ROMAN AGRICULTURAL MAGIC

by

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ABSTRACT

In this dissertation, I examine the magical practices of Roman farmers, primarily through the Latin farming manuals; topics include the magical practices which the Roman agronomists recommend to farmers, the relationship of this material to other genres of magic such as curses and amulets, and how its inclusion in technical handbooks is part of the authors' personas as upper-class landowners. The first chapter introduces the problem of identifying magic in the Latin agronomists; the authors are uneasy with obviously supernatural action and prefer to describe it as cultic ritual or ordinary technical activity. This chapter also considers the effects of genre and the double audience of landowners and slaves on how they present agricultural magic. Subsequent chapters examine particular types of magic on the farm with an eye towards how the agronomists' personas determine the way they approach popular folklore; and how magic, technology, and cult interact despite being loosely constructed as opposing spheres in ancient thought. Chapter two deals with weather magic, particularly the intellectual background which makes weather prediction a type of divination and thus a fraught subject; it is a topic with literary cachet but is also dangerously associated with occult knowledge. Chapter three covers magic for crops and animals, in which cultic approaches are prevalent. In the fourth chapter, I discuss magic dealing with noxious animals and weeds; here cultic approaches are few, scientific magic fills the resulting gap, and a special group of charms treat pests as social entities. Chapter five examines the agronomists' anxieties over

controlling ritual on their farms, and their social and natural-historical justifications for their possession of ritual authority over the *familia*. Considered in the context of ancient magical traditions and anthropological theory, agricultural ritual emerges not as irrational superstition but as an integral part of rural life; and the Latin agronomists offer a new perspective on the effects of genre and social context on, in particular, traditions of learned magic.

CHAPTER I

Magic in the Roman Agronomists

Introduction

Discussing how to rid the garden of pests**,** Columella offers several methods of insect control. You can sprinkle plants with oil lees or ashes, arrange them so as to prevent damp and infestations, or put in companion plantings of species which pests naturally avoid. But you can also dry your seeds in a hyena skin, sow them at the right phase of the moon, or have a menstruating woman walk thrice around the garden to kill caterpillars. Magical and ritual approaches to agricultural operations existed alongside what modern readers would consider empirically useful operations throughout antiquity. Every surviving agricultural writer, even the skeptical Varro, includes comments on farm magic.

The Roman agronomists have been much maligned for their inclusion of magical material, the general sentiment being that technical treatises should confine themselves to the empirical world.[1] Amid interest over farming and rural life, agricultural magic has seemed irrelevant, at best, to scholars trying to reconstruct rural settlement patterns and techniques of cultivation. K.D. White, in his extensive account of Roman farming, comments only that "Small wonder that the subject should be embedded in a rich tilth of proverbial maxims and magical formulae, from which even so conscientious a writer as Columella is not wholly free".[2] Magic is a thing which a good agricultural writer should

[1] For a discussion of the sources used, see below, pp. 45-8.
[2] White (1970) 86.

ideally, it seems, be above. Other scholars have been similarly dismissive.[3] Even in antiquity, Varro (or at least his interlocutors) already made light of the spells and other material which he felt to be extraneous in Cato's and the Sasernas' farming treatises (1.2.27-8).

Sharp distinctions between the practical and superstitious material in the agronomists may be convenient, but are largely absent in the agronomists themselves. Whatever we think of the usefulness of walking sick sheep over a member of the flock who has been buried upside down at the entrance to the fold, Columella offers it as a practical remedy.[4] Likewise, the rest of the "superstitious" material offered by the agronomists is included not out of gullibility, as White implies, but because it is, to the authors, part of a body of knowledge, techniques and practices which they expect to be useful to their readers.[5] Even Varro does not complain that the Sasernas have included magic because it is foolish, but because it is irrelevant to the topic of agriculture proper, in the same way that recipes for ham or cakes or cures for drunkenness are irrelevant. Rather than trying to separate the "practical" from the "superstitious" sections in their writing—categories which have little to do with how the authors themselves treat the material—we should rather ask how ritual was a part of a Roman farmer's agricultural routine. That it *was* an integral part of agricultural life is undeniable. The agronomists treat ritual and magic as a natural, ordinary part of the Roman farmer's regime, and instruction in ritual and magic as useful to readers who would endeavor to become, as Cato puts it, good famers and good cultivators.

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[3] The standard studies of Roman agriculture and rural life have generally passed over magic with little comment. See, e.g., Spurr (1986) , Flach (1990) .
[4] Columella 7.5.17.
[5] Or they take a public stance that it is useful knowledge; see below on the immediate practicality of the agronomists' information and the text as a performance of elite knowledge.

If the magical material in the farming manuals has gone largely ignored by scholars working on Roman rural life, it has also been ignored by those interested in Roman religion. Scholars of religion have noted the existence of magical material in the agronomists, especially Cato, but have tended to pass over it.[6] Much of the attention to agricultural ritual has traditionally consisted of trying to trace the roots of such-and-such a state festival to its origin in the early agricultural community, with priority given to an "original", archaic form of Roman religion.[7] Modern studies have questioned the antiquity of rural practices, the view of urban cult as less authentically Roman, and the utility of searching for a pristine state of Roman cult;[8] however, a traditional distinction between religion proper and magic has sill left a great deal of material dismissed as superstitious nonsense, as compared to genuine piety (rural or otherwise). Cato's suovetaurilia prayer, for example, is discussed much more frequently than his equally ritual charm for healing a dislocation.[9] Much of the material which this study will be concerned with has been passed over in studies of religion as too pragmatically focused, while being ignored by scholars of agriculture as too superstitious.

Despite the interest in magic in recent years, the agronomists have been relatively neglected as sources. [10] In part, there is more interest in magic from the Greek world, which offers rich corpora such as the Greek magical papyri. The result has been that Italian magic has received somewhat less attention, and the work that has been done has tended to focus on areas, such as curse tablets, which have abundant Greek parallels.

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[6] The recent Rüpke (2007a) , for instance, contains numerous references to magic in the abstract but virtually no discussion of actual Roman magic. Although several of its articles state an intent to dispense with the term magic, and to instead treat it as a type of religion, they then largely ignore magical material.
[7] See Fowler (1899) for a typical example of this view of Roman religion.
[8] North (1995) gives a useful overview.
[9] Cato 141, 160.
[10] For recent surveys of ancient magic, see Collins (2008); Dickie (2001); Graf (1997) .

Although some recent studies have begun to make use of the agronomists, particularly Pliny the Elder, their texts are rarely examined as wholes; the magical material in the agronomists has usually been disembedded from the rural context. [11] Despite the value of such studies on ancient medicine, women's bodies and agency, and other fascinating aspects of ancient magic, it will be worth considering the sphere of life to which the authors who recorded much of this material felt it was relevant.

The agronomists provide a large body of evidence for the uses of magic within a particular sphere of ancient life. One aim of this study is simply to collect and examine this wealth of material, and to consider the range of ways in which magic was found in Italian agriculture. When the agronomists are read systematically, it becomes clear that there is a great deal more material in them which a Roman would consider, at the very least, *potentially* magical than is at first obvious, since the authors gloss over this interpretation wherever possible. The evidence which they give is full of lacunae and the biases of educated upper-class men, and their discussion of magic is certainly far from the way that many Italian country folk would have thought about, identified, or used magic; and it is not even the way that other upper-class landowners necessarily thought about rural magic, as evidence from other sources, such as poets and law codes, shows. Yet the handbooks offer a survey of magic in agriculture which, for all of its problems, is unparalleled for any other ancient occupation. The magic found in sources like curse tablets and the papyri is largely (though there are certainly exceptions) urban, and a product of magical traditions which required expert assistance; and while these bodies of evidence give us a cross-section of ancient society, showing the different ways in which, for example, lovers, prostitutes, business owners, people in legal trouble, and victims of

[11] E.g., Dickie (1999); Richlin (1997) .

theft could all employ curses, the farming manuals show the myriad ways in which one person might find magic useful on a day-to-day basis. They yield a depth of detail, rather than the breadth of other corpora; they focus on rural life, rather than the city; and although the magical material in them is certainly mediated by educated elites who are aware of learned magic traditions—how exactly the agronomists handle the subject of magic will be one of the main themes of this study—the actual spells and cures are meant to be easy to deploy. Unlike most surviving curses or, especially, the often very elaborate spells in the surviving papyrus handbooks, even someone who was illiterate could use this magic. The handbooks offer us a window onto magic which is usually less spectacular than that found in literary sources or traditions of educated magic, but which was probably used more often, and by more people, than more elaborate spells.

A second aim is to examine how the magic in the handbooks is dealt with by the authors, and, more broadly, how educated Romans assimilate and treat popular knowledge which they find problematic or embarrassing. Much of the knowledge which the agronomists repeat certainly originated in popular tradition. They consider magic an embarrassing and potentially dangerous topic: obviously magical practices are not a typical subject for respectable technical treatises, although they feel that it has its uses. Their main strategy is to try to present things which others might criticize as magic as either ordinary cult or as ultimately natural, not supernatural, phenomena. In doing so, they are drawing on Hellenistic traditions of learned magic, which explained it as something which could be performed by someone with sufficient understanding of nature's quirks. The effect of genre expectations on the agronomists, as well as the intellectual traditions they draw on, will be examined; genre has been under-studied in

discussions of magic, although it has a dramatic effect on what the authors are willing to discuss and whether the prevailing tone is one of approval or fear.

Third, the internal logic of agricultural magic itself is worth examining. Although writers on magic generally try to separate it from science and technical activity on one hand, and cult on the other, activity which they pigeonhole into each of these categories shares a common basis of ritual actions (such as circular processions) and metaphors (such as the strong association of crop disease, bad weather, and vermin in all of these spheres). Although educated authors try to keep them separate, these three categories clearly mingled and borrowed from each other, and in practice, were not demarcated nearly as strongly as the authors like to claim.

Defining Magic

The immediate objection is, what do I mean by magic? How to define and identify magic has been a major topic of anthropological debate over the last century, and both the desirability and the feasibility of constructing a definition on which everyone will agree have been contested.[12] Classicists interested in ancient magic have largely sided with those wishing to retain magic as a useful category, with the added argument that the categories and assumptions underpinning early theorists' ideas about magic—which have thus set the terms for much of the subsequent discussion—derive ultimately from Greco-Roman antiquity and may thus present fewer problems when applied to it than, for example, to a study of African magic.[13] Definitions of magic within individual

[12] See Brown (1997) , Cunningham (1999) for recent surveys of the bibliography. For views within classics and further bibliography, see Fowler and Graf (2005) , Collins (2008) 1-26, Graf (1997) 8-19, Versnel (1991b) .

[13] Graf (1997) 18-19, 205-6 points out the classical derivation of much of the terminology used of magic and underpinning the interpretations of such early theorists as Frazer, as well as the discrepancies between ancient usage and how these terms have come to be used in anthropology. Versnel (1991b) , Collins (2008)

societies have generally been more successful than attempts at a universal definition, and a great deal of work has been done to elucidate what magic consisted of in the Greek and Roman worlds.[14] However, even within a society in which there is general consensus that a discreet category identifiable as magic exists, there is the problem of distinguishing the category's boundaries. Where does magic shade into religion or science (to use the triad which has defined much of the discussion of magic)? How do we distinguish these types of activity? The borders between these areas have been contentious and the debate over them is often unhelpful in interpreting the actual evidence, as the definition of magic can change with the observer and circumstances; often, the best we can do is to decide whether particular cases can be usefully analyzed as magical activity.

The debate over how to define magic is far too extensive to do more than touch on here. However, if magic is a category which people have stuck at defining, what should be included in a study of Roman agricultural magic? Since much of the material included here is not, at first glance, obviously magical, it will be worth setting out a few of the theoretical reasons for drawing the boundaries of this discussion where I do. Starting from the premise that Roman agriculture involved elements which we can reasonably point to as magic, how do we identify and discuss such practices? Some examples—such as Cato's charm to cure a dislocated limb—most people would agree constitute magic, even if we have trouble describing what makes it so. It contains the manipulation of instruments (a split reed, a knife) over the injured part, and the recitation of a charm of

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xi-26; Graf (1997) 16-19; Hoffman (2002); Potter (1994) give a few of the reasons why retaining the category is attractive. However, cf. Gager (1992) 24-5.

[14] See, e.g., Braarvig (1999); Collins (2008); Gordon (1987); (1999); Graf (1997); Philips (1986); (1991); Segal (1981); Thomassen (1999) .

nonsense words.[15] Even those who would dispense with magic as a category are likely to identify this as the sort of thing which they would like to reclassify. However, many of the spells in the agricultural handbooks are less obviously magical. Is a potion given to a sick ox magical or pharmaceutical? What if the person who administers it has to stand, and be fasting at the time? Or if the ingredients include salt and incense, herbs and live coals, all measured out in quantities of three—three white beans, three grains of salt, three rue leaves, three garlic shoots, three leek shoots, three bryony stalks, and so forth. Cato gives just such a remedy, and does not suggest there is anything extraordinary about it.[16] The fuzzy boundaries between things we conveniently label spells, medicine, technology, religious observance, divination, weather prediction, and so on are where much interesting material has tended to fall through the cracks of the discipline. Keeping even a provisional and contentious definition of magic in mind will help to identify and bring into consideration marginal cases, which often reflect interestingly on undisputed cases of magic; moreover, since we will find that the ancient sources often have reasons to play down the magical aspects of the charms they record, theoretical approaches to magic make us more likely to notice things which they do not overtly mark as magic.

To start with a tentative definition of magic: it is practically-intended activity without either an obvious chain of events to explain why it is supposedly effective or a naturalistic theory offered for why it works, although supernatural explanations may be proposed. Almost every term of this definition will need to be examined in the context of antiquity; but I believe it will be broadly useful for discussing, at least, the issues which the agronomists raise about magic.

[15] Cato 160.
[16] Cato 70-1.

The first point to address is the supposition that magic is an inherently practical activity; something which the practitioners do because they believe it will bring about a definite goal, such as laying a curse on someone or causing them to fall in love. Religion, in this construction, is by contrast seen as a set of beliefs and practices which are carried out without the expectation of achieving particular, concrete effects (its goals being vaguer, such as maintaining the proper relationship between the community and the gods).[17] This definition of magic as goal-oriented has been a frequent way of distinguishing it from religion and aligning it instead with science, with both categorized as ways of investigating and trying to affect the world of the practitioner. The conception of magic as a less goal-directed activity will not work for antiquity, at least, where religious acts often have very explicit goals, and it is of dubious value for religions other than Roman mainstream paganism as well; however magic, insofar as the Romans identified it, seems to have always been conceived of as action said to bring about a particular effect. It does not aim at merely propitiating a deity, in other words; such non-instrumental ritual action seems to have always been regarded as part of normal religion (although one's enemies might dispute that mere propitiation was, in fact, the goal of a rite).

That magic can be usefully considered a type of technology has been pointed out by Malinowski, who suggested that magic comes into use where ordinary technology is insufficient.[18] Although the suggestion that magic takes over where other means fail has been discarded, both as a general principle and in the particular case of Trobriand fishing

[17] Malinowski (1948) 20-1, 88 formulates this distinction; see also Rosengren (1976) on Malinowski's elaboration of this idea.
[18] Malinowski (1948) 30-32.

magic which Malinowski used to articulate it,[19] the idea that magic fills a need, expanding a society's technology beyond what observation can empirically verify as effective, if not necessarily *replacing* it, can be a useful way of looking at the ways in which people group activities which they expect to have a practical effect. Whether we agree that a spell yields a practical benefit or not, the agronomists do largely treat magic as practical advice for a famer faced with problems like bad weather or sick animals. They provide further confirmation that Malinowski's notion of magic as a replacement for technology under pressure does not bear up; magic in the agronomists does not necessarily tackle more difficult problems, for which the agronomists are otherwise at a loss for solutions, but instead exists alongside scientifically effective approaches, and is frequently indistinguishable from them. Among methods which the agronomists offer for ridding a garden of bugs are liquid preparations and ointments to apply to the affected plants—some with undistinguished ingredients like cow dung or garlic, others with distinctly unusual ones like frog blood, bat droppings, and lizard gall; liquids to apply to the tools with which the plants are cut; charms to hang on plants, such as ivy wreaths or amulets of certain fish; things to bury or place in the affected area; and the caterpillar charm. Overtly magical solutions (and on the degree to which the caterpillar charm, for one, was obviously magical, more below) here exist alongside more prosaic bug sprays. Which of these solutions do we want to call scientific, and which magical? We need to draw a line somewhere, in order to not have to consider all technical activity identical, when both we and ancient audiences would distinguish different modes of technology at work in, for example, Columella's sheep-curing charm and activities like plowing and sowing.

[19] Tambiah (1990) 72.

Some anthropologists have resisted the idea that magic practitioners equate magic with empirical work or expect practical results from it. Tambiah argues, for example, that magic may mimic work but is intended as communication, not to produce the same effects as normal work.[20] However, Tambiah is considering specifically *ritual* magic, action defined as unlike normal action, where performative aspects are more in the forefront. He has thus already excluded magic which the users do not distinguish from everyday activity before he begins. Although magic has usually been assumed to be ritual activity, much magic in the agronomists is *not* ritual action and is presented as purely straightforward technical activity. (What entitles us to then regard it as magic will be considered shortly.) This magic would seem to expect the same tangible benefits as other techniques of cultivation. The idea that users of magic did not expect it to yield exactly the benefit it promised is doubtful for other ancient magic consisting of ritual action, as well; the spells in the magical handbooks raise the possibility of failure, implying that the spell *not* accomplishing the stated aim was a recognizable and undesirable outcome; and offer alternative methods to try until the goal is met. They seem confident in the practical utility of the spells they offer.[21] Likewise, curse tablets are often quite specific about what they want their curse to achieve. Although performative approaches to analyzing ancient ritual can be fruitful, the communicative aspects of ancient magic do not displace a practical intent. Magic in Greco-Roman antiquity appears to be a practical endeavor, and its practitioners to expect results.

Whether a technique *worked*, in any empirical sense, cannot be the standard by which we label it science or magic. Defining magic according to whether it has the effect

[20] Tambiah (1968); (1985b) . See also Brown (1997) 124 with bibliography on similar claims that magicians distinguish between magic and practical activity.
[21] Betz (1991) among others makes this point.

which its users claim it does—or, a related issue, whether ancient observers correctly explained *how* it worked or not—means that the distinction between magic and science is left up to our greater store of scientific knowledge, an obviously anachronistic yardstick.[22] Frazer and Tylor considered magic to be erroneous science, empirical investigations carried out by people who lacked the capacity to judge whether their actions had the effects they believed they did or not.[23] But we cannot judge reasoning unempirical simply because it turns out to be wrong. The causal link between wearing a radish or a chameleon around one's neck and greater health, which modern (and many ancient) doctors would not recognize, was no more improbable to most people than a link between a ring of light around the sun and the next day's weather, a phenomenon which modern meteorology can explain as a perfectly valid weather prediction.[24] In a world in which scientific knowledge consisted of the cumulative observations of many people, incorrect deductions easily gained popular currency along with correct ones, and often the more thoughtful theorists were more open-minded about the possibility of magical or unusual phenomena, not less.[25] Thus Varro, in considering the possibility of a mule giving birth (not uncommonly cited as a portent), points out that plants do not all grow in the same way in different climates; thus, although mules do not normally procreate in Italy, who is to say that one might not in another country?[26] The dividing line between magic and science which we use cannot depend on the correctness of ancient farmers'

[22] Despite this, attempts to define magic according to its verifiability have persisted; see, for example, Brown (1997) 122**.**
[23] Tylor (1929) 116, Frazer (1917) 20, 50.
[24] A radish as an amulet, Pliny 20.24; assorted chameleon parts, Pliny 28.115-118.
[25] On the interaction of popular tradition and science in antiquity, see Lloyd (1983) ; also Chapter 4.
[26] Varro 2.1.27. Varro points to Mago and Democritus as authorities who claim that mules bear young. Columella (6.37.3) cites this passage and, less cautious than Varro, asserts that in areas of Africa, mules do regularly produce offspring. He repeats Varro's authorities, and appears to be relying on the fact that Mago would have had a greater knowledge of conditions in Africa than he did—a nice demonstration of how one erroneous fact of natural history went from an ambivalent citation to received knowledge.

beliefs; we must look to the rationales about how the world works which lie behind magical action. Modes of thought, not degrees of veracity, are the issue.

Here we might try to make a fairly straightforward psychological division: actions which the actor thinks will be efficacious because of the laws of nature are scientific, whereas actions which they think will take effect for reasons involving gods, spirits, or other supernatural forces are magic. Thus even beliefs which turn out to be scientifically incorrect, such as the idea that the moon affects the growth of crops and animals, can be reasonably regarded as non-magical, since ancient authors support it with physical speculation about the effects of heavenly bodies on living things. Likewise, observations about the world which we are able to verify as true can be catalogued as magical beliefs if explained by recourse to gods and the supernatural—if regarded as miracles, that is, not the ordinary operation of the world. We might point to weather prognostication; many ancient rules of thumb for predicting the weather—such as that it will rain if birds behave in a certain way or if a ring of light is seen around the moon—are quite true, but are explained by Romans as the gods granting signs of things to come or as expressions of a natural sympathy between parts of the universe, which creates invisible connections between the weather and these things which predict it. Although valid meteorological observations are being made, the logic used to explain them relies on gods or the divine nature of the universe; and, as will be seen, these predictions are often considered a type of divination. Because they are explained as the action of gods and are often assimilated to other magic, we can reasonably discuss them as a type of magical belief as well as part of ancient science.[27]

[27] Divination and magic were closely linked for the Romans; Graf (1999) .

Inevitably, it turns out to be more complicated than categorizing what the actor thought. The attitude of the practitioner is insufficient for understanding what Roman society considered magical for several reasons. For one, to do so assumes that attitudes are easy to classify as either scientific or magical. What constitutes a natural explanation in antiquity, and what a magical one? It does not entirely help to define scientific attitudes as ones which rely on mechanical natural laws to explain phenomena, and magical attitudes as ones that explain cause and effect with recourse to individual supernatural interventions—miracles—or to other causes contrary to the way they suppose the world to work when not tampered with by gods or spells. Categories rapidly collapse once we examine ancient philosophical stances on magic. Some ancient thinkers explained magic as a phenomenon which was ultimately natural in origin, even if inexplicable using the knowledge available to them. And "natural" is not necessarily an opposite of "divine"; many ancient theorists regarded nature as itself a divine force, or permeated with some amorphous divinity. More common was the view was that it was regular and expected for the gods to intervene in the world; that divine interference in, say, the weather was itself a normal event, not contrary to the normal way of things. Gods might be capricious in *how* they acted, but the *fact* that they acted was unremarkable. Many of the basic theories of ancient sciences were grounded in beliefs that the gods arranged the laws of nature, whether they thenceforth interfered in them or not; for example, the Stoics' views on the divine hand in nature inform their theories about meteorology and about divination equally. Very few schools of thought did not suppose that gods played a role in nature on some level.

