in this area, with various levels of engagement with the methodological problems, are Amigues’ publications on Theophrastus, André (1985), Touwaide (1993) and (1997), Reveal (1996), Hardy and Totelin (2016) and Haars (2018). Relevant work on Aëtius is also ongoing at the Freie Universität, Berlin, within the research project SFB 980, ‘Episteme in Bewegung: Wissenstransfer von der Alten Welt bis in die Frühe Neuzeit’ (Teilprojekt A02). More broadly on the trade in and use of plants in ancient diet and pharmacology see Miller (1969), Raschke (1978), Riddle (1985), Nutton (1985), Detienne (1994), Wilkins et al. (1995), De Romanis and Tchernia (1997), Dalby (2000) and (2003), Scarborough (2010), De Romanis and Maiuro (2015), Totelin (2016a) and (2016b).

⁴ Beck (2005).

such as ‘sodium carbonate’ (the translation offered by LSJ for both *nitron* and *aphronitron*, on which see further below). And again, a single term in Greek may refer to a range of substances which would be defined as different if subjected to modern chemical analysis. What is crucial from the point of view of a scholarly translation is to understand the terms used in relation to historically and geographically specific practices.

Thus, when Galen speaks of *hals* or (in the plural) *hales*, the English ‘salt’ is essentially what is meant, but it is helpful to understand that he is referring to a variety of products harvested from different parts of the Mediterranean region, which he takes to have different specific properties. Some may have admixtures of other minerals. *Nitron*, meanwhile, is a naturally occurring deposit consisting of various compounds of sodium which in the ancient world were harvested especially from dry lake beds in Egypt, and used for a number of medicinal purposes. According to modern chemical analysis, it is a mixture of (mainly) sodium carbonate decahydrate with sodium bicarbonate, along with small quantities of sodium chloride and sodium sulphate. Here the translation ‘natron’ has been used, which was itself an alternative ancient form of the word, and is commonly used to refer to this substance today (even though, somewhat confusingly, ‘natron’ is also used to refer to commercially available bicarbonate of soda, for example in Germany). *Aphronitron* (literally, ‘foam of *nitron*’) was a commercially produced preparation based on *nitron*, and used as a kind of soap (see *SMT* IX.3, XII.212 K., with which cf. *SMT* IV.20, XI.695 K.); here the transliterated Greek term has been kept.

We similarly encounter *theion*, brimstone or sulphur, which was also found in natural deposits (the related adjective *theiōdēs* is used in reference to naturally occurring water sources with a sulphurous odour), and asphalt (*asphaltos*), which was found for example in the Dead Sea (*Caus. Symp.* III.7, VII.245 K.).

Galen gives his views on the differing properties of ‘salts’ of different origins, as well as on the relationship of those properties to those of natron and *aphronitron*, and also on the properties of asphalt, at *SMT* XI.2 (XII.372–375 K.), where he focusses for example on the distinctive properties of the salt derived from certain inland lakes, including the Dead Sea; cf. *SMT* IV.20 (XI.690–695 K.).

A particular point of interest here is the properties of different springs or other natural water sources, which vary in relation to their admixtures of these minerals; he discusses these further at *SMT* I.1–6.

Weights and measures

Galen uses a combination of Greek and Latin terms for weights and measures. These will of course have varied, in terms of their precise quantities, over time and place; and here again it is more important to understand the historical conceptions, and the internal relations involved, than to try to give precise equivalents in terms of grams or litres – although in fact some reasonably close equivalents suggest themselves, which facilitate translation.⁵

As measures of volume, the recipes in *Health* use the *xestēs* (Latin *sextarius*, so called because it was a sixth of a *chous*) and the *kotulē*, which is half of a *xestēs*. It seems that the *xestēs* corresponds roughly to a pint (or half a litre) and the *kotulē* to a half-pint; I have adopted the translations ‘pint’ and ‘cup’ respectively. For dry goods, the *xestēs* was also used; again, it can be understood as a dry pint, sixteen of which make up a *modius* (‘peck’). Galen also mentions the *kochliarion* (‘spoon’); in some sources this is associated with a precise measure, but as he specifically suggests different sizes of *kochliarion* for different cases it seems sensible to translate simply ‘spoon’.

Weights are based on divisions of the Roman *libra* (in Greek *litra*, very roughly equivalent to 320 g) into 12 *unciae*, which are further divided into 8 *drachmae*. I have translated these as ‘pound’, ‘ounce’ and ‘dram’, the latter two being the derived terms in English, and the equivalence between modern ounces and *unciae*, at least, being quite close. (It is incidentally noteworthy that this same fundamental system, of what were known as Troy measures, and in particular the use of the dram by apothecaries, survived well into the twentieth century – of course with many individual local variations in terms of the precise weights.)

Somewhat confusingly, finally, the *litra* was also used as a measure of volume, whereby, according to Galen, it is equivalent to a *kotulē*. Smaller measures of weight are used too; in *Health* Galen also mentions the *karuon Pontikon*, literally ‘filbert’, which was roughly an eighth of an *uncia*.

Tastes

In this particularly thorny area, the translator has to find solutions which represent a compromise between at least three conflicting demands, those of (a) writing recognizably idiomatic English, (b) communicating the

⁵ See especially Wikander (2008).

actual taste experiences, in terms of correspondences with particular substances, that Galen has in mind (e.g. ‘sour’ as the taste of unripe cherries), (c) doing justice to the theoretical suppositions behind Galen’s terminology, suppositions which involve a different set of ‘fundamental’ tastes, and relationships between them, from ours, as well as related physical/physiological theories about how they work on the tongue. No translation choice is ideal in this area, and inevitably the terms chosen will (at best) do justice to one or other of the above demands more satisfactorily than the others.

Galen’s understanding of the different categories of taste, then, which is summarized most clearly in *Simple Drugs*, involves four basic tastes or taste types, each itself divided into a less and a more intense form. The eight main taste terms used, with the English translations chosen, are laid out in tabular form, in the pairs A–D below; I have included a core example for each taste, to clarify what Galen has in mind.

	taste term	trans.	example		taste term	trans.	example
A	<i>austēros</i>	tart	quince	C	<i>halukos</i>	salty	salt
	<i>stuphōn</i> or <i>struphnos</i>	astringent or sour	unripe cherry		<i>pikros</i>	bitter	ash
B	<i>oxus</i>	sharp	vinegar	D	<i>liparos</i>	smooth	oil
	<i>drimus</i>	acid	garlic		<i>glukus</i>	sweet	honey

One of the problems that become apparent, as regards the interpretation of the ancient terminology from a modern perspective, is that at least three of the classes on the left-hand side of the table will fall within our general category of ‘sour’; the pairing, moreover, of salty with bitter, and the inclusion of ‘smooth’ as a taste, are further features that surprise modern perceptions. There is, finally, a problem of detail, in that Galen is not always consistent in his use of *stuphōn* and *struphnos*, sometimes apparently using the former term in a broader sense, of which *austēros* and *struphnos* are the less and more intense versions, sometimes to refer precisely to that more intense version itself (see e.g. *SMT* IV.7, XI.640–642 K.).