Such views on nature lie behind ideas such as the theory of sympathies and antipathies, the idea that certain things—for example, snakes and deer—have a natural affinity for or reaction against each other.[28] We would classify this as a magical belief, since the claimed connections and the reasons for them are not obvious to us, nor explained by ancient authors; Frazer, picking up the classical terminology and discussions of sympathy and antipathy, used the terms to describe very common cross-cultural phenomena in the practice of magic.[29] Frazer's recognition that an underlying assumption of many types of magic is that certain things are or can be intangibly connected has proven to be one of the most durable of his ideas about magic.[30] (A more sophisticated analysis of this observation is found in Tambiah's discussion of metaphor and "persuasive analogy" in magic.)[31] But the existence of sympathies and antipathies between natural substances, plants, animals, and so on was a commonly accepted assumption of ancient science and were discussed in what we could reasonably consider scientific contexts—Pliny's voluminous *Natural History*, for example, is in large part a catalogue of sympathies and antipathies. Despite a reflex to categorize as magical a belief that deer can enchant snakes with their breath, such beliefs were part of attempts to observe and explain nature. Which is not to say that it was not *also* a magical belief; sympathies and antipathies are the purported mechanism behind much ancient magic. But Frazer, despite describing one logic of magic in a useful fashion, and despite noticing the

[28] For a succinct summary of the principle of sympathy, see Graf Graf (1997) 205-15.
[29] Graf criticizes Frazer for using these terms without considering their philosophical baggage in Neoplatonism, but the words are also used by authors like Pliny and Aelian, and indeed, much earlier, the Greek Stoics, with less attached theorizing. Graf (1997) 205-6. Graf also (p. 19) cautions against identifying classically-derived theoretical terminology too closely with the classical words such as *sympatheia*.
[30] Although Herbert Spencer made much the same observations previously, Frazer's discussion of the principle of sympathy and his classification of "homeopathic" magic into "contagious" and "sympathetic" types popularized the idea and led to its widespread use in anthropology. Cunningham (1999) 16.
[31] Tambiah (1968) .

similarity between sympathies and antipathies and other ancient scientific theories, judged such observations according to their nineteenth-century verifiability and categorized the untrue beliefs as magic, defining it as an inferior type of science. Definitions of magic which depend on the empirical correctness of the practitioner were common after Frazer; but it seems more useful to point out the shared logic, principles, and assumptions of ancient science and magic. Beliefs about gods, the supernatural, and observable causality are embedded in ancient science, and when faced with unobservable chains of events (for example, what caused an illness), people speculated about causality in much the same way whether supernatural elements were part of the worldview being reasoned about or not. That ancient science was often a process of providing rationalizing explanations for traditional beliefs is a point made extensively by G.E.R. Lloyd.[32] Magic and science were intertwined, and that the boundary between them was contentious in antiquity as well as today is a symptom of an overlap in the categories, in which whether a practice or attitude was to be called science or magic was largely a matter of interpretation.

The other obvious category from which magic is often felt to need distinguishing is, of course, religion. There are a variety of proposed characteristics by which theorists, primarily anthropologists, have felt the two areas could be separated, such as the attitude of the practitioner to the gods (the priest supplicates, the magician attempts to control deities);[33] the degree of secrecy or openness involved (religion is open and communal; magic is private and secretive);[34] or, as already touched upon, the goals of the practice (religion is worship without specific goals; magic has a concrete aim). None of these

[32] Lloyd (1983) .
[33] Frazer (1917) 51; see also Goode (1949) for many of the classic distinctions between the two.
[34] Durkheim (1915); Mauss (1972) .

proposed differences hold up for the ancient world: the magical papyri include hymns with stances towards the gods which range from abject to threatening; many religious activities were not just private, but secretive in the extreme (mystery cult, the Bona Dea festival, many activities of the Vestals); and Roman religion rather notoriously torpedoes the last proposition, the supposed difference in goals between religion and magic.[35] Roman religious rites, including many recognized, official state festivals, often had very specific goals: to promote fertility in crops or animals (such as the Parilia or Cerialia), to keep disease or storms away (the Robigalia), and so forth. Some would exclude these rituals from a discussion of magic on the grounds that they are too official, seeing magic purely as something illicit.[36] This is unsatisfactory; although often skittish about magic, the Romans still recognized many magical practices as common and useful.[37] Although the Romans did not, by and large, describe such official rituals as magic (the best argument against treating them as such), they share many characteristics with things they *did* call magic. If magic and science can be usefully compared as technological, practical endeavors which share logic and theories, the umbrella term of ritual can be used to compare magic and religion as a means of examining their shared use of significant words and actions. Ritual is here loosely defined as marked activity, set off from ordinary action.[38] Magical and religious ritual are similar in more than goals; as with magic and science, there is a store of shared metaphors and logic, as well as dramatic words and actions. Thus both indisputably magical and indisputably religious Roman practices used

[35] See, for example, Fowler (1911)
[36] Mauss (1972) 23; Smith (1978) see discussion in Versnel (1991b) 182-83.
[37] Much has been written about the legal status of magic in the Roman world; see especially Dickie (2001); Kippenberg (1997); Pharr (1932); Philips (1991); Potter (1994); Rives (2003); Rives (2002)
[38] Ritual studies have accrued a vast bibiliography; see Alexander (1997); Bell (2006); Bell (1992); Bourque (2000); Grimes (1995) for bibliographical overviews. Tambiah's "performative" approach to ritual has been particularly influential; see Tambiah (1979); Tambiah (1985a)

circular processions, animal sacrifice, utterances which the actors and audience did not understand, offerings to deities, and other ritual elements. They share a grammar of ritual actions, and an analysis of ritual, by collapsing such attempted distinctions as religion/magic, public/private, licit/illicit etc. can focus instead on what and how ritual communicates, what the goals and techniques of ritual action are, and the intended and actual effects on its actors and audience. In antiquity, whether a ritual constituted *magica* or *religio* often depended on who was performing it and whether it was sanctioned by the state or head of household. From a Roman standpoint, religious and magic rituals should be kept distinct; from an outsider's view, it is worth considering all of these practices attempting to regulate, improve, and guarantee the outcome of the farmer's year by means of similar techniques together under the heading of magical rituals.

However, although it is a useful descriptor in many cases, not all of the magic which will be examined here is ritual. Magic in the agronomists is often not ritualized, but is instead presented as everyday, unmarked action.[39] The difference between ritualized and non-ritualized magic will be significant; ritual action on the farm is highly controlled and a source of worry to the agronomists, because formal ritual evokes a social hierarchy and prerogatives which they carefully guard, whereas non-ritualized magic is treated much more casually.

In which case, what makes this unmarked activity magic? To consider only the ancient practitioners' view of what they are doing is problematic, because they may not treat something as magic, although their society does. This will often be the case with the agronomists, who avoid describing many of the spells and potions they suggest as magic; they are writing serious technical works, and magic is potentially embarrassing or

[39] On the term *ritualized*, see Bell (1992) .

dangerous in this context. Instead, they present such things as straightforwardly scientific advice. It is clear from cases where we can compare the agronomists with other sources that they downplay magical elements. For example, Columella recommends encasing a shrew in clay and hanging it around an ox's neck to prevent shrew bites[40]; this may appear to rely on a naturally repellent quality in the mouse's body, the way many other amulets in antiquity exploited the properties which the thing being worn was thought to have; however, other ways of getting rid of mice and shrews recorded by the *Geoponics* suggest that this amulet could also be a way of magically communicating with shrews, on a very human level.[41] One person's natural remedy is another's magic, and we should not classify Columella's amulet as nonmagical simply because ritual elements are missing from his description of it. Aside from the fact that others, like the compiler of the *Geoponics*, could consider making an example out of one member of an obnoxious species to be magic—as the elaborate charm addressed to mice there (and the compiler's expressions of disbelief about its utility) shows, Columella, whatever he thinks about making such an amulet, is reacting to the possible magical interpretation of such an action. And in fact, a very similar practice—hanging up dead birds to scare others away—is found in Columella's poetic tenth book (where magic is, as will be seen, less problematic), and is described in more overtly magical terms there. There is a distinguishable pattern of the agronomists removing the more overtly magical elements from them. If something *could* be regarded as magic, they were forced to consider that interpretation. The agronomists regularly elide the magical and ritual elements in spells and treat them as things which work through purely natural means: nothing dangerous or

[40] 6.17.5-6.
[41] See Chapter 4 for these charms.

out of the ordinary. To ignore this material in them on the argument that it is not magical to the authors misses both that the agronomists are aware of their society's potential interpretation of such practices as magic and downplay the magical elements in reaction to it, and their audience's potential reaction.

Besides modern theoretical approaches, another way to define magic is to say simply that it is anything people point to as magic in antiquity. A native Roman definition of magic has its advantages. Although looking only at practices which the Romans referred to as *magica* (or similar terms) will miss phenomena such as certain religious rituals which we may wish to consider, at the core of our definition of magic must be what could be magic in Roman society. There have been a number of surveys of Roman magical terminology and what constituted magic in Roman thought, which do not need to be re-summarized;[42] but it is worth pointing out that we here abandon the viewpoint of individual magic users as the basis of analysis, and instead consider the views of an entire society. Since even those who practiced magic did not all agree on what it was, there will obviously be irresolvable contradictions within such a definition of magic. Combining the views of many sources with different political and social backgrounds, educations, and philosophical stances yields a composite view of what magic meant to Roman society as a whole. There was a core body of types of ritual which people, whatever they believed about magic—whether they thought it was efficacious or not, how they thought it worked, and whether they found it exciting or dangerous—considered to be typical *magia*, including the use of curses, divination, sacrifices, amulets, and magical words. Braarvig points out that everyone in antiquity knew what to point to as magic.[43]

[42] See, among others, Dickie (2001); Gordon (1999); Graf (1997); (1999); (2002); Saler (1987) .
[43] Braarvig (1999) 42.

However, all of these things can also be interpreted as non-magical. Curses were used officially in civic settings.[44] Sacrifices and divination were fundamental to Roman civic religion, despite the fact that Apuleius' accusers can cite his use of both as proof that he is a *magus*. Amulets were overwhelmingly common medical and protective measures. The hymn of the Arvals was not much more comprehensible or less awesome than magical incantations. And so on—although there was a broad consensus that these things were used by magicians, under what circumstances they were actually to be considered magical was harder to agree upon. Being built up out of many conflicting opinions, this composite picture of magic elucidates the larger milieu within which magical practitioners worked, but not the viewpoints at work in individual incidents.

Part of the reason for magic's nebulousness, as a category, is that it is so often used as a term of opprobrium for what others do—practices which are impious, superstitious, or do not meet the speaker's approval in whatever way, or for the actions of people whom the accuser has a grudge against for wholly unrelated reasons. Thus one person's religious observance becomes another person's magic. The scope of what magic is expands from the first-person definitions of actual practitioners to the third-party definitions of people who claim to find magic in things the practitioners do not regard as such; and in addition to the same practice, such as a curse, being potentially regarded as either magic or as the religious invocation of a god, it can be considered both at once.

Sociological approaches analyze the ways in which the social context affects the identification of magic, and have tended to focus mainly on the accusation of people identified as magicians, a context in which magic has overwhelming negative

[44] Collins (2003) 17-18; Faraone (1993) .

connotations.[45] Some would see magic as *purely* a term of accusation, and deny that it has any existence independent of an atmosphere of suspicion—there is no first-person definition of magic.[46] However, for classical antiquity at least, it is demonstrably untrue that there are no self-identified magical practitioners. Although many descriptions of magic are written by its detractors, and many first-person descriptions of what we might call magic for reasons external to the text do not identify the phenomena as such, other accounts, such as the descriptions of spells found in the so-called magical papyri, are quite explicit that the user will be practicing magic.[47] The social context is relevant not only to accusations of magic in others, but self-identification by magic practitioners. Given the often hostile connotations, under what circumstances do people feel comfortable calling what they themselves do magic?

The sociological approach to magic makes it clear that regarding these categories as mutually incompatible is at odds with both the plurality of ancient opinions, which make it impossible that a practice was ever unambiguously magic, science, or religion for Roman society, and with what Veyne, in relation to Greek myth, calls "brain balkanization", the ability of a person to hold mutually contradictory beliefs in different contexts.[48] Different people may categorize a practice differently—one as magic, another as religious ritual—and so may the same person in different contexts, or even the same person at one and the same time. If the answer to whether something is magic, science, or religion is not that we must choose one, but instead that the same thing can be all of them, it provides a better representation of ancient society and its attitudes to magic, and a

[45] Versnel (1991b) 182-83 discusses these approaches.
[46] See bibliography in Hoffman (2002) .
[47] Betz (1991) 248.
[48] Veyne (1988) , discussed in relation to Roman religious belief at Feeney (1998) 14-21.

much more interesting framework within which to examine how people thought about these phenomena and how different models for magic interacted, changed each other, and came into conflict. Rather than viewing them as separate categories which can be, with sufficiently rigorous definitions, demarcated, it is better to treat them as separate but overlapping spheres.

This is the approach which social analyses of magic have followed for some time now, but those looking for concrete theoretical definitions of what constitutes the practice (as opposed to the identification) of magic may still tend to look for hard boundaries and ideal types by which to define all three of these categories. Thus Versnel, for instance, while agreeing that magic and religion are hard to separate, identifies discrete magical and religious elements in different types of curses, based not on the irrecoverable opinions of the users or observers or what they intended by depositing these tablets, but on the semantic features of the texts themselves.[49] The ancients might identify a practice in various ways, in other words, but *we* should still be able to classify it more firmly according to theoretical definitions. However, the ambivalence over what magic is exists not only in the minds of ancient observers, but is encouraged by real similarities between the outward forms which magic and other categories of action take. That the same practice—curses, here—could function as magic in one situation and as a custom drawing on licit religion in another demonstrates the degree to which illicit magic and civic religion simply looked alike. People were aware of the potential for an action to straddle categories, and sometimes even deliberately formed their own actions to be ambiguous or reinterpretable, or borrowed elements from a scientific or religious context to use in magic (and vice versa; although magic is frequently treated as derivative of

[49] Versnel (1991a) ; also Versnel (1991b) 192.

religion, there is no reason to assume the priority of one over the other). Culturally, this similarity and fluidity of interpretation means that magic, science and religion influenced and changed one another, leading to historical developments in attitudes to magic and in its actual practice.

All of this suggests, one hopes, not boundaries but areas of investigation. I intend to discuss, first, all farming activity which Romans themselves saw as magical. This includes practices which the users, or at least the recorders, mostly in the persons of the agronomists, do not discuss as magic, but which it is clear the larger Roman public did consider such. Expanding from this in-culture definition, I will also consider any activity which is aimed at achieving a specific goal, but in which the means by which it does so is invisible, and either no explanation of the cause and effect is posited, or the theory of causality suggests that the effect is produced contrary to the way the world is expected to work when there is no such intervention, or it has recourse to gods, the divine, and other elements of what we might call the supernatural in order to explain why such effects are not contrary to nature.[50] Although this leaves much room for debate, the edge cases will be useful to consider. Much of the material under discussion here can also be analyzed as medicine, meteorology, official cult, astronomy, and so on; magic is so intertwined with ancient science and religion that trying to draw firm borders between them will be fruitless. Farming practices will be worth considering if they are called magic openly; if the agronomists deny that they are but their contemporaries disagree; if they resemble magic, as with religious rituals; if they interact with magic or are assimilated to it, the way certain procedures are described as natural processes but use the ritual processes of

[50] This approach corresponds closely to Braarvig's categories of intra-textual, inter-textual, and extra-textual ways of understanding magic. Braarvig (1999) 30.

popular magic; or if they share explanations, theories, or assumptions with magic and magical worldviews. In short, I will start with indisputably magical practices and move outwards to anything engaging with them.

Labeling Ancient Magic

As already hinted, the overlap between what could be considered magic and other categories meant that a combination of individual and social factors often led to disagreements over whether something constituted, for example, allowable religious ritual, mere foolishness, or an alarming trespass against the natural order of things. The decision about whether to call something magic or not (and, if it was magic, whether to consider it problematic) depended on the observer, the practitioner, and socio-political circumstances; such differences arose not merely out of the observers' fundamental opinions on what magic was and how it worked, but were dependent on context: the same person may regard a practice as magic if their slave performs it but a scientific endeavor if a philosopher discusses it. Categories such as magic, medicine, and ritual in antiquity should perhaps be seen as paradigms for thinking about such phenomena which may be evoked by contextual clues rather than as inherent elements in someone's worldview. The question, then, becomes what triggers prompt an observer to pick one category over another to use in labeling and analyzing a potentially magical incident.

Several conflicting theories about what magic was and how it worked influenced people's responses to phenomena. This is particularly obvious in the case of educated authors, who often had well-articulated theoretical positions on natural causality and magic; the philosophical tradition within which an author is writing is often the clearest influence on how they approach the subject. The agronomists were not isolated from

theoretical discussions. Pliny, for example, is notably influenced by Stoicism and its ideas about the inherent divinity of nature; his entire *Natural History* can be seen as an examination of the magical/scientific theory of sympathies and antipathies which relies on this belief in the divinity of the cosmos.

Overt Magic

There were three major models in antiquity for how what we would call magic worked. The central category, overtly magical activity, is that body of practices which no one in antiquity would deny was magic: curse tablets, love spells, binding magic, attempts to summon supernatural helpers, and other attempts to bend nature to the magician's will, often with reference to supernatural agency. These spells were aimed at producing effects which would not occur without the magician's power; and they generally claim to work by persuading or coercing a god or some other supernatural agent such as a ghost or demon to help the magician. Insofar as the magician relied on supernatural aid (willing or unwilling), they can sometimes be considered a type of religious action, generally illicit religion; many of the spells in the papyri contain invocations to deities, and curse tablets contain prayers and requests for aid not unlike those found deposited at shrines (and, for that matter, were sometimes deposited at shrines themselves). Romans differed on whether spells like these actually worked; one position, coming out of early Greek philosophical criticisms of mages, is that magicians are frauds because they claim to have powers equal to the gods (or sufficient to actually compel gods to do their bidding), and that, since this is impossible, they must be charlatans. Others believed that magicians did actually have the powers they claimed, either because they coopted divine powers or had uncanny abilities of their own. In

ancient discussions of overt magic, the figure of the magician tends to be central; magic requires an individual with knowledge and powers which others do not have. In actual practice, whether most users of curse tablets, binding spells and so forth were professional magicians or employed them is debatable; while there were certainly professionals available, the figure of the mage may have been less central and amateurs more prevalent in real Roman magical practice than in discussions of it.[51] Ancient descriptions of dramatic magic like curses tend to be either horrified or fascinated, but rarely neutral; the disapproval, fear or admiration expressed tend to be focused on the person practicing the magic. Similarly, accounts of magic focus on dramatic moments of ritual (as opposed to unritualized action also considered magic)—this is part of what makes it obviously magical—but in practice, the degree to which the use of things like curse tablets were accompanied by ritual is debatable. Overt magic is a rather nebulous label to use of the stuff that people were most liable to see as indisputably magic. In a way, this is simply resurrecting the problem of how to define all magic and setting it up as a catch-all category on a more precise scale; however, it becomes hard to define it more precisely as this category is the one which marginal cases are moved into and out of most often for polemical reasons. I will use the term to refer to ritual magic which Romans seem to have no difficulty in thinking of as magical and which very often involved supernatural agency.

Cultic Magic

The second category by which things we might label magical ritual could be understood is religious ritual, the similarity of which to magical ritual has already been

[51] See, for example, Ogden (1999) 54-60 for discussion of professionals and curse tablets..

noted. Religious ritual is understood to work (or to fail) in a way very similar to overt magic, except that supernatural aid is acquired in a legitimate fashion (whatever the observer's criteria for "legitimate"). If a rite was felt to fail this qualification, it tended to be placed with overt magic. The grey area between magical and religious ritual is smaller than we might expect, given the similarity of ritual on both sides; ancient observers tend to make a sharp distinction between them. While overt magic was not always disapproved of when religious ritual was not a point of comparison, the distinction between rites which qualified as religious and those which the observer felt missed the mark is largely a polemical one. This is not true of the overlap between overt magic and the third category, natural magic, which shades into overt magic with less social and moral baggage attached to polarize them.

Natural Magic

The third category is natural magic, magic which the practitioners say works not because of supernatural aid but because of innate laws of nature, which the magician is able to manipulate. Magic, in this conception, is not capricious, but a regular and predictable phenomenon; it is just the operation of natural laws, which may look miraculous but are really ordinary. Richard Gordon describes the development of this conception of magic in the Hellenistic period, when a firm concept of Nature developed and a new scholarly tradition collected accounts of natural marvels, explaining them largely through the idea of sympathies and antipathies, which had existed in earlier periods but was now clearly articulated.[52] The magician, then, is simply a scientist who understands things about nature that others do not, and so can manipulate it to achieve

[52] Gordon (1999) .

ends which look miraculous to the ignorant. The priority which natural-philosophical knowledge receives in this conception of magic is obvious. Natural magic is a subset of what Matthew Dickie calls learned magic, the tradition of educated philosopher-mages like Anaxilaus, who are first found in the Hellenistic world and who appear in late Republican Rome, people like Nigidius Figulus and Publius Vatinius.[53] These were the practitioners who produced the body of writings that Gordon terms pseudo-Democritean scholarship (as many works in it were falsely attributed to Democritus, the Presocratic philosopher who was reimagined in the Hellenistic period as a mage).[54] Learned mages blur the line between natural philosophers and magicians; they are educated, scholarly, and often associated with philosophical and mystical sects like the Pythagoreans, and they claim (or are claimed, in the case of legendary figures) to be producing marvels by natural means.

Natural magic removes the need for gods and other supernatural intervention; the magician is able to produce magical effects by their own power. The lack of a need for supernatural help in spells has occasionally been used to separate magic from religion; thus Mauss described the "automatic efficacy" of magic.[55] What is distinctive about the Greco-Roman category of natural magic, as it emerged in the Hellenistic period, is that it is inherently a category of opposition: its proponents insist that things ordinary people regard as magic are not miraculous at all, but are the result of natural processes which only look miraculous to the uneducated.[56] Natural magicians, by comprehending these obscure principles or noticing clues in nature which others miss, are able to produce

[53] Dickie (1999); (2001) .
[54] On Democritus, and his likely impersonator Bolus of Mendes, see Dickie (1999) .
[55] Mauss (1972) 117.
[56] On the history of the idea of natural magic, see Dickie (1999); (2001) 168-75; Gordon (1999) especially 232-39, .

astounding effects which look like magic to the credulous masses. Thus we find Apollonius of Tyana insisting that he is able to predict earthquakes and understand the speech of birds not because he is a mage, but because his body is extremely sensitive to vibrations in the air.[57] Natural magic, although its practitioners try to cast it as a scientific matter, is defined by common perceptions of magic; without the constant tension between the scientific interpretation and the popular interpretation, the category would cease to exist. Although natural magic identifies itself as scientific, we can consider it with other magic, in addition to science, because people claiming magic is natural are aware that natural magic is liable to interpretation as supernatural magic. And the beliefs and practices involved *are* usually identified by observers as superstition or supernatural activity, even by natural magicians and those recommending other natural magic, as when the agronomists point out the superstitions of country folk. Magic which is natural when they do it becomes superstitious when practiced by the less-educated people among whom, Gordon suggests, their material originated.[58]

Among the agronomists, natural magic includes things like recipes for potions, ointments, or amulets which will prevent disease in plants, repel pests or cure sick animals because the ingredients possess a sympathy or antipathy to the source of the problem; ways of affecting the sex or coloration of animals' offspring which are justified with natural explanations; charms, spells, or sacrifices which the authors claim have a natural efficacy, tricks for affecting the produce of plants (such as a way to make letters appear on the skin of peaches), and so on; any material which the authors treat as straightforward technical advice, but where their explanations for why it works draw on

[57] Gordon (1999) ; Philostratus, *Life of Apollonius of Tyana* 1.2.
[58] Gordon (1999) .

the doctrine of sympathies and antipathies or other natural-magical rationales, or where they are aware that it could be construed as magic. They clearly often *are* aware of this. For example, Pliny says that superstitious people believe mistletoe is more efficacious if it is gathered at the new moon, without using iron or letting it touch the ground; but he also says that the mistletoe amulets produced in this way do aid conception; and the *Natural History* is rife with beliefs about the effect of the moon on plants. Why this particular procedure is a matter of *religio* is unclear (24.12). This passage comes in the middle of a book on plants which Pliny begins with a discussion of sympathies and antipathies (24.1-4) and plants which oppose each other, and which is full of equally magical-looking prescriptions which he reports in all seriousness. From the occasional comments that something is a superstition or a marvel, and the attribution of certain rituals to *magi* or druids, Pliny is well aware of the magical nature of his material; but he also reports these things as useful and true, and often understandable, if one only knows nature. No Roman technical author could be unaware of the popular interpretation of such potions, amulets, precautions, and so on as magical. Although the agronomists treat these things as scientifically grounded, they were aware that they were drawing on a stratum of popular beliefs and practices which the educated more often considered superstitious or magical than scientific. Part of their problem was that categorizing something as superstitious did not always mean it was thought not to work; merely that it was disreputable. The agronomists thus run into an ideological dilemma: they consider these remedies to be *useful*, and yet cannot countenance overt magic in their works; and so the traditional beliefs are justified scientifically in order to make them respectable. Natural magic is an intellectual framework imposed on this mass of popular material. In writers

like Pliny, who simply amass material, the contradictions in whether this body of advice is to be considered magical or scientific become obvious, with nearly identical prescriptions approved of as effective and condemned as the spells of the magi.

And despite the claims of natural magicians that what they do is science—which would, at first glance, suggest that we should classify them as scientists and natural philosophers on the basis of their intentions, whatever we think about their theories—later natural magicians also coopt some of the trappings of overt magicians, and are not as averse to the interpretation of themselves as people with uncanny powers as they would suggest. Natural magic ought to be something that anyone can practice. It carries the assumption that practitioners are more sophisticated in their interpretation of nature than others and more powerful in their control of it, but it is not *secret* knowledge. However, the fact that not everyone *does* understand it (or there would be no credulous masses to label it magic) means that it is restricted knowledge, and comes to be seen as uncanny; some people, even if what they do is natural, are more perceptive, have a keener rapport with nature, and are thus more powerful than ordinary individuals. Early philosophers like Democritus were reimagined in the Hellenistic period as magicians. While they have impeccable scientific qualifications as natural mages, people whose "miracles" were applied science—as educated authors explain them—they were popularly remembered as magicians. Some later natural magicians take advantage of the reputation for power which accrued to the legendary philosopher-mages, adopting the dress, habits, rituals, and grandiose claims of overt magicians, so that it is sometimes hard to tell whether they thought of themselves primarily as philosophers and assumed magical trappings, or mages who adopted a veneer of scientific explanation to avoid legal

trouble. Apollonius of Tyana again comes to mind; he acts like a mage, despite Philostratus' defenses of him as a philosopher, and his own reported claims to be acting through natural means. Natural magic is more philosophically respectable and less socially risky, but overt magic has a cachet and aura of power which proved alluring. With Apuleius, we can see the development of someone who explained himself as a philosopher but was fairly brazen about his interest in magic, and who was remembered by later generations as a typical magician. Another case would be the two Republican philosopher-mages Nigidius Figulus and Publius Vatinius, who were later remembered as magicians, partly for their association with Pythagoreanism (Vatinius, at least, gave outward signs of his philosophical leanings in his dress, details which Cicero brings up amid accusations of necromancy and other unsavory activities).[59] These people may claim that magic is purely natural, but they encourage people to regard it as secret and strange knowledge and its practitioners as set apart from ordinary people. To claim that magic is systematic is not necessarily to assert that it is not magical.

The Interaction of Types of Magic

These three models—natural, supernatural, and cultic magic—did not exist in isolation from each other, but influenced each others' ideas of what magic looked like, and shared many ritual actions and theoretical premises. There is a common stock of ritual action and metaphors underpinning magic which are employed by all types of magic and their practitioners, so that it is often difficult to know which one a rite constitutes unless the description includes an explanation of the rationale behind it—and then, we rarely have any guarantee that the actual participants shared the recorder's view

[59] Cicero *In Vatinium*; see Dickie (1999) on Nigidius and Vatinius.

of what was happening. Thus Seneca describes how people try to avert hail with sacrifices of chickens, lambs, or even blood from their own fingers if it is all they can afford (*Natural Questions*, 4.6-7). Seneca comments that some believe the blood itself is the effective element; it naturally repels the clouds; others think the hail clouds are won over by the gifts and decide to leave of their own accord. He himself takes a skeptical position and denies that these measures work at all; but it is clear that the actors in such rites could disagree over whether they constituted natural magic, supernatural magic, or religious propitiation, in addition to the observer's bewilderment over what to think.

Overt magic always existed in the background, as the normative view of what *magica* was, even for those who explained purportedly magical phenomena as natural occurrences. Because of this, natural magic often deliberately or unconsciously imitated supernatural and religious magic. While the agronomists downplay the ritual elements in their magic, others, although they also claim that their magic is perfectly natural, evoke overt magic or cultic magic in their use of it. The similarity between the uses of plants which Pliny approves of and those which he dismisses as the work of the magi has already been noted. Many of these plants are to be gathered with particular precautions: while fasting, at a particular time of day, with a particular hand, uttering spells, drawing a circle around it, not letting it touch iron or the ground, and so on. This is equally true of plant-gathering procedures which Pliny attributes to the magi and those for picking plants which he says are useful because of the natural properties of the plant. Why, after all, should a plant need to be gathered in a ritual fashion if its innate properties are the reason for its usefulness? Partly, there is deliberate fluidity between these types; and partly, unconscious borrowing from a handy model of what magic looks like was inevitable.

There was widespread familiarity with the principles by which magic supposedly operated and what magical ritual consisted of, which affected the imaginations of even supposed non-mages engaging in what they claimed was non-magical activity. Meanwhile, overt magic occasionally invokes natural history in its logic as well.

Even when the practitioner did not evoke magical logic or ritual deliberately, these provided inescapable models for natural magic, which shared its metaphorical associations (such as the belief that certain things were sympathetic or antithetical to one another) and patterns of ritual action—its magical grammar—with supernatural and religious magic. We might speak of a magical mode which people act in, a set of behaviors and logic, such as circular processions or the use of amulets, which cannot help but evoke associations with overt magic, whatever the practitioners' claims about what they do. It is worth considering in conjunction with it marginal cases which we might not actually call magic if they are reacting to magic, or illuminate magic reacting to them. With these three models of what magic looks like, what cues in a situation impel people to use one category or another for what they see?

Social and Political Dimensions to Magic

The identity of the practitioner can influence an observer's view of what they are doing. Magic, as noted, frequently became a label for the ritual action or beliefs of people whom the observer disliked; from the standpoint of a typical Roman author, groups accused of practicing illicit overt magic could include foreigners, social inferiors, women,

and devotees of particular cults.[60] The issue of inferiors practicing magic is particularly relevant to the agronomists, since one of their large concerns is regulating who in the household is allowed to take ritual action on the farm. If not authorized by the paterfamilias, ritual—divination, household worship, magical solutions to common problems—is described as superstition, and to be discouraged. Slaves, in particular, are naturally superstitious; the female farm manager, the *vilica*, is especially singled out by Columella as potentially superstitious and in need of watching in this regard, being doubly handicapped by being both a slave and a woman (and, of course, suspicion of foreigners can also underlie many comments on slaves). However, the agronomists also imply that free people of less education than themselves are prone to superstitious practices, as in Columella's comment on extremely scrupulous farmers (*qui religiosius rem rusticam colunt*; *religiosiores agricolae)* who preserve charms and prohibitions that no one else uses any more.[61] *Religiosiores* is not a compliment; it indicates an excess of religious scruple, bordering on the paranoid. Similar practices are not considered problematic when the agronomists themselves use them, or properly authorize others to do so. In that context, it is not regarded as superstition, but a legitimate practical approach to ensure that farm ritual is properly conducted. The idea that magic is a term of disapproval is, while insufficient, *often* true; people tend to move practices into the category of overt magic if they are trying to damn them or the practitioner, and away

[60] Many of the common Latin terms for magic and its practitioners derive from terms for foreigners or foreign magico-religious specialists: *magus* and *chaldaeus* are among the more common of these. The conviction that foreigners, especially in the east, were in possession of secret knowledge meant that these terms could also be adoped, approvingly, by those who practiced magic themselves or were merely interested in it.
[61] Columella 11.2.95, 11.3.62.

from overt magic, into the categories of respectable religion on one hand and natural magic (or non-magic entirely) on the other if they approve.

The chance that an observer will categorize someone else's actions as magic increases if there is personal enmity between them; although this is less of an issue for the agronomists, who do not, for the most part, pursue personal feuds in their books, it is clearly a factor in Roman society. [62] Many of the better-known cases in which someone was accused of practicing illegal magic in the Roman world clearly involve pre-existing hostility between the parties; Apuleius, for example, highlights the very personal motivations of his accusers throughout his defense speech (after marrying a wealthy widow, he was accused by his in-laws of practicing love magic, with supporting accusations of other magical practices), and Germanicus' feud with Piso, culminating in both of their deaths, led to highly-colored accusations that Piso had contributed to the prince's demise with various sorts of curses.[63]

Larger social and political factors can also come into play; people seem to have been simply more apt to regard things as magic in some places or periods of Roman history than in others. This is most obvious in the case of sudden spikes in accusations that people are practicing illegal magic. The tendency of accusations of witchcraft to reflect pre-existing community tensions has been often noted; in the Roman world, a tense political or social climate sometimes resulted in what looked, to ancient observers at least, like an unusual number of accusations and a greater paranoia about magic. Tacitus' histories suggest that periods of the early Empire were, for the upper class at

[62] Phillips discusses the social context of identification of magic; Philips (1986); (1991); Phillips (1994) , with bibliography on the larger anthropological studies of witchcraft accusations. See also Brown (1972) for late antiquity.
[63] Apuleius, *Apology*; Tacitus, *Annales* 2.69.

least, dangerous times to be seen as practicing magic; in a competitive and unstable political environment, people were more willing to look for, or to seize upon, excuses to accuse each other.[64] Ammianus Marcellinus describes similar situations during the reigns of Constantius II and Valens,[65] and notes that things which would not normally have triggered accusations of magic became suspicious (19.12.14):

> Nam siqui remedia quartanae vel doloris alterius collo gestaret, sive per monumentum transisse vesperum malivolorum argueretur indiciis, ut veneficus sepulchrorumque horrores et errantium ibidem animarum ludibria colligens vana pronuntiatus reus capitis interibat.
>
> For if someone wore an amulet for a quartan fever or other illness around their neck, or was accused by the testimony of their enemies of having walked by a tomb in the evening, it was said to be a sign of witchcraft, because they were a poisoner and a collector of the horrors of tombs or the vain tricks of wandering souls, they were condemned to death and perished.

This is essentially the same phenomena as people accusing their enemies and rivals, but on a larger scale when magical accusations were encouraged and pursued; in an unstable political climate, the definition of who was a rival widened to encompass the accuser's entire social circle, class, or society. Ammianus says nothing about the relationship between accusers (except for the official, Paulus, in charge of the investigations, who, Ammianus claims, made false accusations for his own gain) and the accused; the description is of widespread paranoia, not targeted malice towards personal enemies. Dickie points out that there are problems with Ammianus' account, which is probably greatly exaggerated.[66] But Ammianus does identify a perception, at least, that at moments of social tension normally innocuous activities are more likely to be identified as illicit. The amulets which would normally be regarded as ordinary medical precautions become

[64] Liebeschuetz (1979) 126-39 collects instances of witchcraft accusations in the early Empire.
[65] Ammianus Marcellinus 16.8.1, 19.12.
[66] Dickie (2001) 253-57. See also the discussion of these cases in Matthews (1989) 217-18.

overt magic. Even if this trend did not result, in reality, in many more prosecutions than usual, Ammianus' account suggests that people were more likely to think twice about their own actions and how they could be construed as illicit in bad times. Although Ammianus' incredulity at the idea of things like medical amulets forming the basis of an accusation shows that prosecutions on such grounds were in fact rare, something about these practices is already similar enough to illicit magic that he can conceive of them being interpreted differently by hostile observers. Some things, it seems, are only magic if someone wants to find it.

Although the degree to which a ritual is public or private does not help much with a theoretical definition of what magical action consists of, it is a factor in shaping *perceptions* of magic in antiquity. Ritual conducted in private was always more likely to incur suspicion than ritual in public; if a ritual, even a private observance, happened in public space, it allowed others to observe and reassure themselves that nothing illicit was being done, and that the practitioner had nothing to hide. Ritual conducted in private, on the other hand, is often accused of being underhanded or involving illegal practices like casting horoscopes about one's neighbors or public figures like the emperor. Without community oversight, who knew what was being done? Often, the condition under which barely-tolerated cults are allowed to operate is that they conduct their rites in public or with some form of public oversight; for example, after 186 bacchanal rites had to have prior authorization from the *praetor urbanus* (ILLRP 511), among other restrictions. What was important was not the substance of the rite, but the conditions under which they took place; thus in, to cite just two examples, Apuleius' defense speech and Ammianus Marcellinus' account of the flurry of fourth-century accusations just cited

(19.12.12), we find that sacrifices which do not look much out of the ordinary are called magic rites rather than ordinary religious observances because they take place in private or secretive contexts (a private house in the former case; in a private rite at the shrine of Besa in the latter). Like the amulets which Ammianus mentions, these rites were normally considered unexceptional, but the privacy made them susceptible to being reinterpreted as secretive and illicit.

The common theme in all of these situations is that things which could be seen as nonmagical, or magical but not problematic, are reinterpreted as illicit magic by people hoping to score points against rivals and enemies. People change their interpretations of the practices they observe depending on the circumstances and personal motivations, some consciously, some in unconscious reaction to the situation. Cicero's two speeches, for and against, the Caesarian political figure Vatinius show someone consciously reinterpreting the same cues in a man's dress, philosophical leanings, and so forth according to political need. In his prosecution speech *In Vatinium*, Cicero casts his opponent as a magician, a diviner, and a necromancer, and takes his Pythagoreanism as proof; in his lost speech in defense of the same man, a scholiast claims, Cicero made an about-face and defended Vatinius' Pythagorean leanings as perfectly respectable.[67] The same process can be seen at work from the viewpoint of the accused, instead of the accuser, in Apuleius' defense speech and the incident of C. Furius Chresimus' trial for magic. Apuleius does not deny that he has done the things his opponents accuse him of—buying strange fish (29-41), worshipping a figurine of dark wood (61-5), etc.—but contends that the fish are part of his investigations into natural philosophy, not ingredients for spells; the Hermes figurine is an ordinary object of domestic worship, not

[67] See Dickie (2001) 168-170 for discussion of this case.

a magical servant; the wood it is made out of was simply convenient (and was not his own choice), not something with magical connotations; and so on. His opponents have misidentified things as magic which are not. Chresimus, in Pliny's anecdote (18.41-43), when accused of enchanting his neighbors' crops, denies his accusers' interpretation of the causality involved in his larger harvests; he, he argues, merely worked harder than they did, and that his well-cared for tools, slaves, and livestock *are* the magic his neighbors claimed he possessed. As accusers may reinterpret usually innocuous elements of their opponents' behavior as problematic, Apuleius and Chresimus both try to shift the interpretation of their suspicious behavior out of the realm of malicious overt magic and into that of religion, science, philosophy, and mundane practical action.

Apuleius' defense carries overtones of educated disdain for superstition, despite the obvious interest in magic throughout his works; his argument rests on the idea that less educated people will misinterpret the perfectly rational actions of a philosopher, or will misunderstand conventional piety; he accuses those hostile to him of following the "vulgar misunderstanding" of the difference between a *magus* and a philosopher.[68] The practice of, or belief in, magic was often construed as superstition, *superstitio*, an overzealous or mistaken approach to religious observance. This judgment says nothing, however, about whether it *works* or not; magic for the Romans can be illicit, immoral, and a debased and mistaken approach to dealing with the gods—but effective. Because magic is thus considered a matter of ignorance—of proper forms of observance, if not of what works—it is again considered the proper province of people like foreigners, slaves, women, rustics, and social deviants—that is, people who are either expected not to know better, or else not to care; and both accusations of practicing magic and defenses against

[68] Apuleius, *Apology* 27.

them often carry overtones of superior education on the part of the speaker. The story of Chresimus, unusually, demonstrates the opposite dynamic at work. Chresimus casts himself not as too educated to misidentify scientific investigations as magic, but as too uneducated and old-fashioned to have any knowledge of hostile magic. Chresimus' neighbors, who have larger estates and are surely meant to be understood as wealthier, better educated and probably more urbane than their Greek freedman of a neighbor, are the ones who maliciously attribute magical effects to simple hard work. The stereotype of the pious, rustic farmer could undercut accusations of magic by casting the accuser as the sort of person who understands magic in the first place, while the accused is too simple a person to do so.

Rural, particularly agricultural magic, is more likely to be considered permissible than most other types of magic in antiquity, either because it is construed as nonmagical or religious activity, or because people, even while categorizing it as magic, exempt it from disapproval. The Theodosian Code (9.16), for example, on a law of the early fourth century, comments that:

> Nullis vero criminationibus implicanda sunt remedia humanis quaesita corporibus aut in agrestibus locis, ne maturis vindemiis metuerentur imbres aut ruentis grandinis lapidatione quaterentur, innocenter adhibita suffragia, quibus non cuiusque salus aut existimatio laederetur, sed quorum proficerent actus, ne divina munera et labores hominum sternerentur.
>
> No crime is to be imputed to remedies for human bodies, or those used in rural areas so that people do not fear rainstorms on the ripe grapes and they are not destroyed by a hail storm, if these are innocently employed; for neither the health nor the reputation of anyone is harmed, but they ensure that the gifts of God and the labors of men are not harmed.[69]

[69] Pharr (1932) 281 discusses this and other passages in the law codes, as well as the legal status of magic more generally in the Greco-Roman world; see also Potter (1994); Justinian's *Code* 9.18.

This categorization of certain types of explicitly magical activity as essentially wholesome is in keeping with the attitude to farm life in general; as a stereotypically virtuous activity, even magic used on the farm can only be so threatening.[70]

Genre and Magic

The influence of genre on ancient discussions of magic has been under-studied, as the formal literary context can also influence what is identified as magical, and whether it is regarded as a suitable topic for discussion. Poetic depictions of magicians have been given too much credit as accurate portrayals of real Roman magic users, while the restrictions on what particular prose genres feel is suitable to discuss have been passed over.[71] The most detailed and explicit considerations of magic are found in prose treatises, which discuss magic both incidentally and as a topic in its own right, with views ranging from approval to skepticism; in works coming out of Greek philosophical traditions we find serious consideration of natural causality and extraordinary phenomena, whether magic exists at all and the ethical implications of practicing it, the idea of natural magic, instructions for practicing magic, and criticism of its practitioners. Works in the tradition of natural philosophy allowed for detailed consideration of the technical workings of magic and nature. Within technical and scientific literature, magic is not necessarily a term of disapproval; self-styled mages wrote technical works, drawing on natural philosophy and drawn upon by it in turn (as Pliny cites the work *On Sympathies and Antipathies* which he attributes to the philosopher-mage Democritus as a source for his *Natural History*). The magical papyri appear to derive partly from this

[70] Malicious magic aimed *against* farmers is another matter.
[71] Dickie (2001) for instance takes poetic portrayals of witches far too literally, ignoring their mythological antecedents. Exceptions include Gordon (1987) and Graf (1997) , especially 174-204.

tradition, containing, as they do, tricks such as the *Paignia* attributed to figures like Democritus and Anaxilaus.[72] Learned magicians espousing the idea that magic was a natural phenomenon wrote on it alongside other topics of natural philosophy; Nigidius Figulus' works seem to have included books on winds and animals as well as on augury, extispicy, dreams, and the gods.[73] There is no unified stance on magic within prose; opinions on it are as varied as the authors and the intellectual traditions within which they are working. What technical and scientific works all have in common, however, is that they take magic seriously; whether it is raised to criticize or to endorse it or to consider the physical problems natural and overt magic raise, it is treated as a scientific and moral topic worthy of consideration. It is also a topic with a great deal of tradition; although not everyone can cite as many relevant works as Pliny does, authors of prose treatises are fundamentally aware of the many stances previous theorists have taken on magic. Technical works find it hard to ignore the weight of previous writing on magic. Despite the production and niche appeal of works like the pseudo-Democritean *On Sympathies and Antipathies* and *On Chameleons*, both of which evidently contained much magical material, works aiming at literary and social respectability could not take too approving a stance towards overt magic. For the agronomists, this leads to an awareness that much of their advice can be construed as magical, both by magic's critics and by people willing to practice magic more explicitly than they themselves are.

Other genres, however, had very different stances towards magic. Poets, for example, found themselves much freer to discuss magic openly. In part, this is because poetry so often dealt with a mythological world in which gods, demigods, and heroes

[72] Dickie (1999); (2001) 168-75.
[73] On magical handbooks, see Dickie (1999) .

commonly made use of magic, and in which magic is often treated in approving terms; but this license to deal with the topic bled over into poetry dealing with contemporary themes as well. Augustus' reign saw a surge of interest in poetic depictions of magic and witches, the more gruesome and sensational the better, frequently set in contemporary Rome rather than the heroic past. The literary form and tradition granted poets leeway to deal with magic more gleefully than authors who intended their technical works to be taken seriously.

The Agronomists, Context, and Magic

Which brings us, at last, to the agronomists themselves, and the particular attitude of one genre of Latin technical writing towards magic. It is impossible to understand the agronomists' discussions of magic without understanding the specific ideologies and genre constraints of agronomical handbooks, and, in particular, the persona of the aristocratic farmer which the authors put forward. Normally, the agronomists avoid discussing overt magic at all, and show embarrassment when it does come up.

A very brief overview of the agronomists may be helpful here; although some, like Cato, are well known, others, like the late antique Palladius, are more obscure, and the fragmentary and lost agronomists are worth surveying briefly. Even looking at only the surviving works, the continuity within the genre quickly becomes apparent; by Varro's time, the general expectations of what should go into an agricultural manual (if not what should be excluded) were established, and certain set pieces and tropes had developed. The genre, and Latin prose, began with Cato the Elder (234-149 BC), whose *De agricultura* (c. 160 BC) is an inestimably valuable source for Roman agriculture and

religion. Its early date makes it an outlier not only chronologically but for what Cato discusses; he is the least hesitant of all the agronomists to include both farm rituals and obviously magical material; his work is idiosyncratic, disorganized, and rambling, and almost aggressively unpolished. Although Greek manuals existed and are cited by later agronomists, Cato founded the genre of agronomy for the Romans and is a major influence on all the surviving manuals. Agronomy appears to have become almost immediately popular; although the next surviving handbook is Varro's *De re rustica*, we know of at least three agronomists between him and Cato from Varro's references to them. The Sasernas, a father and son, seem to have written in the late second or early first century; Varro's interlocutor Tremelius Scrofa refers to them disparagingly.[74] Varro may intend this as a touch of professional jealousy, since Scrofa himself is the other Republican agronomist of whom we know; he evidently wrote a manual of which Varro thought highly.[75] From Varro's and others' comments, the topics dealt with in these manuals included vine and olive growing, estimates of labor needed, and other topics central to growing staple crops, as well as matters, like managing quarries and sand pits and household preparations, which Varro considers off-topic. Varro (116-27 BC) wrote the *De re rustica* in three books late in his life (c. 36 BC). Compared to Cato's rambling book, Varro's is rigidly, almost obsessively, arranged, with little room for digression. Varro evidently considered superstition and ritual extraneous to a work on farming and mentions them only to complain about others' inclusion of them; although his occasional mentions of things like the Sasernas' charm for sore feet or the activities of *haruspices* in the countryside are valuable, we will see less of him than the other agronomists. Between

[74] For the lost agronomists, see Reitzenstein (1884) ; on the agronomists from Cato to Varro, including the lost works, see White (1973) .
[75] See also Brunt (1972) .

Varro and Columella we know the names of a number of lost authors; agronomy evidently continued to increase in popularity. We owe what little we know of these authors largely to Columella (first century AD; his dates are uncertain but he speaks of Seneca and Celsus as contemporaries), who wrote at much greater length than his surviving predecessors, and was clearly well read in the genre. Besides earlier agronomists, he cites works on natural history and philosophy, some of which stray into clearly magical territory: for example, he refers to Bolus' work on the doctrine of sympathies and antipathies. His work appears to have become well-known quickly, since Pliny the Elder cites him a few years later. Columella mentions (2.21.6) that he intends to write a separate work on farm ritual, which has been, frustratingly, lost (if he ever completed it). It is perhaps rather unorthodox to list Pliny the Elder (23-79 AD) as an agronomist, but large sections of his *Natural History* are clearly working within the genre despite their setting within the larger encyclopedic context. Although many parts of the work touch upon agronomical subjects, it is Book 18 which most closely resembles an independent manual, and includes such tropes and set pieces as a farmer's calendar. Between Pliny and Palladius is a gap of several centuries; although we know the names of agronomists working during this period, with Celsus' books on agronomy being perhaps the best known.[76] Palladius (fourth century AD), despite his medieval popularity, is largely derivative, especially of Columella; the largest innovation which has arisen in the genre in the intervening centuries is that his work is divided into books according to the month, and the work for each period is described therein. The late antique compendia are valuable partly because they preserve fragments of lost authors, and partly because they can be noticeably egoless compared to earlier authors; Palladius, and the much later

[76] On the lost agronomists of this period, see again Reitzenstein (1884) .

Geoponics, record magical material not found (or, sometimes, described in such a way as to obscure the magical elements) in earlier works. The *Geoponics*, variably dated from the seventh to the tenth century, is a Byzantine compilation which includes material from throughout classical antiquity, translated into Greek where necessary. It, too, preserves magical material which is clearly much older than the *Geoponics* itself, although a late editor of the text makes occasional interjections of disgust about this material.

Who was the agronomists' audience? Most obviously, there is the audience of upper-class landowners like themselves; people like Terranius Niger to whom Varro dedicates his third book, or Publius Silvinus to whom Columella addresses his. The authors offer instruction to those who would learn how to manage their property effectively. But many, if not all, of the manuals were also intended for the use of slaves on the farm. Cato is explicit that his *vilicus* should be able to read (5) and that the owner should leave written instructions; his manual, with its miscellany of reference material like recipes and sample contracts, seems intended for just such a use. Parts of the work address the *vilicus* directly. Varro, too, refers to literacy among his staff, although his books seems less intended for their use than Cato's is; but parts, at least, such as his calendar (probably in abridged form) made their way onto the farm.[77] Columella, like Cato, addresses parts of his book directly to his slave overseer. What they expect their aristocratic audience to take away from the text will differ markedly from what the slaves reading it are meant to learn.

Schiesaro, contemplating the *Georgics*, identifies an ideological difference between "received" knowledge in Vergil, knowledge of the universe granted, insofar as they wish, by the gods, and which the audience must learn as is from the poet, and

[77] On Varro's calendar, see pp. 63-4.

"discovered" knowledge, in authors like Lucretius, who advocate the ability of human intelligence to learn the secrets of the universe whether gods intend them to or not.[78] The agronomists are firm advocates of discoverable knowledge, for the most part—they advise the farmer to learn from books and from other farmers and from their own experience. Columella, in particular, urges his farmer to try new techniques and to experiment, finding the best methods for their climate, soil, and goals by trial and error. At the same time, they sometimes speak as though they expect to be obeyed without question. Some of this tone of authority may be laid at the door of our own hangups about the text—Cato's written ritual instructions, for example, are likely to have been intended to be changed and adapted by the audience, something which we, knowing later Roman religion's reputation for following ritual obsessively, might not expect. However, some of it is real, and can be attributed partly to the texts' dual audiences—the elite audience receives suggestions, the slaves instructions.

The different categories of magic laid out here were aligned to different categories of knowledge in Schiesaro's classification. Natural magic was fundamentally a matter of human ingenuity and discovery. As such, it was very much knowledge in the mode the agronomists already adopted, which explains some of their comfort in discussing it. It fit the rest of their technical discussion. Cultic magic, by contrast, was a matter of received knowledge. It did not encourage questions or investigation. This difference may explain the feeling of Varro and Columella, and all the other agronomists after Cato, that cultic ritual was a topic best saved for another work (Varro's *Antiquities*, in his case, or the separate work on farm ritual which Columella says he plans to write). Not that the agronomists were always averse to the idea that they were the conduits of special, even

[78] Schiesaro (1997) .

secret, knowledge; but it is the knowledge of the natural philosopher, which was theoretically something that anyone could learn—even if, in practice, they feel that some people are too uneducated or dull to get the benefits which they do from this learning. The agronomists do, to a certain degree, take advantage of the aura of mystery which could surround certain types of philosophy and technical writing, or the supposed quasi-mystical effects conferred by social position; Pliny's comment that Cato's advice is oracular (18.25) may be a comment on more than its crabbed and sometimes obscure style.

The agronomists include a startling array of magic. Spells to promote the growth of seeds and crops, to avert mildew and sickness, to cure crop and animal disease when it occurs, to avert pests and storms, to affect the offspring of animals and the produce of trees and vines, to protect the harvest once it is gathered, to avoid weeds, kill bugs, and generally to smooth the farmer's troubles through the year—the list is long, especially once natural magic is taken into consideration. The agronomists show a marked preference for natural magic, and things found described as overt magic by other authors or in other contexts are sometimes found in the agricultural works as de-ritualized, straightforward technical activity, without any discussion of them as magic at all, while cultic solutions are sometimes present, sometimes shunted into other works as outside the bounds of the manual's topic. Magic is embarrassing; magic is dangerous; and what overt magic the agronomists include is almost always marked by expressions of doubt or scorn. Natural magic—the working of sympathies and antipathies in nature, mostly—has some obvious attractions for them; natural magic remedies can be construed as entirely natural, non-magic, which avoids thorny philosophical, social, and legal pitfalls. Although the

agronomists clearly find many traditional practices useful, and know that others consider them magical, they prefer to ignore that interpretation. This is one reason why their protests about overt magic are, on occasion, strident; they wish to make it clear what their stance on such matters is, and to render their natural remedies more respectable by contrast. This begs the question of why they mention overt magic at all, if they are uncomfortable with the topic. For one thing, the line between natural and overt magic is blurry; Pliny, after mentioning a spell for producing rain which he attributes to Democritus, declines to repeat more of Democritus' advice on the grounds that it is sorcerous, but it is hard to see how whatever he does not record would be less open to charges of magic than burning a chameleon's head on oak-wood to cause a storm (28.115-118). Given that the agronomists are clearly aware of how these things could be interpreted as magic, they may bring up the issue of overt magic specifically to distance themselves from it, *especially* given the blurriness of the line. But we might also wonder whether the agronomists protest too much. Do they actually reject the overt magic which they disparage? Their comments are ambivalent as often as actively hostile, and despite the distancing "some say" (and similar) with which they may introduce such material, they still transmit it, sometimes in a fair amount of detail. Columella, for example, repeats a remedy for sick sheep which he attributes to Bolus of Mendes; one diseased animal is buried upside-down at the entrance to the pen and the others are driven over it to remove the sickness, which is drawn into the buried animal (7.5.17). This charm described fully enough for the farmer to use it, if desired. Programmatic statements in the agronomists are frequently untrustworthy in any case. Varro is particularly notable for the lack of connection between what he professes in rhetorical set-pieces and the actual

contents of his book; the second book of the *De re rustica*, for example, is prefaced with a condemnation of stock-raising on moral grounds—but then proceeds to discuss large-scale stock raising. The fact that the agronomists pose themselves as above such dubious matters as spoken charms for crops does not necessarily mean that they do not suggest using such things. After all, magic was problematic not because it did not work, but because it *was* presumed to work, in ways that made people uneasy. Theoretical disrepute was not necessarily a bar to usefulness.

Such programmatic statements are a guide to how the agronomists wish to position themselves, what their personae as teachers are meant to be. They wish to be thrifty, respectable upper-class landowners; they invoke family farms and traditional mores of self-sufficiency and the personal attention of the owner, whatever their estates were actually like. They do not want to be mages.Yet, here too, there are suggestions that the protestations and the reality are not entirely alike; while avoiding explicit discussion of magic, for the most part, they sometimes evoke aspects of the mage's reputation. Although they insist that their knowledge is scientific, they claim to have special ritual knowledge, and many of the topics they discuss, like weather signs, can be construed as magical knowledge. They are technical writers relying on scientific ideas, but they are also *patresfamiliae* and philosophers, and boast a share of the reserved knowledge that accrues to such people. This knowledge is both secret and open; they encourage their aristocratic audience to partake, but also say that their slaves and other uneducated audience members can never join them in fully understanding it.

This persona of the thrifty farmer is in some measure an artifact of the genre (and particularly the early influence of Cato, the very crustiest of old Roman farmers). Upper-

class disdain for magic was not inevitable, but was dictated in part by the expectations of the genre and of the persona. While these expectations arose partly because of the real concerns and interests of those writing in the genre and the social constraints placed on them, genre-expectations can have a startlingly dramatic effect on discussions of magic. Columella, whose work, although mostly in prose, includes one book in hexameters, provides a nice case study on the warping effect of genre.

The tenth book of Columella's *De re rustica* is unique among the early agronomists in that it is in verse;[79] it is, in fact, an imitation of Vergil, whose *Georgics*, Columella says, left the theme of garden plants for future poets.[80] Even without the garden plants which it mentions as having strange or medicinal properties (such as aphrodisiacs), this book contains a great deal of magical material, most of it charms meant to protect against garden pests, disease, or bad weather. Many of these charms he attributes to famous sages and magicians. Columella's farmer has now entered the realm of mythological poetry. In this world, in which the gods intervene directly in human affairs, Columella's usual mundane authorities cannot help; instead of Xenophon or Mago with their farming experience, he now calls on the expertise of people like the Etruscan seer Tages, the general Tarchon[81] and the seer Melampus. One of the charms he spends longer over (thirteen lines, as opposed to the two to three lines that the other magical remedies in this section each receive) is a charm to kill caterpillars in the garden. A menstruating girl is led three times around the garden's borders, following which the caterpillars are supposed to curl up and fall from the plants, dead. This charm is known

[79] Palladius, much later, wrote his fourteenth book in verse in imitation of Columella.
[80] This excursion into agricultural verse has not done Columella's reputation any good; the general opinion is that he suffers through his own comparison to Vergil.
[81] Tarchon, who appears in the Aeneid (8.122ff.), brings home the fact that we are not only in the mythological world of hexameter verse, but a particularly Vergilian version of it.

from other sources. Pliny repeats it (28.78) and implies that this is customary in many places. He says that he knows of it from several sources, of which he only cites Metrodorus of Scepsis by name. More importantly, Columella himself repeats the advice in the next book of his work. The difference between the versions he gives in the poetic book and in the prose one are noteworthy.

> At si nulla valet medicina repellere pestem,
> Dardaniae veniunt artes nudataque plantas
> femina, quae iustis tum demum operata iuvencae
> legibus obsceno manat pudibunda cruore,
> sed resoluta sinus, resoluto maesta capillo,
> ter circum areolas et saepem ducitur horti.
> Quem cum lustravit gradiens, mirabile visu,
> non aliter quam decussa pluit arbore nimbus
> vel teretis mali vel tectae cortice glandis,
> volvitur in terram distorto corpore campe.
> Sic quondam magicis sopitum cantibus anguem
> vellere Phrixeo delapsum vidit Iolcos. (10.357-68)
>
> But if no medicine is able to repel the pest, let the Dardanian arts be called on, and a girl who, following the regular laws of a maiden for the first time, drips with obscene blood and is ashamed, barefoot, with her clothing loosened, her hair let down, downcast, let her be let three times around the beds and garden hedge. When she has processed around, a marvelous sight; like when a tree is shaken and a storm of round apples or acorns covered in shell rains down, so they roll to the ground with their bodies twisted. So Jason once saw the serpent, lulled by magic spells, roll fallen from Phrixus' fleece.

> Sed Democritus in eo libro, qui Graece inscribitur *Peri Antipathon*, adfirmat has ipsas bestiolas enecari, si mulier, quae in menstruis est, solutis crinibus et nudo pede unamquamque aream ter circumeat; post hoc enim decidere omnes vermiculos et ita emori. (11.64)
>
> But Democritus, in the book called *On Antipathies* in Greek, says that these little animals [caterpillars] are killed if a woman who is menstruating walks around each space three times with her hair loose and her feet bare; afterwards all the vermin fall off and die.

In Book 10, Columella describes the caterpillar charm as a "Dardanian art" (*Dardaniae veniant artes*, 10.358). The description is problematic. Dardanus was

evidently a Phoenician magician of some note; Pliny and Apuleius both mention him, and Pliny at least attributes Democritus' magical knowledge to his discovery of Dardanus' books. On the other hand, Columella has mostly confined himself to fairly well-known sages from Italian and Greek tradition so far. Dardanus the magician seems a rather esoteric citation in this context, and it is hard to escape the feeling that he has chosen the adjective because of Vergil's frequent use of it as a synonym for Trojan (from the better known Dardanus, the founder of Troy). Whatever the connotations, the end of the passage makes it clear that we are still in the world of epic and myth, through the comparison of this common charm to Medea's magic art. Columella suggests that this charm is more like her magic songs than the *medicina* he has just offered, which are all physical solutions applied to the seed before sowing to repel pests, and he offers these Medean remedies as a more powerful solution to try when *medicina* fail. The comparison retrospectively polarizes the term *medicina* as something distinct from magic songs; a physical remedy more a part of natural magic than spoken magic. The inclusion of the comparison may even hint at a real spoken charm which invoked the analogy of Medea's mastery of the serpent. Such a rhetorical structure is common in attested charms.

In Book 11, by contrast, he attributes the spell to the more ambiguous figure of Democritus. Democritus, although tradition made him a magician and attributed to him a number of dubiously authentic works, like the *On Antipathies* which Columella mentions, was of course also an important natural philosopher. Pliny endeavors to connect Democritus and Dardanus in his history of magic (30.9), and condemns Democritus' magical writings, but notes that those of his contemporaries who wanted to claim Democritus strictly as a philosopher. The true opinions of Democritus on magic are

disputable, but in the early Empire he could be claimed by practitioners of either philosophy or magic. In his poetic book, Columella attributes a spell to a famous mage with a conveniently Vergilian name and no known ties to natural philosophy, and he puts it in the context of an epic heroine's magic songs. In the prose book, he ascribes the same spell to a philosopher whose writings (real and falsely attributed) were a part of the tradition of philosophy which invented natural magic. His citation of the book *On Antipathies* would suggest that Democritus, and Columella, think the charm works through a natural antipathy of the caterpillars to the menstrual blood. Pliny, although he knows Columella's work and cites it elsewhere, does not cite him in his own description of the caterpillar charm, or acknowledge the Democritean source (and certainly not Dardanus), although his description of the powers of menstrual blood seems to envision a natural potency very similar to the rationale Columella says he found in Democritus. He does mention that there are many "wild stories" about its powers, but contents himself with citing more respectable authors like Metrodorus, whose works were on safe topics like gymnastics and foreign customs. Columella's Medean version seems to have been too wild a tale for him. The caterpillar charm is thus a nice example of how the same magic could be construed as part of different types of magic, and how one author's view of it could change radically from one book to the next.

Conclusion

This study, in the end, has little to do with the ways in which self-professed magicians approach ritual and magic. Instead, it focuses on the agronomists, who do not want to be seen as magicians, and who tend to elide or remove overtly magical elements from the practices which they record. However, the extensive discussion of magic by

authors who find it useful and yet wish to avoid the topic entirely brings some fascinating tensions to light; the agronomists demonstrate the effects of genre on descriptions of magic, the way magical practices are made sufficiently respectable to repeat in public, and how overt, cultic, and natural magic share actions and rationales under their surface differences.

Although the agronomists will lie at the heart of this study, I will endeavor to fill out the picture of agricultural magic with evidence from sources informed by different scholarly and popular stances towards the working of magic. A great many authors mention agricultural magic—poets like Tibullus and Vergil who find rural festivals picturesque; natural historians like Aelian and Theophrastus; the law codes, which mention both hostile and helpful magic in the countryside; philosophers like Seneca; comic writers like Apuleius; Christians hostile to pagan magical traditions; surviving amulets and tablets; and medical and veterinary writers are among the sources casting light on the topic. Anyone concerned with rural life assumed the presence of magic in Roman agriculture, no matter what their feelings about it were.

CHAPTER II

Weather Magic

Introduction

The weather, one of the most crucial factors in the ancient farmer's year, was also the least controllable. Although farmers could maximize their chances for a harvest through careful observation of seasonal changes and knowledge of the best time to plant, prune, and carry out other farm tasks, agriculture was still a chancy business; Hesiod already comments on the difficulty of knowing when the fall rains will start, and includes a number of remarks on means of observing changes in the seasons and weather. The Latin farm manuals devoted an increasing amount of space to weather observation and farmer's calendars as the genre developed; while Cato says little directly about the annual cycle, Columella devotes most of a book to a farmer's calendar which sets out the agricultural tasks for the year half a month at a time, with astronomical observations and comments on what weather to expect for each period. By the fourth century, Palladius' entire book is arranged as a calendar. Meteorology was not only of interest to technical writers: the popularity of Aratus' poem on astronomy and weather signs demonstrates the broad appeal of the subject. A stock of popular weather knowledge fueled philosophical investigations, and public calendars and other meteorological tools included comments on the stars, seasons and weather.[82] Long-term predictions, which allowed seasonal planning, were especially desirable, but short-term prediction of the weather for the next few hours or days was also valued.

[82] On Greek and Roman calendars which included weather information, see Taub (2002) , *passim*, but especially 15-69. Roman stone wind roses: Taub (2002) 107, 149, 179.

Some ancient authors would see weather observation and prediction as a purely scientific endeavor. Epicurus, for one, thought that superstition could be eradicated by educating people about the natural causes of meteorological phenomena, and that the gods had nothing to do with the matter.[83] But this was always a minority opinion. More common was the belief that the weather was directly influenced by gods, who gave signs of coming weather, or that a natural sympathy between the elements of the universe, caused by a divine spirit imbuing the cosmos, made prediction possible. In this context, reading weather signs could be understood as a type of divination.

Predicting—and thus being able to plan for—the weather was one recourse for farmers. However, Romans did not necessarily feel that they were helpless in the face of natural forces. Rituals to change the weather were common, from public and private prayers for rain to charms to avert hail or lightening. Magicians—some of whom, like Empedocles, were also natural philosophers—claimed control over the weather; the same powers turned to malicious ends were ascribed to sorcerers and witches. Skeptics derided it and some agricultural manuals display embarrassment about the matter, but weather magic was so common a phenomenon that the *Digest* of Justinian recognizes it as a distinct category which should be exempted from general prohibitions on magic because it is a useful aid to mankind. Ancient traditions of weather magic continue, albeit with different rationalizations, into the Middle Ages.[84]

Weather Prediction and Divination

Weather prediction in antiquity relied on observation of the natural world, especially the stars; but also the clouds, wind, sun and moon, optical phenomena like

[83] *Letter to Pythocles* (=Diogenes Laertius 10.25).
[84] On medieval weather magic, see Kieckhefer (1989) .

rainbows, plants, animals, and household objects. It was a common endeavor, but not a philosophically straightforward affair, since it was a claim to foreknowledge. Forecasting could be considered a type of divination—many forms of which also involved watching the same stars, birds, and other natural phenomena used in weather prediction—or at least something akin to it, and people who could predict the weather were sometimes believed to display divinatory or quasi-magical powers, and tend to be assimilated to magicians in the literature. At the same time, mythical figures associated with control of the weather, like Aeolus, were rationalized as keen weather observers by those wanting a naturalistic explanation for their magical abilities.[85] To confuse matters further, the weather could itself be considered a sign of other events (and sometimes quite an elaborate one, to judge from Nigidius Figulus' calendar of portents from thunder). Reading the weather was always bound up with other means of foreknowledge.

Astrometeorological Predictions and Astrology

Astronomical knowledge was the hub of a complex of separate timekeeping and predictive systems, all of which shared a reliance on star observation and a sentiment that astronomical regularity must be matched by predictable events on earth. Long-term weather prediction from astronomical observation was thought to be possible, even highly accurate.[86] Some theorists believed that the stars actively influenced the weather; others that the stars were uniquely able to foretell it due to their own observation post in the sky, from which they could see changes in the weather approaching; others denied any connection. While some of the agronomists believe that celestial bodies make

[85] Aeolus: Diodorus Siculus, *The Library of History* 5.7.5-7; Pliny 3.94; Strabo, *Geography***:** 1.2.15, 6.2.10.
[86] Short-term predictions were also made by observing stars and celestial phenomena, but these are best considered with other short-term weather signs. See McCartney (1926a); (1926b) .

themselves felt on earth, for the most part, they are of the opinion that the effects are not regular enough to provide more than general guidance to the farmer. Despite recommending personal observation and common sense to those who will be using their manuals in the field, they also include calendrical information and digressions on meteorological theory addressed to another, elite, audience. Later handbooks conflate these farmers' calendars with calendrical astrological predictions.

The simplest form of astronomical weather prediction made use of the fact that the stars were a reliable time marker and guide to the changing seasons, and thus the setting of stars and the rising of new constellations could be roughly correlated to changing weather throughout the seasons. Stars were used from an early period as indications of when in the year certain kinds of weather could be expected to begin, and thus when to start certain tasks. The almanac section of Hesiod's *Works and Days* lists a number of these seasonal markers. This correlation of stars, weather information, and farm tasks (plus often the dates of civic calendars) makes up the most basic elements of the farmers' calendars which are found throughout antiquity, including the Greek *parapegmata*, Roman *fasti* and more narrative almanacs such as Hesiod's.[87] These farmers' calendars were a well-established form in Greece from at least the 3rd century BC on, but only achieved popularity in Rome with the general late Republican and Augustan surge of interest in public *fasti*.[88] There are some indications that Cato has a general familiarity with farmers' calendars correlating seasonal markers and farm tasks. Parts of the *De agricultura* roughly follow a seasonal progression, and Cato refers once

[87] See Taub (2002) 15-69 and Lehoux (2007) for recent surveys of the tradition of ancient almanacs and calendars containing comments on the weather.
[88] On the sudden interest in calendrical inscriptions, see Beard (1987); Gordon (1990); Scheid (1992); Wallace-Hadrill (1987) .

to the winter solstice (17.1) as the time to cut wood, but most of the dates he gives for tasks are extremely general ("in summer"; "at the right time"), and he makes no effort to use civic calendar dates, which only appear in his sample contracts.[89] Varro, by contrast, shows a great deal of interest in farmers' calendars, and offers three different ways for a farmer to divide time: a solar year with eight divisions, a lunar year with six, and a six-fold way of dividing the year according to the stage of work (1.27-37). The solar year uses the risings and settings of stars, winds, and the solstices and equinoxes to mark out its time periods, with comments on the number of days in each season and the zodiac sign and calendar date at the beginning of each period. An explanation of the work for each period follows, with occasional digressions into etymology. This calendar is an expanded, literary version of the sort of inscribed *fasti* and the so-called *menologia rustica* which were enthusiastically set up during this period.[90] Other literary expansions of and commentaries on *fasti* are known; Varro's calendar can be likened to Verrius Flaccus' slightly later calendrical commentary, an abridged version of which was inscribed and set up in his home town of Praeneste. Verrius was working in a Greek tradition of literary *parapegmata* going back at least to the third century BC.[91] While Verrius' literary commentary on the calendar is lost while the inscribed version remains, in Varro's case we have the literary version but not the abridged one set up for reference. Varro is clear that he intended the calendar in the *De re rustica* to be placed somewhere visible; he advises (1.36) posting it in the villa for the use of the slaves, especially the *vilicus*. He surely intends this posted version to be less detailed than the one in his book, as it is hard

[89] On the roughly calendrical portions of Cato, see Dalby (1998) 19-20.
[90] On the menologia, Broughton (1936); Taub (2002) 173-6.
[91] Fasti Praenestini: Inscr. Ital. 13.2 107ff. See also Suetonius, *De Grammaticis* 17, on Verrius Flaccus' calendar and commentary.

to see what use, much less daily need, the *vilicus* would have for his digressions on topics like etymology. Varro also explicitly refers to the Julian calendar, which was still a relatively recent innovation in 37 BC when he wrote the *De re rustica*. The interest which it spurred in calendars among the late Republican and Augustan literary elite is an intellectual fad which Varro seems to capitalize on, and thereafter, calendars with weather information were a normal inclusion in agricultural handbooks. Columella devotes most of a book to the subject (11.1.31-11.2.97), which he addresses, like Varro, to the *vilicus* (the calendar is embedded within his explanation of the *vilicus*' duties). Columella divides the year into half-months by calendar date, and in his section on each half-month he makes detailed comments on astronomical events and the weather to expect as well as what work should be done. His calendar is longer than Varro's, but less digressive. Pliny (18.220-320) uses the same eightfold division of the year as Varro and makes, like Columella, comments on the astronomical events and farm work of each period. Although he does not discuss the accompanying weather, he prefaces the calendar with general comments on astronomical and meteorological theory, and follows it with a discussion of weather prediction by other means; the influence of *fasti* with meteorological information appears to link weather prediction closely to the calendar in his mind. Unlike the other calendars, Pliny sometimes offers several different opinions about when to commence certain operations, quoting various authorities. He emphasizes throughout the need to observe nature carefully and adapt the advice one receives to one's own location and to the variation in weather from year to year. Columella and Pliny are quite explicit that a rustic audience of slaves and farmers will neither be able to understand nor have a use for much of the astronomical information they offer; as with

Varro's expanded literary *fasti*, the elite audience reading their books is offered a theoretical background on the subject which goes beyond practical need. Columella, in fact, suggests that astronomical knowledge can be actively harmful if taken too strictly as a guide; weather does not follow the neat regimen which theorists predict (11.1.32-33). He associates these experts, moreover, with astrologers (*chaldaei*; on whom, see below). Whereas Cato's comments on the annual cycle seem to be wholly practical, his successors treat calendrical knowledge as both practical and as a type of prestigious and decorative knowledge; calendars have by Columella's day become one of the set pieces of the genre, and the similarity to astrology which this type of weather prediction from the arrangement of the heavens was felt to have is clear. By late antiquity, the calendrical format which earlier agronomists had used for small portions of their works has taken on a life of its own; Palladius' entire work after the introductory first book is in the form of an extended farmer's calendar, with books corresponding to months. The *Geoponics* devotes only its third book to a farmer's calendar, dividing it, like Palladius, by calendar months, but the rest of the work also contains a great deal of miscellaneous information on astronomy and the right dates for tasks throughout, much of it interspersed with astrological calendars.

The stars were thought not just to indicate the weather, but to cause or influence it themselves.[92] Some people believed that the stars' effect on the weather was so strong, and the stars themselves so regular, that the exact weather could be known in advance for each day of the year. Columella (11.1.32-33) scoffs at these theories:

> Contra quam observationem multis argumentationibus disseruisse me non infitior in iis libris, quos adversus astrologos conposueram. Sed illis disputationibus exigebatur id, quod inprobissime chaldaei pollicentur, ut certis quasi terminis ita

[92] Taub (2002) 37-8.

> diebus statis aeris mutationes respondeant. In hac autem ruris disciplina non desideratur eiusmodi scrupulositas, sed quod dicitur pingui Minerva quamvis utile continget vilico tempestatis futurae praesagium, si persuasum habuerit, modo ante, modo post, interdum etiam stato die orientis vel occidentis conpetere vim sideris. Nam satis providus erit, cui licebit ante multos dies cavere suspecta tempora.
>
> Against this observation [that an almanac with weather information will be useful to the farmer] I do not deny that I have disputed with many arguments in the books which I wrote against the astrologers. But those disputes concerned what the chaldaeans wickedly promise: that changes in the air coincide with fixed dates, as if with boundaries; but in our science of agriculture such scrupulousness is not desirable, but forecasting the coming weather by "fat Minerva", as they say, will be as useful as you can desire to a vilicus, if he has persuaded himself that the influence of a star corresponds to sometimes before, sometimes after, and sometimes to the actual day established for its rising or setting. For he will be vigilant enough if he is able to take measures against suspected weather many days beforehand.

Columella does not deny that the stars affect the weather; merely the idea that the effect is precise enough to be useful in making daily weather predictions in practice. Pliny expresses similar doubts, pointing out that the effect of the stars may be complicated by the sun and moon, constellations too minor to bother listing, and even by the weather they created in the first place; plus their effect reaches different regions at different speeds (18.207-210). His final verdict seems to be that the stars are interesting to astronomical theorists but cannot make useful day-to-day predictions: *sed et in his et in aliis omnibus ex eventu significationum intellegi sidera debebunt, non ad dies utique praefinitos expectari tempestatum vadimonia*; "But in this case [weather around the winter solstice], as in all others, the significance of the stars should only be understood from the outcome, and changes in the weather should not be expected on predetermined days (18.231)."

That Columella and Pliny both feel it necessary to express scorn over such opinions suggests that the subject was of lively interest. Certainly, despite skepticism,

efforts to refine astronomical calculations to the point that they could account for all variations in the weather continued. Vegetius and Pliny preserve some of the Greek technical terminology used to describe weather that was later or earlier than the date which astronomical forecasters predicted for it.[93] Pliny goes on to list the things which made this modification necessary: the influence of the stars reaches different places at different rates, and hail and rain and meteors affect the atmosphere, so that the weather which might be expected from the stars for certain days does not actually occur. Pliny's catalogue of things which could complicate the effect of the stars is still only a sample of the factors which were taken into account, including multi-annual astronomical cycles (Meton's Great Cycle being the most famous) and the houses of the zodiac the sun and moon were passing through.[94] On the theoretical level, astrometeorology and astrology were increasingly intertwined. While Columella and Pliny can be seen trying to distinguish between them, by the time of the *Geoponics* they are mixed together uncritically. From a fairly simple belief that the stars bring weather, which can be expressed either as an *association* of certain constellations with the weather of the season when they are prominent, or as a belief that they *cause* this weather, it becomes a very complicated calculation of the various astrological factors affecting the weather, crops, animals, individual fates and political events on a given day.

Despite his skepticism, Columella does give weather predictions for several days out of each of his periods, based on the state of the heavens. For the period beginning May 1st, he claims that (11.2.39):

[93] Pliny, 18.207-8; Vegetius, *Epitome of Military Science* 4.38-41.
[94] *Geoponics* 1.12 discusses a 12-year astronomical cycle. The Italian *menologia rustica* correlate weather with the time of year expressed by signs of the zodiac.

> Kal. Maiis, hoc biduo sol unam dicitur tenere particulam, Sucula cum sole exoritur. VI Non. Mai. Septentrionales venti. V Non. Mai. Centaurus totus apparet, tempestatem significat. III Non. Mai. Idem sidus pluviam significat. Pridie Non. Mai. Nepa medius occidit, tempestatem significat. Non. Mai. Vergiliae exoriuntur mane, Favonius. VII Id. Mai. Aestatis initium, Favonius aut Corus, interdum et pluviae. VI Id. Mai. Vergiliae totae apparent, Favonius aut Corus, interdum et pluviae. III Id. Mai. Fidis mane oritur, significat tempestatem.
>
> May 1st: The sun is said to keep for this and the next day in the same degree of the ecliptic; the Hyades rise with the sun. May 2nd: North winds. May 3rd: The Centaur rises completely; it signifies a storm. May 5th: The same constellation signifies rain. May 6th: The middle of the Scorpion sets; it signifies a storm. May 7th: The Pleiades rise in the morning; west winds. May 9th: The beginning of summer; west or north-west winds; sometimes there is also rain. May 10th: The Pleiades rise completely; west or north-west winds; sometimes there is also rain. May 13th: The Lyre rises in the morning; it signifies a storm.

How are we meant to take this? Although in some cases Columella suggests minor variations on the expected weather, most of his forecasts seem like firm predictions. Perhaps this is the ideal weather, which in the real world may be modulated by other factors, arriving earlier or later than the dates given. Still, the dichotomy between Columella's stated position on the reliability of such calendars makes the calendar he actually gives seem like an abrupt about-face. Columella's objection to weather prediction from stars is practical—such prediction is not useful in the field. However, this information is perhaps not meant to be useful, so much as *interesting*, in the way that Varro's digressions on etymology were meant to interest the elite audience reading his book, while being invisible to or ignored by the slaves on the farm. Although Columella is clear that he intends the vilicus to read his book, not merely an abridged calendar posted on the villa, perhaps the vilicus is meant to disregard these theoretical predictions aimed at an audience aware of the literary tradition of *fasti* and astronomical writing. The

agronomists' gestures towards literary appeal are usually cloaked in practicality, but they are quite aware of what their audience may consider picturesque or interesting.[95]

With astrometeorology, we encounter the first common conflation of weather prediction with divination. Observing the stars to predict the weather was not much distinguished from observing the stars to predict human fates. Seneca says that anything which foretells the future is a "star":[96]

> Aristoteles ait cometas significare tempestatem et uentorum intemperantiam atque imbrium. Quid ergo? Non iudicas sidus esse quod futura denuntiat? Non enim sic hoc tempestatis signum est quomodo futurae pluuiae "scintillare oleum et putres concrescere fungos," aut quomodo indicium est saeuituri maris, si "marinae in sicco ludunt fulicae notasque paludes/ deserit atque altam supra uolat ardea nubem," sed sic quomodo aequinoctium in calorem frigusque flectentis anni, quomodo illa quae Chaldaei canunt, quid stella nascentibus triste laetumue constituat.
>
> Aristotle says that comets indicate a storm and much wind and rain. So what? Do you not judge that what predicts the future is a *sidus*? For this is not a sign of storm in the same way that there is a sign of coming rain when "The oil sparks and a crumbly growth gathers on the wick", or in the same way that it is a prediction of a rough sea if "the sea birds play on dry land, and the heron leaves its familiar marsh and flies above the high cloud", but as the equinox is a sign of the year turning to hot or to cold, or in the same way as the things the Chaldeans predict, the sorrow or happiness which stars establish at birth.

Although Seneca distinguishes between the short-term predictions he quotes from Vergil and long-term predictions from stars,[97] his conflation of long-term weather predictions from celestial phenomena with horoscopes is telling. His citation of the "Chaldeans" casts an interesting light on Columella's use of the same term for the astronomical theorists he felt driven to correct in his book against the astrologers. The term *chaldaeus*, much like *magus*, can be taken as either an ethnographic allusion to respected Near

[95] On the issue of the audience, see further below.
[96] Seneca *Natural Questions* 7.28.
[97] The discussion of comets as stars is standard in antiquity. The meaning of *sidus* is notoriously vague.

Eastern practitioners or as a usually pejorative term for magico-religious practitioners.[98] While Seneca discusses the Chaldeans' more usual niche as astrologers, Columella considers people with astrometeorological theories part of the same group of specialists.[99] Diodorus Siculus similarly refers to Egyptian expertise in astrology, turned to meteorological ends.[100] People who understand astrometeorology are said to know astrology and vice versa; because astronomical weather prediction and astrology are linked, farmers' calendars and astrological predictions arranged in calendars are easy to conflate.

There was a popular tendency to combine farmers' calendars, astrological systems, and other calendrical predictive systems like thunder calendars.[101] The *Geoponics* preserves several calendars which link star risings, the houses of the zodiac, and various predictions for humans. One gives a set of political, economic, and meteorological predictions depending on what house of the zodiac the sun is in when Sirius rises; for example, if the sun is in Virgo at Sirius' rising, there will be plenty of rain, general rejoicing, women giving birth will be likely to die, and slaves and quadrupeds will be cheap.[102] A second calendar (1.10) adds divination from thunder to the mix and makes predictions based on the house the moon is in when the first thunder is heard after the rising of Sirius. The same book of the *Geoponics* adds advice on what house astral bodies should be in for various farm tasks. Diodorus mentions the belief that

[98] On the history of the term *chaldaeus*, see Dickie (2001) 111-2, 155-6.
[99] Sextus Empiricus (*Adversus mathematicos* 5.1) distinguishes the art of Chaldeans from the predictions of astronomers, as does Cicero in the *De Divinatione* (see Taub (2003) 62-3), but both in such a way to imply that this was a difficult distinction to make amid conflicting popular beliefs.
[100] *The Library of History* 1.81.4-6.
[101] This is most obvious in late antique sources like the *Geoponics*, but is already found in Republican almanacs, which had a substantial body of Greek, Egyptian, and other calendars to creatively recombine. See McCartney (1931a); (1931b); (1931c) for more examples of thunder calendars.
[102] *Geoponics* 1.8.

heavenly bodies are especially suited to give signs about anything which takes place in the atmosphere, since they reside there and are particularly attuned to changes in it.[103] This is a line of reasoning which is applied to other things which live in the air, including birds, gods, and other spirits. For Diodorus, the things affected by the atmosphere include both the weather and human fates: "and, in a word, everything which comes from the atmosphere and results in both good things and bad, not only to whole peoples or regions, but also to kings and to private people" (καὶ τὸ σύνολον πάσας τὰς ἐκ τοῦ περιέχοντος γεννωμένας περιστάσεις ὠφελίμους τε καὶ βλαβερὰς οὐ μόνον ἔθνεσιν ἢ τόποις, ἀλλὰ καὶ βασιλεῦσι καὶ τοῖς τυχοῦσιν ἰδιώταις.). Other philosophers found the heavenly situation of stars a way to explain why they felt that astrometeorological prediction worked while astrology did not: celestial bodies possessed a sympathetic connection with the atmosphere and thus the weather, whereas they could find no logical link between stars and people's fates.[104] As Cicero points out, in an argument reminiscent of theories about the effects of climate on character and physical development, it would be more logical to draw conclusions about people's fates from the weather at their birth, which is more likely to exert an influence on the developing child than some intangible effect of the stars (*De divinatione* 2.42-5). However, despite such intellectual efforts to separate them, divinatory and astronomical abilities remained linked.

[103] *The Library of History* 2.30.4-5.
[104] Taub (2002) 63-4

Weather Signs

Another extremely popular form of weather prediction was the observation of weather signs—the behavior of plants, animals, clouds, objects, and irregular celestial phenomena like meteors and rainbows. Weather signs gave short-term predictions of the weather for just the next few days. [105] Weather signs are a common type of folklore worldwide, and the surviving ancient signs are often quite similar to ones found in other countries and periods.[106] Part of the similarity arises because many traditional weather signs do, in fact, work, or have at least a kernel of truth to them; they generally rely on watching sky phenomena for early indications of moving warm and cold air masses, and the reactions of plants, animals, and minerals to changes in humidity, barometric pressure, and other forces which may be imperceptible to humans. To give one example, ancient authors frequently comment on the bee's abilities as a weather prophet, observing that bees will not leave the hive when rain is coming; they will indeed not fly in the increasing wind or humidity before a storm. Likewise, ancient sources record that rings of light around the moon are a sign of rain, although they did not understand the diffraction of light through high-altitude ice crystals on the leading edge of wet fronts.[107] Other popular ancient and modern signs, however, are baseless, with the result that even valid meteorological observations are often dismissed in modern scholarship as pure superstition.

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[105] Eugene McCartney has collected references to weather signs in antiquity in a series of articles; see McCartney (1920a); (1920b); (1921); (1922a); (1923); (1924a); (1924b); (1926a); (1926b); (1928a); (1928b); (1929a); (1929b); (1930a); (1930b); (1930c); (1931a); (1931b); (1931c); (1934a); (1934b); (1934c); (1934d) .

[106] On American and other weather signs, see Lee (1976) . Interest in collecting weather folklore began in the US in 1883 with Dunwoody (1883) , a publication of the then-new Weather Bureau (later the National Weather Service). Other 19th century collections include Denham (1846); Inwards (1898); Swainson (1873) Many of the signs found in these collections are quite similar to ancient examples.

[107] Freier (1992) 47-8; Moran and Morgan (1989) 410-11.

Scattered references to weather signs are found in classical literature already in Homer; Athena, for example, is compared in the *Iliad* to a meteor as a sign of wind:

> οἷον δ' ἀστέρα ἧκε Κρόνου πάϊς ἀγκυλομήτεω
> ἢ ναύτῃσι τέρας ἠὲ στρατῷ εὐρέϊ λαῶν
>
> As when the son of crooked-minded Kronos sends a star
> as a sign for sailors or a broad army of men

There are occasional mentions of them in Greek literature throughout the classical period, including some signs of incipient interest in them among the fragments of the Presocratics, but systematic treatment of weather signs only begins with Peripatetic treatises on meteorology.[108] Other philosophical schools which considered the physical sciences also, probably, produced works on them (much of Seneca's discussion of meteorology, for example, can be traced to Posidonius).[109] Gillespie points out that, despite occasional literary references, weather signs do not seem to have been considered sufficiently interesting or dignified for extended treatment in poetry before Aratus popularized them as a topic with his *Phaenomena*.[110] Aratus' poem caught the attention of the Romans; it was translated by Varro of Atax, Cicero, Ovid, and Germanicus in quick succession, and other authors drew heavily on it, including Vergil in the *Georgics*.[111] Twenty-seven ancient commentaries, Greek and Latin, survive, and Avienus' fourth century translation/expansion of the *Phaenomena* demonstrates the continuing popularity of the work.[112] Varro is the earliest Latin author said to have

[108] See Gillespie (1938); Taub (2003) on the weather signs in the classical period.
[109] Taub (2003) 142 and 222 n. 65 .
[110] Gillespie (1938) 8.
[111] Ovid also parodied the topic in the *Ars* 1.399-412, where he claims that signs are not just for farmers and sailors, but lovers as well, and lists signs they should watch for. Vergil's use of Aratus is heavily mediated by Varro of Atax's translation; see Gillespie 43-57. Other notable Latin catalogues of weather signs are Lucan, *Pharsalia* 5.540-76, and Ovid's many references throughout the *Fasti*.
[112] On the commentaries on Aratus, see Toohey (1996) 1. See Taub (2003) 47 on Aratus and his translators and commentators; the commentaries are collected by Maass . See also Gillespie (1938) passim.

discussed weather signs in prose.[113] Roman and later Greek natural philosophers treat them sporadically—Seneca mentions some in his *Natural Questions* and Aelian talks about signs from animals occasionally in his *On Animals*. Pliny gives a catalogue of weather signs in Book 18, the part of the *Natural History* which is closest to the standalone agricultural treatises, and signals the increasing interest of the Roman agronomists in weather prediction, especially predictions made from astronomical observations. Pliny, like Vergil, segues from a discussion of farming to weather signs as a useful aid to the farmer. The earlier agronomists discuss mostly long-range astronomical weather signs, a rather different practice from predictions from animals, plants, and other short-term signs, but they are clearly interested in weather prediction. In this, they are drawing on a tradition of Latin *fasti* which, like the *parapegmata*, give astronomical and meteorological information for certain dates. The late agronomists import catalogues of signs into their treatises.[114]

As with star observation and weather prediction, there is much overlap between weather signs and other forms of foreknowledge. In the *De Divinatione* (1.7-8) Cicero makes his brother Quintus comment (quoting Cicero's own poem on signs):

> "Age ea, quae quamquam ex alio genere sunt, tamen divinationi sunt similiora, videamus: 'Atque etiam ventos praemonstrat saepe futuros/ inflatum mare, cum subito penitusque tumescit,/ saxaque cana salis niveo spumata liquore/ tristificas certant Neptuno reddere voces,/ aut densus stridor cum celso e vertice montis/ ortus adaugescit scopulorum saepe repulsus.' Atque his rerum praesensionibus Prognostica tua referta sunt. Quis igitur elicere causas praesensionum potest?"
>
> But come, let us consider instances, which although they are in another category, are however very similar to divination: "And often, the churning sea warns of future winds, when suddenly the depths begin to swell, and the rocks sprayed white with saltwater try to reply in woeful tones to the sea; or when a constant

[113]Vegetius (*Epitome of Military Science* 4.38-41) cites a work, *De ora maritima*, by Varro on weather signs.
[114] The *Geoponics* is explicitly (1.2) indebted to Aratus.

> whistling, starting from a high mountain peak, grows as it is deflected from the cliffs." Your *Prognostics* records such premonitions. Who can tell the cause of premonitions?

Quintus' difficulty in articulating what separates the topics is notable. Weather signs are *like*, but not *precisely*, divination, and they are similar enough to be worth discussing in a debate over divination. How Quintus—articulating the Stoic viewpoint—does distinguish the two is not entirely clear. Cicero, giving the Academic view in the second book of the *De divinatione*, eventually distinguishes weather signs from true divination by saying that although people can predict such events as coming weather, it is a matter of reasonable conjecture, based on the fact that signs are usually, but not always, followed by the same weather. Prediction is a technical skill based on reason and experience, and not, for Cicero's persona in the *De divinatione*, either divinatory or always true. While in other cases people say that divinatory weather prediction fails because the diviner is at fault, in this case even the most skilled forecasters will get it wrong sometimes, because of the fundamental unpredictability of the universe (2.5-6). This does not agree with what he says elsewhere, particularly in *De natura deorum* (cf. 2.12), on the topic of foreknowledge and divination; but it is interesting as an attempt to distinguish weather signs from other types of divination as a scientific, rather than divinatory, *type* of prediction. It makes it possible to retain weather signs as a useful tool, since they usually work, while allowing Cicero's character to reject most sorts of true divination. Usually, rejecting divination means rejecting weather signs as well, as Epicurean denials that weather signs work show. Epicurus' assertion that weather signs work only through coincidence is connected with his denial that a god gives these signs; although he raises the possibility that the air itself produces changes in animals as it itself changes, weather

signs from animals remain coupled with divination and divine signs.[115] It is clear that many others did not share Cicero's painfully articulated dividing line, or even Quintus' inarticulate feeling that there *is* one, and instead regarded weather prediction as a rather ordinary type of divination. Weather signs are commonly described as prophetic, and those who understand them as prophets. Pliny, for example, refers to auguries (*auguria*) from spider webs which predict rain and rising rivers (11.84); and he conflates reading signs from the behavior of animals with the reading of their entrails and with augury (8.102-3). Pliny calls a forecast of rain by Democritus a *vaticinatio*, a prophecy, and says that those who heeded the philosopher were able to save their crops (18.341). Coming at the beginning of Pliny's section on weather signs, the ostensible point of the anecdote is that weather prediction is a useful science for farmers. But Pliny remembered Democritus as a magician as much as a philosopher, and *vaticinatio* is a loaded term, implying not scientific prediction but prophetic foreknowledge.[116] Aelian's comments on animals' predictive abilities made a counterpoint to Cicero's Academic position in the *De divinatione*; he comments that dogs, oxen, pigs, goats, snakes and other animals can predict weather, the fertility of the crops, famine, earthquake, and plague, although they lack reason (6.16). Aelian specifically denies that animals make predictions in the way that Cicero attributes to humans; animals know these things instinctively, through an inborn ability, not by a process of logical inference.

[115] *Letter to Pythocles*= Diogenes Laertius 10.115-16.
[116] For more on this incident, see below. For Pliny's stance on Democritus, see 30.910, part of Pliny's history of magic.

A few examples should demonstrate the general conflation of weather signs with divination. Some of the commonest ancient weather signs are those derived from birds.[117] Birds are fairly good predictors of changing conditions, because they are sensitive to pressure and wind currents: gulls fly inland before a storm, crows and other voluble birds are noisier before rain, and many species stay lower before a storm and fly higher in fair weather. A sample of Pliny's bird signs shows the specificity of the predictions derived from different species and situations (18.362-3):

> …item mergi anatesque pinnas rostro purgantes ventum, ceteraeque aquaticae aves concursantes, grues in mediterranea festinantes, mergi, gaviae maria aut stagna fugientes. grues silentio per sublime volantes serenitatem, sicut noctua in imbre garrula — at sereno tempestatem.
>
> …likewise gulls and ducks grooming their feathers with the beak are a sign of wind, and the rest of the aquatic birds flocking, cranes hurrying inland, gulls and *gaviae* [another sea bird] fleeing the sea or marshes. Cranes flying high in silence are a sign of good weather, as is an owl when it is vocal during rain—but if in clear weather, it signifies storm.

As the stars are said to be attuned to coming weather because they are set in the upper atmosphere, birds inhabit the lower atmosphere and thus know what is happening in it. Pliny says that it should not surprise us that birds notice changes in the atmosphere (18.364).

Birds were also, of course, an extremely common medium of divination. Divination by birds, like weather prediction, involved the observation of their presence and behavior, and bird signs and augury are already well entangled in the scattered Greek references to them before Aratus. In Aristophanes' *Birds*, the chorus claims that they are more helpful than Zeus, since they do not hold themselves aloof in the sky but are close

[117] This is equally true of American weather lore. For bird signs, see e.g. Aratus 913-1154; *De signis* 15-19, 28, 39-40, 47, 52-3; Vergil, *Georgics* 1.383-89, 401-23; Pliny 18.362-63; Aelian 3.13-14, 4.60, 7.7-8; McCartney (1920a); (1920b) .

at hand to give signs (693-736), and they conflate weather signs with the portents they give regarding the changing of the seasons and when to carry out farm tasks, business ventures, marriages and similar undertakings. No one, they say, takes action without consulting the birds, and people call any ominous utterance or happening—sneezes, unexpected meetings, sounds—a "bird", much as Seneca says that anything giving an omen is a "star". They compare themselves to oracles and prophetic gods. Apollonius in the *Argonautica* makes a halcyon sing over Jason while he sleeps, prophesying (*θεσπίζουσα*) the end of a storm. Although sailors are frequently credited with the ability to read weather signs, from among all the Argonauts it is the diviner Mopsus, who prophesies from birds elsewhere in the poem, who explains to Jason what the halcyon signifies.[118] The importance of augury to the Romans probably contributed to the popularity of bird signs. Similarly, Horace mentions a crow as both a rain bird and an unlucky omen, and suggests that as an augur he is especially suited to understand the sign either way; and Aelian (1.47-8) connects the croaking of ravens in dry spells with their mythological association with Apollo and their importance in divination. [119]

Birds and other animals are sometimes cast as prophets themselves because they give signs; the fact that their behavior changes predictably with the weather is explained as them consciously or unconsciously foretelling it for their own benefit. Pliny comments that nature has granted animals the ability to watch the sky and *praesagia*, foreknowledge

[118] Apollonius, *Argonautica* 1.1078-1102. Farmers and sailors are the two types of people most often said to watch the weather. At 3.540-54, Mopsus predicts success for the Argonauts from a dove's escape from a hawk, and at 3.927-46 he understands the speech of a crow warning him to let Jason go on alone.
[119] *Odes* 3.27.1-24. The bird is unlucky partly *because* it is a rain bird, and Horace is addressing a traveler starting out, who will not want a soaking; but crows are unlucky birds in contexts without weather connotations as well.

(8.102).[120] Aratus says that mice *μαντεύονται*, prophesy, when they give weather signs (1137). Aelian says that bees behave *μαντικῶς*, so that they know when rain or frost is coming and stay in their hives (1.11). Omens from animals are more frequently said to be sent by gods who provoke significant behavior in the animals as signs to humans, but the alternate construction of animals as possessors of secret knowledge which humans do not have is in keeping with the tendency (of natural history writers especially) to describe animals as members of communities, with social and ritual knowledge of their own.

One further explanation which ancient theorists offered for animal signs suggests not that the gods cause their behavior as a sign to humans, nor that animals have developed prophetic skill for their own ends, but that the atmosphere affects the minds of animals, and they thus perceive changes in it directly and instantly know the weather to come. Thus Vergil says of birds that give weather signs (*Georgics* 1.415-22):

> haud equidem credo, quia sit diuinitus illis
> ingenium aut rerum fato prudentia maior;
> uerum ubi tempestas et caeli mobilis umor
> mutauere uias et Iuppiter uuidus Austris
> denset erant quae rara modo, et quae densa relaxat,
> uertuntur species animorum, et pectora motus
> nunc alios, alios dum nubila uentus agebat,
> concipiunt.
>
> Not that I think they have wisdom from on high, or from Fate a larger foreknowledge of things to be; but that when the weather and fitful vapors of the sky have turned their course, and Jupiter, wet with the south winds, thickens what now was rare, and makes rare what now was thick, the phases of their minds change, and their breasts now conceive impulses other than those they felt when the wind was chasing the clouds.

[120] Pliny uses *praesagia* and *praesagio* only of weather signs, mostly from animals (8.102, 133, 157; 9.100; 18.321-64; 37.153), other foreknowledge in animals, including the sacred chickens (8.157, 10.47) and other portents (2.101; 7.72, 86).

Animals would thus seem to be unthinking receptors of changes in the weather. Vergil here explicitly denies that they have prophetic skill. This possibility will be seen again in human philosophers and diviners who claim to have a superior perception of natural changes, which endows them with, among other powers, predictive abilities. However, as we will see in the case of the Presocratics, some construed such an ability to perceive and correctly understand the physical effect which nature had on the mind as prophetic, or at least as a miraculous ability, among humans. Although Vergil here casts the phenomenon of animal reaction to coming weather in a universe in which Zeus, as supreme sky god, takes a personal hand in the weather, animal signs are a side-effect of Zeus' action, not deliberately caused by him. Their rather impersonal operation is, despite the presence of Zeus, closer to Stoic (and, earlier, Presocratic) conceptions of the universe as imbued with a divine spirit which causes the mechanical operation of such phenomena than to a universe in which the gods are traditionally seen as sending signs by such means for human use. In a worldview in which signs operate mechanically, prediction through signs can still be a divinatory skill; but the animals are here part of the equipment rather than the prophets.

Most of the weather signs recorded by our sources involve plants, animals, or things in the sky, but there is a small body of signs from household objects. Of these, signs from lamps are the most common. The anonymous author of the *De signis* uses the quantity, brightness, and shape of the snuff from the lamp wick and the behavior of the flame, sparks, and rays of light from it to predict coming rain, storm, wind, snow, and fair weather. He gives similar signs drawn from a fire, but the lamp is preferred.[121] Aratus'

[121] Lamps: *De signis* 14, 34, 42, 54; fire: 25.

advice coincides.[122] Aristotle, Pliny, and Vergil also give signs from lamps.[123] Modern observers agree that burning materials like lamp-wicks and embers are affected by the atmosphere, especially humidity.[124] But lamps were also used in magic, especially divinatory procedures; lychnomancy is very common in the magical papyri.[125] The object is generally to put the magician in contact with a deity or *daimon* and enable him or her to question them. *PGM* 1.262-347, an "Apollonian invocation", advises the magician to set a lamp on a wolf's head, insert a wick made of linen on which magical names have been written, and sacrifice to it while dressed in ritual clothing and in a state of ritual purity, uttering a hymn to the god. The god will enter the lamp and not leave until the magician dismisses him. During the rite, the papyrus advises the magician to ask the god about anything he wishes and about "everything that is a part of magical knowledge." Other rituals are more or less elaborate, with the most basic being simply an invocation addressed to the lamp or to a deity residing in or contacted through the lamp. An incident in Apuleius' *Metamorphoses* makes it clear that the divinatory and meteorological uses of lamps could be identical. Pamphile is a witch who earlier in the novel has transformed herself into a bird in a ritual involving, among other things, a mysterious address to a lamp. Here she uses a lamp to predict rain:[126]

> …iam vespera lucernam intuens Pamphile "Quam largus" inquit "imber aderit crastino" et percontanti marito qui comperisset istud respondit sibi lucernam praedicere. Quod dictum ipsius Milo risu secutus: "Grandem" inquit "istam lucernam Sibyllam pascimus, quae cuncta caeli negotia et solem ipsum de specula candelabri contuetur." Ad haec ego subiciens: "Sunt" aio "prima huiusce divinationis experimenta; nec mirum, licet modicum igniculum et manibus

[122] Aratus 976-7, 999, 1034-6, 1041-2.
[123] Aristotle, *Meteorology* 347a 20-32; Pliny, 18.357; *Georgics* 1.390-2.
[124] Freier (1992) 63.
[125] E.g., *PGM* IV 1103; V 1-53; VII 348-58; 540-78; XXII 27-31. This is by no means all the examples in the papyri.
[126] *Metamorphoses* 2.11-12.

> humanis laboratum, memorem tamen illius maioris et caelestis ignis velut sui parentis, quid is sit editurus in aetheris vertice divino praesagio et ipsum scire et nobis enuntiare.
>
> …now it was evening, and Pamphile, looking at her lamp, said "What a big storm there will be tomorrow." When her husband asked her how she knew that, she replied that the lamp had predicted it for her. At her comment, Milo interrupted with a laugh, "We are supporting a great Sibyl, that lamp; one who gathers all of heaven's news, and the sun itself from her lookout on her lamp-stand." At this I said, interrupting, "These are my first experiences of this kind of divination. There is nothing amazing about it; your little flame, kindled by human effort, is granted a memory of that greater celestial fire, as if of its parent; thus by divine foreknowledge it is both able to know and to tell us what is going to happen in the reaches of the sky.

Pamphile's husband envisions her questioning a prophetic spirit, a Sibyl, which is in the lamp; he seems to imagine that it lives there permanently and they maintain it as though it were a domestic animal or a member of the *familia*. Pamphile, by contrast, sees the lamp itself as a being to be questioned; Lucius expects it to be able to answer her inquiries through a natural sympathetic connection with the sun. This is one of the most explicit articulations of the idea that things which inhabit the atmosphere, like the sun, are likely to know what weather is coming.

Given the vast diversity in both weather signs and methods of divination in antiquity, it is impossible here to catalogue all of the ways in which they coincide. A few more examples will suffice to show the range of ways in which weather prediction and divination were associated. There is particular overlap between wayfaring signs—good or bad omens for someone starting a journey—and weather signs (bad weather being, after all, an inconvenience for travelers, signs of bad weather could well be considered bad omens).[127] Horace (*Odes* 3.27) gives a list of bad signs for a departing traveler, of which several could also be signs of bad weather: a hooting owl, a wolf near human dwellings, a

[127] On wayfaring signs, see McCartney (1935) .

singing raven, a crow, and the setting of Orion.[128] Sun and moon halos, rainbows, and other optical phenomena often considered portents were used as weather signs; comets and meteors were signs of weather (especially wind) as often as they were clues to human fates. The behavior of animals other than birds was considered predictive of weather as well as portents. Pliny and Aelian's lists of things which animal behavior foretells—plague, the state of the harvest, building collapses, and so on as well as weather—combines them. Pliny (8.102) moves effortlessly between animals as observers, animals as signs for humans through their behavior, and extispicy and augury:

> Milia praeterea, utpote cum plurimis animalibus eadem natura rerum caeli quoque observationem et ventorum, imbrium, tempestatum praesagia alia alio modo dederit, quod persequi inmensum est, aeque scilicet quam reliquam cum singulis hominum societatem. siquidem et pericula praemonent non fibris modo extisque, circa quod magna mortalium portio haeret, sed alia quadam significatione. ruinis inminentibus musculi praemigrant, aranei cum telis primi cadunt. auguria quidem artem fecere apud Romanos et sacerdotum collegium vel maxime sollemne.
>
> There are thousands of points besides, inasmuch as nature has likewise bestowed upon very many animals observation of the sky, and foreknowledge (in one way or another) of wind, rain, and storms, which would be a huge subject to pursue, as much, doubtless, as the rest of the similarities of humans with each species. For they warn of dangers not only by their entrails and organs, which fascinates a large portion of humanity, but also in another way. Mice abandon buildings about to collapse, and spiders together with their webs fall first. Auguries indeed have given rise to a science among the Romans and to a college of priests of the very greatest dignity.

One last important category encompasses lightening and thunder (which are often used interchangeably). Lightening and thunder are only mentioned occasionally as weather signs, but were highly important for divination among the Romans and particularly the Etruscans.[129] Treating lightening and thunder as signs of weather rather than as weather

[128] Animals as weather signs: McCartney (1920a); (1920b); (1935) Orion is frequently said to cause or herald storms; see McCartney (1926a); (1926b) .
[129] On lightening and thunder as signs, see Aratus 933-37; *De signis* 21; Pliny 18.354; McCartney (1931a); (1931b); (1931c) .

which has arrived may seem faintly absurd; but distant thunder and lightening, coupled with wind direction, can be used to gauge whether a storm will reach the observer and how long it will last, which is the gist of the recorded ancient signs. The existing signs take into account factors like which quarter of the sky the lightening occurs in; much of the vocabulary seems to be taken from the language of divination.[130]

The fact that reading weather signs can be assimilated to so many different kinds of divination returns us to the fact that forecasting is not always, itself, seen as precisely a type of divination. It is something akin to it, it may be compared to various divinatory practices, and it is *sometimes* considered part of them, but weather prediction can also be extracted from divination and considered as a body of lore which touches upon it in many places but is nonetheless distinct. It is hard to tell whether this weak and partial distinction between the two was the general view, or an attempt by educated authors to distinguish weather prediction from other methods of telling the future and align it with the sort of deduction from observation championed in natural philosophy or medicine. Quintus's trouble in the *De divinatione* with distinguishing them comes to mind again; he feels there is a difference, but cannot articulate what it is, while others, like Apuleius in the *Metamorphoses*, happily conflate them.

Making it yet harder to distinguish them, the weather itself could be a portent. Records of surprising weather are common, both ordinary phenomena which occurred unexpectedly or unseasonably, and extraordinary phenomena like rains of blood. In the first book of the *Georgics* (1.461-5), Vergil moves seamlessly from his catalogue of signs predicting the weather to a catalogue of prodigies, including portentous weather, warning

[130] Seneca *Natural Questions* 2.31-53 is an extensive discussion of divination from thunder and lightening; see also Pliny 2.113-145.

of the death of Caesar. Minor examples of using the weather as a guide to the future—in this case, to further weather—are found in the agronomists, as when Pliny cites Democritus for the notion that the trend of the weather for the season can be predicted from the weather on the first days of the period (18.231). The *Geoponics* (1.5) gives a set of long-term weather predictions of this sort. Highly developed examples of divination from the weather can be found in, for example, Fonteius Capito's thunder calendar, which correlates the zodiac house of the moon and thunder with predictions, or Nigidius Figulus', which explains what thunder portends on each day of the year.[131] These examples both predict future weather based on these signs but also leave the realm of purely meteorological speculation to make predictions about the state of the crops, politics, and other human affairs.

The diversity of people interested in weather signs—poets, natural philosophers, farmers, diviners, and more—resulted in an equal variety of explanations for how and why weather signs worked. The why—what *caused* signs to work—was a contentious point; a diviner who believed that a sign of rain was, like an unlucky omen, a means by which the gods communicated with mortals was in disagreement with a philosopher who believed that signs came true through impersonal natural laws. Despite the intellectual disagreements, both positions were reasonably orthodox in antiquity. Despite disagreements over what motivated signs, these worldviews shared an internal logic to what signs signified what—the logic of sympathy and antipathy, similarities and differences between signs and what they signified was fundamentally the same no matter whether they were explained by gods, nature, or some in-between position.

[131] Both preserved by Lydus, *De Ostendis.*

The fundamental assumption which holds true across philosophical stances is that a sign will have some connection to what it predicts; usually that it resembles or imitates the coming weather, as when the noises certain birds make before rain are compared to the sound of the rain itself to explain why the one should be a sign of the other. Aratus calls it a sign of rain if chickens make a sound like drumming rain drops, or ravens imitate rain with their voice or the sound of their wings. The *De signis* refers to a number of birds which imitate rain or wind. Pliny says that crows shaking themselves and making a continuous gurgling noise signal storm, but it means blowing rain if they make gulping sounds instead, apparently because the discontinuous noise is more like gusts of wind. [132] In other cases, birds sprinkling themselves with water in imitation of raindrops are said to be signs of rain.[133] Signs in which birds merely touch water should perhaps also be understood in this way; swallows are said to skim so close to water before rain that they wet their wings or bellies, and non-aquatic birds bathing is also a sign of rain. From the number of signs he gives from them, Pliny seems to feel that aquatic birds have an advantage in foretelling rain, perhaps because they have a natural connection with water in the atmosphere the way Pamphile's lamp does to the sun.[134] An inverse of these signs is found in a fragment of Aemilius Macer, who says that sailors think swans are a good omen for them since they do not immerse themselves. The swan does not get wet all over, so when it is visible, a ship will not meet with storms either.[135] The *De signis* gives one other imitative sign, in which it reports, with an ambivalent "some say…", that if the

[132] Aratus 960-69; *De signis* 16, 17, 18, 28; Pliny 18.362.
[133] Pliny 363; Lucan 5.555-6. Aratus and the *De signis* give a number of such signs, but do not explicitly note the similarity between birds wetting themselves and precipitation; this is a development of the Roman sources, although earlier authors may have assumed the signs to work for such a sympathetic reason. See Aratus 948-53; *De signis* 15.
[134] Aratus 944-5; *De signis* 15; Vergil *Georgics* 1.383-387; Pliny 18.364.
[135] Aemilius Macer fr. 4 Courtney.

image of hail seems to appear in burning coals real hail will fall.[136] These explanations rely on the idea that like produces like; a sign is likely to resemble what it predicts in some way.

In some cases, such imitative explanations are given for functional signs; in others, signs which do not, empirically, work seem to have arisen because they ring true metaphorically. Thus a sudden increase in the number of ominous black birds indicates rain, while many white birds indicate clearing.[137] Other, aetiological, explanations for signs try to give an origin for why they work rather than drawing analogies between them and their effects. Thus, Aelian says that the raven croaks thirstily in summer heat because it was once a servant who delayed in fetching water for Apollo.[138] Mythological aetiologies are offered for why certain stars have the reputed effect they do. The constellation Gemini, in particular, was thought to calm storms because of the Dioscuri's fondness for sailors, while other constellations were proverbially rainy, stormy, cold or hot.[139]

Sometimes, weather signs are seen not as predicting the weather, but as actively causing it. Aelian says that the call of cranes summons showers, and Lucretius that crows and rooks call for rain, water, and wind. Vergil says the same of crows, and refers to their "wicked voice" (*improba voce)*, imputing attention and agency to them in the matter of bad weather. [140] Horace implies that as an augur, he can affect the weather signs: "For whom I have a care, I, the foreseeing *auspex*, will summon the augural crow from the

[136] Aratus describes this phenomenon in more detail (1041-43).
[137] *De signis* 39; Pliny 18.363. In *De signis* 39, white members of species which are not normally white are portentous and indicate a major storm.
[138] Aelian 1.47.
[139] McCartney (1926a); (1926b) lists the meteorological associations of various stars and constellations.
[140] Aelian 1.44. Lucretius, *De Rerum Natura* 5.1083-1086. Vergil, *Georgics* 1.388-89.

east with my prayer, before the divine bird reseeks the standing marshes, a sign of rain" (*ego cui timebo prouidus auspex, antequam stantis repetat paludes/ imbrium diuina auis inminentum, oscinem coruum prece suscitabo/ solis ab ortu*; *Odes* 3.27.1-24). Does he mean to imply that altering the signs will affect the weather itself, or just whether the omens suggest good or ill to come? Either way, his invocation of his status as augur as a reason to trust his expertise on omens and weather signs underlines the Roman enmeshment of weather signs with divination. But this rather obscure passage suggests a way of magically affecting the weather: if birds and other entities can change the weather, the weather should be controllable by manipulating them—in this case, by keeping the raven away from the water. Columella seems to imply the same thing when he says that the mythical seer Melampus hung nocturnal birds on crosses to keep their ominous cries (*feralia carmina*) away from the rooftops (10.348-50). Making an example out of vermin was a common way of dealing with pests,[141] but the passage is part of a digression on magical means of warding off disaster from the sky: sacrifices to Rubigo to keep mildew off the plants;[142] Tages setting up an ass' skull in the fields (Columella does not say what this averts, but the *Geoponics* (12.6) repeats this as a way to keep the garden healthy);[143] Tarchon planting lightning-averting bryony around his land. The context suggests that the "funereal songs" are bird calls as signs of bad weather. Nocturnal birds are not generally listed among pests which will damage plants; and it is not the birds themselves, but the sound of their cries which Columella is concerned to remove. In the context of ways to protect the garden from specific dangers, the cries of the birds are not

[141] See the chapter on pests and disease for more discussion of this.
[142] On the association of mildew and other crop diseases with disastrous weather, see Chapter 4.
[143] The special competence of Tages, the Etruscan inventor of divination, in protecting gardens is itself of interest.

generically ominous; the only relevant disaster, and the most obvious association, given the commonness of bird signs and the immediately preceding concern over lightening, is damaging weather. Nocturnal birds, especially owls, are cited as signs of rain.[144] It seems that by preventing the birds from delivering their bad omens the weather will be also be averted. The combination of tropes which Columella has arranged is also notable; although weather signs are the most obvious interpretation, the passage also evokes the more generally ominous nature of nocturnal birds such as owls, and their association with night-witches, *striges*.[145] Columella's passage is reminiscent of Hesiod's injunction to keep birds from settling on the house, which occurs in the context of both bird signs and bird omens.[146]

It is hard to say how general this idea that altering the signs could affect the weather was; all of the examples are poetic, which might mean either that it was a uniquely literary conceit or that it was a popular idea not much noticed by literary authors outside of these scattered examples. The obscurity of both Horace and Columella's comments suggests the latter view, since they expect their audience to understand without elaboration. It is possible that causality simply did not matter very much to most people. Donald Ward, in discussing modern weather signs, points out that many are stated in a way that posits a relationship between a sign and weather, but with no indication of whether the sign is thought to predict or to cause the subsequent event.[147] Even when the saying is explicitly causal, saying that a sign "causes" or "brings" the indicated weather can be a rhetorical way of saying "indicates", for many signs both forms coexist. This is

[144] See, for instance, Pliny's list of signs from birds, cited above.
[145] See, e.g., Ovid, *Fasti* 6.101-168.
[146] Hesiod, *Works and Days* 746-7.
[147] Ward (1968) 69.

true of ancient signs as well; Aelian's claim that cranes precipitate showers is more often found as a simple statement that calling cranes are a sign of rain.[148] Ward comments that "the choice of the verb appears frequently to be a very arbitrary matter", and suggests that people who use weather signs may not feel there is much difference between the two.[149] His idea that the distinction between causal and non-causal signs simply does not exist for the users may be a useful way of thinking about signs in ancient sources. Plutarch, discussing weather signs, argues that they are symptoms of the weather and not causes, pointing once again to the fact that it must have been a point of contention.[150]

When it came to the debate over the *cause* of weather signs, the popular view was that weather signs were direct communiqués from the gods. This view is sometimes adopted in literary treatments of signs, particularly poetic ones, although philosophers pillory it as the belief of the uneducated. The gods, after all, not only possess more than mortal knowledge, but like the sun in Apuleius and like Aristophanes' birds they live in the sky and thus know what weather is coming well before people down on earth do.[151] Aratus opens his *Phaenomena* (1-14) with a hymn to Zeus "who gives favorable signs to men", emphasizing his role in arranging the stars as seasonal markers for humans; he begins the later section on weather signs with a new proem (765-75) explaining that Zeus grants these signs from birds, animals, and so on as well: πάντα γὰρ οὔπω/ ἐκ Διὸς ἄνθρωποι γινώσκομεν, ἀλλ' ἔτι πολλὰ/ κέκρυπται, τῶν αἴ κ' ἐθέλῃι καὶ ἐς

[148] See, e.g., Pliny 18.362.
[149] Ward's further suggestions are intriguing but unsupported. He rejects the rather Frazerian notion that people who repeat such signs are incapable of understanding cause and effect; instead he proposes that causality is not a part of the logic of magic at all, although it can coexist with a causal worldview.
[150] *Quaestionum convivialium* 2.7 (=*Moralia* 641B-D).
[151] Tertullian, making the usual early Christian equation of pagan gods with demons, says that demons live in the air and so know the coming weather and can promise rain to humans (*Apologeticus* 22.10); he refers in particular to a Virgo Caelestis who guarantees rain (23.6).

αὐτίκα δώσει/ Ζεύς· ὁ γὰρ οὖν γενεὴν ἀνδρῶν ἀναφανδὸν ὀφέλλει/ πάντοθεν εἰδόμενος, πάντη δ' ὅ γε σήματα φαίνων; "For not yet do humans know all from Zeus, but still many things are hidden, of which Zeus will later grant the ones he wishes; for openly he aids the race of men, appearing on every side and showing signs everywhere," (768-72). Vergil likewise attributes signs to Zeus (*Georgics* 1.351-5).[152] The fact that the gods give notice of coming weather through signs is taken as a token of their benevolence towards humans. Later Greek cult practice took some notice of this as an attribute worthy of worship; Pausanias (1.32.2) mentions an altar of Zeus Σημαλέος, Zeus Who Gives Signs in conjunction with altars (all are on Mt. Parnes) to Zeus of Rain (Ὄμβριος) and Zeus Who Averts Harm (Ἀπήμιος).[153] Roman cult offers no official examples of gods worshipped for their giving of weather signs, but it is clear from the criticisms of the natural philosophers that many people believed that signs, like omens, were deliberately sent by the gods.

Seneca makes fun of the common opinion, complaining that the gods have better things to do than to give signs to individuals (*Natural Questions* 2.32.3) :[154]

> Quomodo ergo significant, nisi deo mittuntur? Quomodo aues non in hoc motae ut nobis occurrerent dextrum auspicium sinistrumque fecerunt. Et illas, inquit, deus mouit. Nimis illum otiosum et pusillae rei ministrum facis, si aliis somnia, aliis exta disponit.
>
> "But how do things indicate future events unless they are sent by a god?" In the same way that birds give favorable or unfavorable auspices although they are not in this moved to appear to us. "But a god moved them," he says. You make god

[152] Similarly, the gods are said to give signs of the changing seasons and when to commence farming operations, as when Xenophon declares that the gods send the spring rains as a sign to sow and those who ignore it face heavy losses (*Oeconomicus* 17.1-6).
[153] See Morgan (1901) , McCartney (1924a); (1924b) on Greek and Roman rain gods generally.
[154] For a similar sentiment, see also Cicero, *De Natura Deorum* 2.167, where he remarks on Jupiter's lack of concern for the farms and vines of individuals. *Magna di curant, parva neglegunt*, Cicero concludes; the gods have a care for great affairs but ignore small ones. See also 3.86.

> too leisurely and the administrator of minutiae if he arranges dreams for some people, entrails for others.

Seneca was working in a largely Stoic tradition of meteorology, as were most Roman philosophers who discuss signs.[155] The Stoics' discussion of weather signs is of interest because not only did they believe that signs gave true forecasts, but that something divine was involved in their operation; they thus come closest to the popular view that weather prediction was a species of divination. Whereas the Peripatetics largely ignore the problem of the gods' involvement in weather as outside of their subject, and the Epicureans agree that forecasting *is* divination but thus dismiss it as pure superstition, the Stoics' position on the role of gods in nature makes weather signs something very close to divination. For the Stoics, signs operate because of the existence of a divine element which pervades the universe and enables sympathetic connections between causes and their effects. Weather signs are a frequent topic of discussion in Stoic philosophy because they provide convincing proof of the divine nature of a semi-personified Nature. This natural sympathy between elements of the universe explains why things with no apparent relationship, like the behavior of a lamp and rain, are actually connected and one can predict the other. Signs which posit a resemblance between effects and their causes, such as birdcalls resembling the sound of rain, are examples of the Stoic belief that the universe will always produce regular signs of coming things in ways which are regular and visible to humans, and that the sympathetic connection between distant things will be revealed by a similarity between the cause and effect. Where they diverge from the popular view is in the degree of personification they attribute to this divine spirit and in

[155] On Stoic meteorology, see Taub (2003) 137-61.

their denial that the god or gods take a personal hand in arranging individual signs and their effects. Seneca goes on to say that although gods do not arrange individual signs:

> Ista nihilominus diuina ope geruntur, si non a deo pennae auium reguntur nec pecudum, uiscera sub ipsa securi formantur. Alia ratione fatorum series explicatur indicia uenturi ubique praemittens, ex quibus quaedam nobis familiaria, quaedam ignota sunt. Quicquid fit, alicuius rei futurae signum est.
>
> None the less, such things are carried out by divine agency, even if the wings of birds are not guided by a god, nor are the organs of cattle changed under the axe. The roll of fate is unfolded on a different principle, sending ahead everywhere indications of what is ahead, some of which are familiar to us, and others are unknown. Whatever happens, it is a sign of something in the future.

Seneca's claim that *everything* is a sign only makes sense in a universe in which everything is connected sympathetically.[156] The ideas that gods act through nature is a typical way of a reconciling belief in personal gods with the observable regularity of natural laws: the gods arrange and make possible the laws of nature but do not thenceforth meddle with them. The same sentiment may be seen elsewhere, as in Philo's comment (*De Opificio Mundi* 58-61) that God made the heavenly bodies to give signs as well as light, and perhaps in Plutarch's citation of Thales for the belief that fire, wind, water, clouds, rain and living things are the god's instrument (*Moralia* 163E-F). Seneca's comments on the difference between Etruscan and Stoic beliefs in the predictive value of lightening show how these different philosophical stances could find themselves in agreement over how the universe proceeded on a practical level, if not over the relationship of cause and effect (*Natural Questions* 2.32.2):

> Hoc inter nos et Tuscos, quibus summa est fulgurum persequendorum scientia, interest : nos putamus, quia nubes collisae sunt, fulmina emitti ; ipsi existimant nubes collidi ut fulmina emittantur ; nam, cum omnia ad deum referant, in ea opinione sunt, tamquam non, quia facta sunt, significent, sed quia significatura

[156] At *Natural Questions* 2.32.5, Seneca elaborates on this theory: although humans only make predictions based on certain plants and animals, this is only because we have not learned how to interpret from other things, not because they signify nothing.

> sunt, fiant. Eadem tamen ratione fiunt, sive illis significare propositum, sive consequens est.
>
> This is the difference between us and the Etruscans, among whom the interpretation of lightening is the highest science: we think that, because clouds collide, lightning is produces; they thing that clouds collide in order to produce lightening; for, since they attribute everything to the gods, they do not think that things have predictive value because they have occurred, but that they happen because they are going to give predictions. However, they occur in the same way, whether the prediction is their purpose or consequence.

Just as practioners of cult felt that it was admirable of the gods to provide signs, so there was a certain feeling among philosophers that it is only right for the universe to provide such help to mortals, whether because the natural laws work the way they do because it is the will of the gods, who have a certain moral obligation towards humans, or because the universe itself has something divine about it and should be an orderly, and in some sense fair, place, which rewards human observation and astuteness. For Pliny, either a god may give signs, or a benevolent and semi-deified Nature takes the part of the gods and gives clues about the coming year for human use.[157]

Weather Prediction, the Diagnosis of Nature, and Superhuman Powers

However, not everyone agreed with such philosophical ways of distinguishing weather prediction from divination. In fifth-century Greece, these forms of foreknowledge were not clearly distinguished even by many philosophers, and certainly not in the popular imagination, with repercussions for the reputations of early scientists which were still relevant in Roman debates over magic centuries later. The first recorded philosophical interest in the weather in classical antiquity belongs to the Presocratics, many of whom, despite the highly fragmentary state of their works, clearly had a strong interest in explaining natural phenomena. Actual weather signs are rare in their work, but

[157] For Pliny's view of Nature and the gods, see French (1994) 196-255.

they were broadly interested in observation and prediction, and in meteorology, which was a sufficiently stereotypical interest of philosophers and sophists that Aristophanes lampoons it in the *Clouds*.[158] Some of the Presocratics themselves made claims to extraordinary perceptiveness, and the importance of accurately observing the world is a theme in the surviving fragments. Some (most notoriously Empedocles) go further and connect observation with the possession of superhuman powers. Although the philosophers themselves appear to take the view that they are doing nothing supernatural, contemporaries often viewed their powers of observation as divinatory and the abilities they claimed as magical. Because Presocratic theories underlie much of the subsequent discussion of meteorology, and because the popular reception (Greek and Roman) of Presocratic ideas is important to understanding why weather signs were so fraught a subject for the agronomists, digressing briefly into fifth century Greek debates over observation and power will illuminate the same themes when they recur in the Roman agricultural handbooks.

The importance of accurately observing the world around one is a theme in the fragments of the Presocratics; only thus could a person come to fully understand the cosmos. Usually, perception was though to be by means of the bodily senses. Correct conclusions still had to be drawn from what one observed. Heraclitus, to summarize one example briefly, prizes things which may be apprehended by the senses (DK 22B55, 22B7), but feels that most people do not adequately take advantage of what they see, hear, and otherwise perceive to come to an understanding of the universal *logos*, a sort of governing principle. Thus he says that most people are as unaware of themselves while

[158] Democritus does show some interest in signs; see Sider (2002) , but also Gillespie (1938) 9-10, who has doubts.

awake as they are when asleep, and do not understand even when the *logos* has been laid out for them (DK 22B2); although they hear it, they act as though they might as well be deaf (DK 22B34). Thus they each perceive the world in a different way, not reaching true reality (DK 22B89). When the mind is unable to understand, the senses are useless (SK 22B207), and most people would not prefer the truth anyway (DK 22B9, 22B13b). However, everyone has the potential to understand the *logos* (DK 22B116). How precisely the gods fit into Heraclitus' understanding of the universe is unclear, although they enforce the order of the universe (DK 22B94; the furies keep the sun in its course), the *logos* is in some sense identifiable with Zeus (DK 22B32), and supernatural beings have a much greater understanding of reality than humans do (DK 22B79, 22B78). This feeling that there is a level of reality of which the majority are unaware, but which a perceptive person can reach through sufficient observation and insight, is common among the Presocratics.[159] This reality, like Heraclitus' *logos* which is and is not Zeus, is often connected with the divine spirit pervading nature. For Heraclitus, the senses enable a person to join and partake of the divine reason; sleep closes off the senses and removes a person from reality, and waking restores them to it (DK 22A16). For others, this contact with the divine or true reality is accomplished by the mind itself, directly, without the intermediation (or what some saw as a distortion) of the eyes, ears, and other organs.[160] Empedocles says admiringly of Pythagoras that "For whenever he reached out with his whole mind, he easily saw every single thing in ten and twenty generations of men" (ὁππότε γὰρ πάσηισιν ὀρέξαιτο πραπίδεσσιν,/ ῥεῖ' ὅ γε τῶν ὄντων πάντων

[159] See especially Parmenides, DK 28B1-8.
[160] For the distrust some Presocratics showed of the senses, see, e.g., Democritus, DK 68A77, 68B6-11, 68A112, 68A135).

λεύσσεσκεν ἕκαστον/ καί τε δέκ' ἀνθρώπων καί τ' εἴκοσιν αἰώνεσσιν; DK 31B 129). This is not a mere metaphor for Pythagoras' acute observation of the world immediately around him; it is a claim that the perceptive person may comprehend the entire cosmos, across time, by means of the mind alone. Democritus distinguished knowledge which comes through the senses from that arrived at by thought, and considered the latter more trustworthy (DK 68B911). Such immediate apprehension of truth—especially since the world, in these theories, is full of divinity, and understanding the cosmos must involve coming closer to the divine in it—begins to look a great deal like inspired divination.

These philosophers placed the truly perceptive person on a different level from the non-perceptive masses. And since what they perceive is, in large part, the divine element ordering the world, they also have a closer relationship to divinity—whether this is conceived of as an impersonal divine spirit or the traditional gods, or some combination. Although observation of the world may be a means, what is important is the philosopher's ability to contact the divine with his mind, however that is achieved. Scientific principles are thus in a sense inspired, not discovered. This direct apprehension of the cosmos begins to look a lot like the powers of diviners or shamans. No wonder, then, that some of these early philosophers connect observing nature with the possession of superhuman powers; observation and deduction bring them closer to divinity, until some even liken themselves to gods.

Empedocles' claims to have magical powers are well-known. Among other things, he says he can cure diseases and give prophecies, offer drugs against illness and

aging, control the wind and rain, and bring the dead back to life (DK 31B111-112).[161] He says that he himself is not mortal, but a god (DK 31B112, 31B115, 31B23). However, this does not mean that he is the only one who can possess his knowledge or powers; he offers both to his listener, if only he will pay attention to Empedocles' teachings.[162] Empedocles' opinions about how people come to understand the world can be partly pieced together. In his thought, not only do few people fully understand reality, and understanding is difficult to come by (e.g., DK 31B2, 132), but most people are actively hostile to true knowledge (DK 31B114). The senses are untrustworthy, because humans can see only a little of the universe and individual perceptions are subjective (DK 31B2); but it is also worth paying attention to all the senses, because they can guide thought (DK 31B3B). Empedocles' position appears to be that observation of the world is an imperfect but still useful guide to truth. Listening to explanations of natural order, such as the account his poem purports to give of the universe, is also a powerful guide to the mind (DK B17, 2). By such a combination of observation, thought, and study, the intelligent person can reach the same knowledge—and power—as Empedocles has. Empedocles suggests that a feedback loop involving knowledge and perception is at work: the attentive person is able to gain a little knowledge this way, and by doing so, increases their capacity to gain more knowledge; learning increases the mind (μάθη γάρ τοι φρένας αὔξει; DK 31B17; see also 31B106). Since Empedocles conceives of the senses as channels, which admit impressions which are small enough but not those which are too large, he may envision this as, quite literally, an expansion of the body's capacity to take in truth. As the perceptive person exercises their observation of the universe, they are

[161] On Empedocles as a mage, see Betegh (2004) 370-2; Kingsley (1995) 217-32.
[162] On the audience, see Obbink (1993) .

able to understand more of it. Empedocles envisions this process as continuing through a cycle of reincarnations. He himself, he says, has been a boy and a girl, a bush, bird, and fish (DK 31B117). Finally the reincarnated souls emerge as prophets, hymn-singers, doctors, leaders (DK 31B146) or, like Empedocles himself, actual deities with the power to raise the dead, effect cures, and control the weather (DK 31B112).

This idea that a higher-order, theoretical understanding of the cosmos brings one supernatural powers remained powerful. Various types of theoretical knowledge were looked to for guidance, including mystery religion, but natural philosophy remained a major one, blurring attempts to distinguish science and the supernatural and irritating modern scholars who want their scientists not to delve into mysticism. But Empedocles' claims to superhuman powers, which make him look very like other early Greek shamans,[163] are directly predicated on observing and comprehending the universe, and the teachings of the poem which he claimed would help others reach his divine state included, in addition to his account of reincarnation, his theory of the elements and astronomical, meteorological, and other natural-historical speculations. Other fifth-century examples can be found of a belief that theoretical understanding of a topic improves the efficacy of someone's actions. Plato's distinction between slave doctors and master doctors in the *Laws* provides a useful comparison.[164] The slave doctors prescribe remedies which they have learned by rote by watching their masters, and they try to frighten their patients into following them. The master doctors, however, try to discover the cause of the disease, and endeavor to explain the illness and treatment to their patients. The master doctors are more effective, even when their prescriptions are the

[163] On shamans, Dodds (1951) 135-78. See Betegh (2004) 370-72 in particular on Empedocles and Orpheus.
[164] *Laws* 720a2-e8 and 857c4-e6.

same as the slave doctors'. Betegh, discussing this passage, notes that Plato never explains why this is the case.[165] The theoretical grounding which explains the illness apparently makes not only the doctors' efforts to treat the illness, but also the patients' efforts to get well, more effective. As another example of this approach, we might compare the Hippocratic treatise *On the Sacred Disease*, which criticizes the diagnostic paradigm of cultic medical practitioners who blame epilepsy on the gods, diagnosing which deity is responsible and how to treat the disease from the patient's symptoms. The author seeks to replace this explanation and treatment with his own paradigm involving humors in the body—a physical rather than divine cause which owes much to the philosophers. Although a great deal can be said about this short work, the point here is that the author feels the need to explain his physiological theories fully, against a larger backdrop medical and of physical theory encompassing theories of veins, sense-perception and intelligence, and the effects of climate on the body. He is not content merely to tell the reader how to treat epilepsy; they need to understand the disease fully, and why the treatment works. Nor is he necessarily saying that the treatments of his opponents are completely ineffective[166]—but they misunderstand cause and effect regarding the disease, and his treatment, informed by a different paradigm of natural causation, will be better.

On the Sacred Disease is particularly relevant to weather signs, insofar as the treatise is largely an argument about the proper method of diagnosing a patient—that is, observing symptoms and behavior and drawing the correct deductions from them.

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[165] Betegh (2004) 351-53.

[166] The author in fact strongly implies that parts of their treatment regimen, such as the dietary changes they suggest, might be useful, although he is scornful of their magical, rather than physical, explanations for why (2).

Effective treatment, it asserts, requires accurate observation informed by a theoretical background. Weather signs were often compared to medical symptoms in antiquity; they were felt to be similar problems, and they occasion similar debates about the correct means of using visible symptoms to diagnose and react to invisible causes.[167] And as weather prediction and medicine involve similar types of diagnosis, control of the weather and control of disease are linked. Empedocles says he can cure illness and control the winds and rain (and prophecy) in the same breath; *On the Sacred Disease* itself says that the *magoi*, purifiers, itinerant priests and frauds (*On the Sacred Disease* 2) whom it criticizes claim they can draw down the moon, eclipse the sun, cause rains and fair weather, drought, barrenness, "and all such things" (OSD 4) as well as treat epilepsy. Symptoms and weather signs are even themselves similar in *On the Sacred Disease*; the bird-like cries and other symptoms some patients are said to exhibit are not unlike the animal behavior observed in weather signs. And as the author of another Hippocratic work notes (*Humors* 17), the body's aches and pains can also serve as symptoms of approaching weather.

Since, despite the theoretical interest in meteorology, we have little 5th century discussion of actual weather signs, *On the Sacred Disease* provides an interesting parallel insofar as it describes the actual process of extrapolation from signs, both the author's and what he imagines the process of his opponents is.[168] The ritual practitioners he criticizes show a logical process which relies on an assumption of similarity between causes and effects much like that found with weather signs—if the patient cries like a

[167] For implicit or explicit comparisons of the two, see, e.g., Cicero *De Divinatione* 2.12, 16, 145; Plutarch *Moralia* 129a, 641B-D. On issues of diagnosis and inference, see Allen (2001); Lloyd (1979) .
[168] See Gillespie (1938) 9-10. Gillespie discusses the difficulty of deciding whether the *Prognostics* which Democritus is said to have written concerned medical diagnosis or weather signs.

horse, Poseidon is responsible; if they foam at the mouth and kick, then Ares, and so on. Collins points out that the unacknowledged logic of the author's rivals is quite similar to the logic of diviners, and might well be considered a type of divination.[169] Effects will resemble their causes, and thus humans can use logic to determine the reasons for symptoms. The *On the Sacred Disease's* author's process of diagnosis is quite similar, although the diagnostic paradigm sees nature acting on the body in mechanical, regular ways, not gods acting on it in particular instances. The similarity to later debates over weather signs is notable, where the same question arises of whether the practitioner is reading the intentions of the gods on that day or observing regular natural changes, while the process of reasoning, despite different worldviews, remains similar.

Betegh points to the similarity between Plato's two types of doctors and the criticisms the author of the Derveni papyrus makes of Orphic initiators for not understanding the rituals they prescribe, despite their technical ability; and to the Derveni author's insistence on the importance of reaching a personal understanding of ritual for it to be effective.[170] In ritual as well as physical sciences, understanding leads to greater power. Betegh also compares the Derveni author's attempt to explicate Orpheus' teachings in a cosmological framework to the strategy in magical rituals of expounding larger cosmological theories within which the ritual is placed and will be, hopefully, effective.[171] This is not merely an advertising strategy; although part of the reason for offering a theory of the universe in a ritual, magical, or medical context may be to win over an audience (and convincing an audience of the superiority of the author/practitioner's diagnostic or cosmological paradigm is clearly a major concern of,

[169] Collins (2008) 37-8.
[170] Betegh (2004) 349-72, especially 360-64.
[171] Betegh (2004) 354-59.

e.g., *On the Sacred Disease*), it also works within the logic of the ritual—reciting cosmology can be seen, as Betegh points out, as a means of reestablishing the proper order of the universe after a disruption like illness or misfortune.[172] The practitioner is able to wrest things back into their correct scheme by understanding from top to bottom what the structure of the universe *is* and invoking it. The author of *On the Sacred Disease*, too, says his rivals claim that they have more knowledge than other people—and that they offer different explanations for disease, and that they want to be thought intelligent for them (OSD 2).

The perceptive person does not merely gain power over nature by learning more than other people; their learning can, as Empedocles' upward spiral of knowledge and observational skill shows, effect changes in the people in return. Extremely observant people, Empedocles feels, ones with theoretical knowledge of the universe, are sensitive to signals which ordinary people do not even notice. It is specifically the φρένες, the organs of thought, which Empedocles says will be increased by learning. Possibly this means only that the mind will be better able to make use of external input such as Empedocles' teachings or the evidence gathered by the senses. If we recall Empedocles' description of Pythagoras as "reaching out with his mind", however, it may also remind us of ideas about the mind directly apprehending reality, without the mediation of the physical senses. Does Empedocles mean that the extremely perceptive person begins to arrive directly at the truth, that an understanding of the universe is imprinted directly upon their minds once they are sensitive enough? Empedocles' theory of sense-perception is that like perceives like—each of the four elements and Empedocles' two

[172] Betegh (2004) 355.

impulses, love and strife, enable perception of themselves (DK 31B109). Theophrastus says that Empedocles gives a similar account of thinking, that thought is facilitated by similarity and ignorance by dissimilarity, and that thus for Empedocles thought is or is very like sense perception (DK 31A86 = Theophrastus *On the Senses* 7-11 Stratton). A similar idea occurs in a passage in which Empedocles advises his addressee to press his teachings well into his mind and meditate on them: if he does this, they will stay with him, and will attract other such true thoughts; if he does not, and prefers false knowledge, the true things will escape, preferring to be with their own kind. This explains in part how the mind, as Empedocles says of Pythagoras, reaches out to grasp truth; once it contains sufficient true knowledge, it naturally attracts more. Sextus Empiricus, for one, draws a connection between the divinity of Empedocles' mind and his ability to comprehend the divinity-infused cosmos (*Adversus mathematicos* 1.302-3), claiming that Empedocles was able to grasp the god without by means of the god within himself.

All of which has been a rather long digression from the topic of weather prediction, but one which has hopefully explicated something of the symbolic baggage of ancient meteorology. Among such theories about how to arrive at the truth about the universe and what effect observation, deduction and knowledge could have on a person's abilities, there were complicated stakes to weather prediction. Natural philosophical knowledge could make one superhuman; and people who could observe and extrapolate from nature were at least open to interpretation as inspired. The Hellenistic authors who dealt with meteorology more systematically absorbed many Presocratic theories, and in particular, the distinction between people with a deeper, theoretical understanding of the world and those guided only by everyday knowledge persisted. So, often, did the idea

that the former had powers which other people did not. Sometimes the reasons given for these powers are, as in the example of Empedocles, mystical and hard to understand. Empedocles never does explain why, if gods are, like him, souls which have reached a pinnacle of reincarnation, they gain special abilities. For others, power over nature was not at all superhuman, but merely a matter of exploiting natural properties and principles of which others were unaware. Although Roman-era philosophy put its own cast on them, many of the basic ideas of the Presocratics endured, especially the notion of a divinity in nature, which underlies Stoic thought. The Presocratics themselves were remembered partly as philosophers, but some, also, as diviners and magicians. Democritus, in particular, became the magician *par excellence*.[173] Tradition gave a magical cast to the Presocratics, and by extension, made potentially magical even the parts of their works which the developing distinction between magic and science would otherwise put firmly on the side of science—fueling, for instance, the interpretation of their powers of observation as divinatory. The popular memory of the Presocratics, especially Empedocles and Democritus, is as important for understanding the impact of early meteorology on the Romans as their actual work is.

Romans put emphasis on parts of the philosophical and literary tradition of weather signs which made the reputation of the Presocratics as prophets and mages particularly relevant. Roman authors were largely drawn to the topic in two ways: through the influence of Stoicism and through poetic interest in signs. The Greek tradition, including early Stoicism, contained writing on weather signs which regarded them as interesting in their own right, as simply a practical and useful part of

[173] Partly through the attribution by works by Bolus of Mendes to him; Dickie (1999) .

meteorology.[174] Roman Stoics were as always more interested in the ethical strands of the philosophy, and their interest in weather signs was largely in service of arguments about the Stoic god and fate—weather signs were taken as a useful proof that everything in the universe was interconnected.[175] The poetic tradition, on the other hand, starting with Aratus, had made weather signs a decorative literary subject. Poets placed signs within the mythologizing world of hexameter poetry, in which they were construed as direct communications from the traditional gods.[176] The transmission of weather signs to the Romans through such channels, and the particular emphasis which Roman philosophical interests put on them, made it difficult to consider weather signs from a disinterested perspective; the implications which they had for how the world worked and what the gods were like meant that they were always a fraught subject. Rather than being a fundamentally scientific subject liable to occasional interpretation as divination, they were a topic which Roman philosophers took an interest in the first place *because* they were akin to divination. Scientific consideration of weather signs was thus particularly liable to interference from traditions which made the Presocratics into mages.

Stories About Philosophers and Weather Prediction

A series of stories about sages and weather prediction shows a continuing ambiguity in how people understood the perceptive powers of early philosophers, and, by extension, their later followers. The basic pattern of the tales is that a philosopher, most

[174] The prose treatises, particularly those of the Peripatetic school or likely influenced by it, largely consider weather signs as useful for their own sake. Gillespie (1938) 9-31, 59-62 and Taub (2003) *passim* on the prose works.
[175] On Roman Stoicism, see, e.g., Ahbel-Rappe (2006) .
[176] See Kidd (1997) 10-12 on Aratus' Zeus.

usually one of the Presocratics, astonishes those around him with a seasonal or immediate prediction. Aelian gives a typical example (7.8):

> καὶ Ἵππαρχος μὲν ἐπὶ Ἱέρωνος τοῦ τυράννου καθήμενος ἐν θεάτρῳ καὶ φορῶν διφθέραν, ὅτι τὸν μέλλοντα χειμῶνα ἐκ τῆς παρούσης αἰθρίας προηπίστατο, ἐξέπληξε· καὶ ἐθαύμαζεν Ἱέρων αὐτόν, καὶ Νικαεῦσι τοῖς Βιθυνοῖς συνήδετο ὅτι Ἱππάρχου πολίτου ἔτυχον· ἐν Ὀλυμπίᾳ δὲ θεώμενον Ἀναξαγόραν ἐν διφθέρᾳ καὶ αὐτὸν τὰ Ὀλύμπια ἐπιρραγέντος ὑετοῦ τὸ Ἑλληνικὸν πᾶν ἤδεν, καὶ θειότερα νοεῖν ἢ κατὰ τὴν θνητὴν φύσιν ἐκόμπαζεν.
>
> And Hipparchus, during the reign of Hiero the Tyrant, sitting in the theater wearing a leather cloak, amazed people by predicting a coming storm from the clear sky. And Hiero was amazed at him, and congratulated the people of Nicaea in Bithynia on having Hipparchus as a citizen. And when at Olympia Anaxagoras, likewise wearing a leather garment, was watching the Olympic Games and it rained, all Hellas praised him, and bragged that he thought more like a god than a man.

These anecdotes come in the middle of a section of weather signs and are demonstrate what a person with such knowledge can do. Hipparchus[177] and Anaxagoras both observe things which other members of the audience do not, and prepare accordingly. Diogenes Laertius also mentions this story about Anaxagoras, and compares it to the philosopher's prediction of the fall of a meteor at Aegospotami; as does Philostratus in his life of Apollonius, where he adds that Anaxagoras predicted an eclipse and the collapse of a building, being proven right in both cases.[178] Thales was said to have become rich by predicting the outcome of the year's olive harvest and renting all of the local olive mills in advance, which he then hired out at a large profit; Aristotle specifies that it was his knowledge of astronomy that allowed him to make this prediction the previous winter. Aristotle adds that he was motivated to do so by people who taunted him with his poverty

[177] Hipparchus of Nicaea in Bithynia, said to have written a commentary on Eudoxus and Aratus.
[178] Diogenes Laertius 2.10; Philostratus, *Life of Apollonius of Tyana* 1.2. Cf. also Ammianus Marcellinus 22.16.22, where he says that Anaxagoras, after learning secrets from the Egyptians, predicted a hail of stones and an earthquake.

and claimed that his philosophical knowledge must be useless.[179] Similar stoies were told about Democritus, who according to Pliny (18.273) was also taunted with his poverty and, as the first person to understand the connections between events in heaven and on earth, predicted a rise in the price of oil from the rising of the Pleiades and made a fortune buying up oil. Having made his point, he then returned the money. Clement of Alexandria (*Stromateis* 6.3.28) adds that Democritus was visiting his brother at harvest time and, predicting from the stars a sudden rain, saved the harvests of those who listened to him and got their grain under cover; others ignored him and lost their produce. On the one hand, these stories trumpet the value of science and observation; on the other, the opaqueness of *how* the philosophers reach their conclusions makes them seem superhuman to ordinary people. They seem, as Vitruvius says (9.3), divinely inspired, not merely observant; Aelian explicitly says that Anaxagoras' audience regarded his knowledge as godlike, and Philostratus brings up Anaxagoras' predictions in order to complain that, when Apollonius gave similar demonstrations of foreknowledge, they were regarded as magic. Ammianus Marcellinus (22.16.22) adds some further predictions to Anaxagoras' credit; he predicted a rain of stones and, after examining mud from a well, an earthquake. But he learned how to do so from Egyptian priests and diviners. None of the philosophers in the stories attempt to explain how they reached their conclusions or, except for Democritus' prediction during the harvest, to make their predictions available to others; indeed, the point of several of the anecdotes is for the philosopher to show up ignorant scoffers. The slightly unnerving advantage which the philosopher has over others remains a major theme, and the authors of these anecdotes, while trying to reclaim the philosophers for science by explaining their abilities

[179] Aristotle, *Politics* 1.4.5 (=1259a); Diogenes Laertius 1.26.

rationally, acknowledge that a frisson of the uncanny hangs around them, if only for the uneducated. In some cases, as in Ammianus' attribution of weather prediction to Egyptian diviners, the ability to observe nature is cast as secret knowledge.[180]

The Social and Literary Position of Weather Signs

Clearly, the line first drawn by the Presocratics themselves between those with a theoretical understanding of the world and those with only their own practical experience persisted. When it came to weather prediction, this divide was complicated by the fact that the uneducated masses whom the philosophers scorned used weather prediction on a daily basis; and by the realm of poetry, where weather signs had an odd dual appraisal as both a humble type of knowledge and a topic which developed a considerable literary cachet. The prototypical users of weather signs in antiquity are farmers and sailors, both of whom need weather predictions for their occupations.[181]

The ancient compilers of weather signs are clear that they are making use of a substantial popular body of maxims and observations. The *De signis* (1.3), for instance, comments on the effect of local terrain on the weather, and says that signs learned from local observers, who can be found anywhere, are most trustworthy. This was particularly true of wind; several authors comment that every location has peculiar local winds, and Polybius (9.25.3) preserves a proverb that locals know the winds best. Alciphron (*Letters* 1.10) refers to apparently local weather experts who warn that the constellation of the Bull has risen and a storm is imminent; Plutarch (*Moralia* 972a) also refers to local

[180] One more example makes the fuzziness between philosophers and marvel-workers clear: Apollonius (*Mirabilia* 3) attributes to Hermotimos the ability to predict the weather—which he gained after his soul had traveled apart from his body for years. In this case, predictive ability is gained through "shamanic" activity.

[181] The instances in which weather signs are attributed to farmers or sailors or both (the two are often mentioned together in this context) are too numerous to cite; but see, e.g., Ovid *Ars* 1.399-412; Plutarch *Moralia* 169b; Vergil, *Georgics* 1.252-58.

experts. Many of the recorded weather signs are casual references which suggest they were common knowledge, not the preserve of the literati. Plautus can expect his audience to get the joke when an old woman drinking wine is compared to a rainbow "drinking" up water, a sign of rain.[182] Vergil (*Georgics* 1.176) includes weather signs under the heading of *veterum praecepta*. Although weather signs were stereotypically lower-class knowledge, following the occasional notice of the topic glimpsed in the fragments of the Presocratics, Peripatetic attention led to the collection of many popular signs and substantial curiosity from natural philosophers. The elevation of weather signs to not just literary prominence but to a position of scientific interest made them the province of natural philosophers as well as farmers. Thus arose ambivalence over whether weather signs were common knowledge or specialized, the province of the educated.

Although weather signs had been mentioned sporadically in Greek literature from Hesiod onwards, they were not, Gillespie conjectures, considered a suitably interesting or dignified topic for extended treatment.[183] It was the Hellenistic poets who saw literary value in them because of their very commonness. The appeal of weather signs to the Alexandrian audience of Aratus, with its interest in humble, especially rustic, life, was partly that they were common knowledge. They provided plenty of opportunity to describe rural life and landscapes (most signs being drawn from the sky, animals and plants, or common objects), and were well-suited to catalogues. Later bucolic and georgic poetry makes use of them for similar aesthetic reasons.

The position taken by most Roman authors is that weather signs are common knowledge among the poor, especially in occupations for which weather forecasting is

[182] Plautus, *Curculio* 133. Rainbows were thought to "drink" water, drawing it into the sky from which it later rained back down.
[183] Gillespie (1938) 3-8.

useful; but farmers' and sailors' knowledge of weather prediction is practical, not theoretical—while they can predict the weather sufficiently for their own purposes, they do not understand why what they are seeing works. Vegetius draws a clear distinction between scientific knowledge and common knowledge (4.40-41):

> Interluniorum autem dies tempestatibus plenos et nauigantibus quam maxime metuendos non solum peritiae ratio sed etiam uulgi usus intellegit… Haec gubernatores se scire profitentur, sed eatenus quatenus eos peritiae usus instituit, non altior doctrina formavit.
>
> Not only the theoretical knowledge of the skilled, but even the experience of the common person, understands that the days of the interlunar period are full of storms and greatly feared by sailors… Pilots claim that they are knowledgeable about these things, but only insofar as the exercise of skill made them, not guided by a higher study.

Moreover, ordinary people hold beliefs worthy of ridicule about why the signs they observe work; they believe that the gods send signs to them, personally. It is the educated, particularly those who study natural philosophy, who have a higher-order understanding of weather signs and the natural world.

In the stories about philosophers making forecasts, the philosophers display a superior weather knowledge, and astonish even the people with a practical need for the foreknowledge, such as farmers. The theoretical nature of the philosophers' interest is emphasized in some stories: Democritus' prediction about the olive harvest is an intellectual demonstration which he is goaded into, not of practical concern to him; Pliny even has him give back the money he makes. These stories act in some ways as aitia for meteorology, set in an age before people fully understood weather prediction at even a rudimentary level.[184] Simple observation—the way famers and sailors are said to acquire their weather knowledge—is insufficient to learn the science; Anaxagoras has to go to

[184] This may partly explain the preference for the Presocratics in these stories, rather than more recent experts. Hipparchus in Aelian's version is an anomaly.

Egypt to acquire his meteorological knowledge. These stories valorize predictions learned from natural philosophers, as opposed to those learned by experience—farmers may know some weather signs, but there is a higher level of predictive ability which requires formal study. Aelian's story about Anaxagoras and Hipparchus predicting rain (7.8) encapsulates the ambivalence over signs. It emphasizes the astonishing nature of the philosophers' predictions, but it comes in the middle of a list of common weather signs from animals; and continues:

> …τὸ Ἑλληνικὸν πᾶν ᾔδεν, καὶ θειότερα νοεῖν ἢ κατὰ τὴν θνητὴν φύσιν ἐκόμπαζεν. ὅτι δὲ βοῦς, ἐὰν μέλλῃ ὗειν ὁ Ζεύς, ἐπὶ τὸ ἰσχίον τὸ δεξιὸν κατακλίνεται, ἐὰν δὲ εὐδία, πάλιν ἐπὶ τὸ λαιόν, θαυμάζει ἤ τις ἢ οὐδείς.
>
> …all Hellas sang his praises, and claimed that his wisdom was more divine than human. But no one is surprised that an ox, if it is going to rain, lies on its right side, and if clear weather, the opposite, on its left.

So are weather signs unsurprising or astonishing? Both. Although these particular anecdotes about philosophers are from late sources, the attitude is clear already in Aristophanes' *Clouds*, where the audience is expected to be familiar with weather signs to catch some of the jokes, but the character of Socrates ridicules common ideas about the weather (that Zeus causes rain and lightening) and a theoretical understanding of the weather is used, although in a comically, to separate the learned from the unlearned.

In the Roman world, the ambivalence over whether weather signs are rarefied or common knowledge was complicated further the status of weather prediction as quasi-divination. If weather signs were communications from the gods, they were in some sense ritual knowledge, and there was an impulse to say that not everyone was capable of understanding them. While some methods of divination were common and used by everyone, others were the preserve of specialists, restricted by class and by access to

magical knowledge.[185] The Roman senatorial class controlled official divination such as augury or access to the Sibylline books, while methods such as lecanomancy, lychnomancy, books of oracles, and so on were used by magical specialists whose trade secrets could be guarded.[186] Weather signs are not usually explicitly discussed in literary sources as divination, despite the similarities, and Cicero's discomfort over how to classify them seems to be the common educated position. However, the model of divination, and the division between everyday and learned forms of divination, steps in to inform their thinking on the subject—are weather signs a common type of prediction which everyone might know, or do they border on ritual knowledge, with only the educated able to read their divine communiqués correctly? This brings us back to the fact that many people interpret this greater knowledge as divinatory or inspired; and some encourage this interpretation. There is a trope of the astronomer as a divinely-inspired being. Vitruvius' comments can be paralleled in, for example, Ovid, who, in the first astronomical entry of the *Fasti* (1.295-310), calls astronomers lofty souls who have transcended human faults and subjected the sky to their will; and Manilius—who calls his own astrological poem *carmina*—describes the knowledge of the constellations and their movements as both divinely inspired knowledge which the gods or a personified Nature granted to kings and priests, or as the product of the same aggressively curious human ingenuity which discovered magic (*Astronomica* 1.1-112). Meteorology and astronomy, for Manilius, is the next development beyond extispicy, necromancy, and the control of day and night.

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[185] Varro (3.3.5), for example, refers to the auspices taken by *patresfamiliarum* on the farm from ordinary chickens.

[186] Of course, concern for secrecy varied widely, and literary authors such as Pliny record a great deal of the knowledge of the "magi" and similar figures; but the papyri do attest a broad secretive streak among practitioners. See Betz (1990) .

The Agronomists and Weather Signs

All of these ways of imagining weather signs—what they are, how they work, and what it means to discuss and to understand them—come into play when the agronomists discuss them, as they exploit both the practical and the literary connotations of the topic. Their remarks on weather prediction are aimed, as so often, at a double audience of slaves and landowners, who are each expected to take something different from their texts.

Columella and Pliny both take a theoretical stance valuing practical knowledge of astronomy and weather prediction over theoretical knowledge, while acknowledging the usefulness of the latter to someone who wishes (and has the leisure) to truly master the topic. Thus Columella, in the preface to his work (preface 22-23), comments that:

> Nam qui se in hac scientia perfectum volet profiteri, sit oportet rerum naturae sagacissimus, declinationum mundi non ignarus, ut exploratum habeat quid cuique plagae conveniat, quid repugnet. Siderum ortus et occasus memoria repetat, ne imbribus ventisque imminentibus opera incohet laboremque frustretur. Caeli et anni praesentis mores intueatur, neque enim semper eundem velut ex praescripto habitum gerunt, nec omnibus annis eodem vultu venit aestas aut hiems, nec pluvium semper est ver aut umidus autumnus; quae praenoscere sine lumine animi et sine exquitissimis disciplinis non quemquam posse crediderim. Iam ipsa terrae varietas et cuiusque soli habitus quid nobis neget, quid promittat, paucorum est discernere. Contemplatio vero cunctarum in ea disciplina partium quoto cuique contingit…?
>
> For whoever wants to claim to be a master of this science, ought to know nature very keenly, and to not be ignorant about latitude, so that he has found out what is suitable for each place and what unsuitable. He should remind himself of the rising and setting of stars, so that he does not start operations when rain and wind are imminent and impede his work. He should observe the behavior of the sky and the current year, for they do not always behave the same as if according to a prescription, nor do summer and winter appear with the same aspect every year, nor is spring always rainy or fall wet. I do not think anyone could predict these things without the light of intelligence and without very accurate instruction. For few people can tell what the variety of terrain and the character of its soil denies or promises us. In fact, for how many people is the contemplation of everything in this discipline their part?

Astronomy and meteorology begin Columella's contemplation of the theoretical difficulties awaiting the farmer. He then enumerates further subtopics which the aspiring agronomist should strive to master: a knowledge of the soils in different regions and how to treat them; the specifics of rearing different types of animals, or different breeds within species; what crops to plant in different terrains and how to treat them; the cultivation and methods of grafting all sorts of fruits and vegetables, and so on. He acknowledges that the task seems overwhelming to the beginner, but encourages his audience to pursue it nonetheless (preface 28-31). Nonetheless, not all farmers will achieve this high-level, theoretical knowledge of the subject. For those who cannot, Columella adds:

> Accedit huc, quod illi, quem nos perfectum esse volumus agricolam, si quidem artis consummatae non sit, nec in universa rerum natura sagacitatem Democriti vel Pythagorae fuerit consecuturus, et in motibus astrorum ventorumque Metonis providentiam vel Eudoxi et in pecoris cultu doctrinam Chironis ac Melampodis, et in agrorum solique molitione Triptolemi aut Aristaei prudentiam, multum tamen profecerit si usu Tremelios Sasernasque et Stolones nostros aequaverit. Potest enim nec subtilissima nec rursus, quod aiunt, pingui Minerva res agrestis administrari.
>
> Added to this is that in the case of the man whom we wish to be an accomplished farmer, even if he is not a man of consummate skill, and has not attained the wisdom of Democritus or Pythagoras regarding the nature of the universe, the foreknowledge of Meton or Eudoxus in the movements of the stars and the winds, the learning of Chiron and Melampus in the care of cattle, and the prudence of Triptolemus or Aristaeus about the cultivation of fields and the soil, he will still have accomplished a lot if he has equaled in practice our own Tremeliuses and Sasernas and Stolos. For agriculture can be conducted neither very theoretically, nor, as they say, fat-wittedly [lit., "with a fat Minerva"].

Most farmers, Columella concludes, can get by with a practical, traditional understanding of agriculture. He contrasts Greek theoretical knowledge with practical Italian knowledge, and judges the latter sufficient for most purposes. But the true master of the topic should try to attain the former as well. Although this is true for all of agronomy, the

issue of theoretical knowledge versus practical knowledge most often arises in the context of astronomy. Columella and Pliny both make programmatic comments about their stances on theoretical astronomy and its value to their audiences. For most farmers, they believe, theoretical nicety is not necessary, or is actively harmful to their practice. Thus Columella's comments, already discussed, regarding the Chaldeans' claim that stars influence the weather in highly predictable ways. Columella notes that he has argued against this opinion in another work, and adds that (11.1.31-32): "In this rural science such precision is not needed, but what is called "fat Minerva" will be useful to a *vilicus* in the prediction of future weather" (*in hac autem ruris disciplina non desideratur eiusmodi scrupulositas, sed quod dicitur pingui Minerva quamvis utile continget vilico tempestatis futurae praesagium*). This "fat Minerva", the untheoretical, rule-of-thumb knowledge of the slave overseer, is what Columella says will be insufficient for a farmer in his preface. But there, he is discussing the owner, and the student of agriculture whom he encourages to pursue the subject in depth. For the *vilicus*, this lower-order knowledge will be quite enough to decide when to commence farming operations. To drive his point home, he shortly adds "the farmer should not observe the beginning of spring in the same way as the astronomer" (*veris principium non sic observare rusticus debet, quemadmodum astrologus*; 11.2.2).This distinction between theory and what is necessary for farming coincides with a comment which Columella makes two books earlier (9.14.12), in discussing the astronomical scheme which he will follow; he prefers to use the older, less accurate calendar of Eudoxus and Meton—although, he assures us, he is well acquainted with the refinements of Hipparchus' calendar—because the older calendar is already known to farmers and fits public festivals better, whereas *nec tamen Hipparchi subtilitas*

pinguioribus, ut aiunt, rusticorum literis necessaria est, "the subtleties of Hipparchus are not necessary to the, as they say, fat wits of rustics". Although Columella is interested in theoretical astronomy, and implies that his educated audience may be as well, he finds it unnecessary for rural dwellers and slaves.

Pliny, too, distinguishes between book learning and the practical necessities throughout Book 18. Twice in the preface to his farmer's calendar and catalogue of weather signs he distinguishes between country wisdom and the theoretical (especially astronomical) basis of meteorology (18.205-206, 225-6), saying that a line must be found between paying no attention to nature and relying entirely on abstract theory, fixing the dates on which to commence farming operations strictly by the calendar; and paying too much attention to nature, and abandoning theory entirely. Pliny's solution is not, like Columella, to decide that the practical farmer can get by without astronomical knowledge, but to try to introduce it in a form simple enough for even the uneducated to understand, although he complains that "it is a difficult and immense aspiration, to manage to mix the divine heavens with the uneducated rustic, but the reward is so great that it is worth trying" (*spes ardua et inmensa misceri posse caelestem divinitatem inperitiae rusticae, sed temptanda tam grandi vitae emolumento*, 18.205). The difference in Columella and Pliny's approaches is doubtless related to their larger goals; while Columella is writing a handbook which he expects, in addition to his upper-class audience, to be made available to the *vilicus* on the farm,[187] Pliny's agronomy comes

[187] Columella's farmer's calendar and remarks on meteorology come within the context of instructions to the *vilicus*; in this book, Columella speaks as though he expected it to be left as reference material for the *vilicus*, not the only place where the agronomists imply that their works (or some abridged or adapted version of them, as with Varro's posted calendar) are intended to be made available for consultation by the slaves on the farm.

within the larger encyclopedia, which aims primarily at an audience with a theoretical interest in natural philosophy.

Pliny's book on agronomy thus turns out to include much basic information on astronomy and weather signs. So, despite his protestations, does Columella's. The farmer's calendar which follows his comments on astronomy includes (as was mentioned earlier in this chapter) weather predictions from stars of exactly the type he complains about from the Chaldeans. Perhaps this is a baseline and not meant to be taken rigidly; he does comment that the *vilicus* should understand that stars sometimes make themselves felt before or after the appointed dates (11.1.32). But he also includes a fair amount of astronomical knowledge of the sort he has said will not be useful to most farmers—including references to the calculations of the Chaldeans and Hipparchus (both 11.2.94). Nor is it the only place in the work at which somewhat gratuitous astronomical calculations intrude (cf. 3.6.4, and Book 10, *passim*, which contains a fair amount of mythologizing astronomy). Since he has already said that the *vilicus* will have no need of this information, it appears to be aimed at his other, more educated audience. Detailed theoretical knowledge still distinguishes the true masters of the topic, such as Columella himself. Nor are Pliny's comments on theoretical matters always strictly aimed at a beginning audience. This information carries both scientific and literary prestige—although they cast themselves as, above all, practical farmers, Pliny and especially Columella also make a point of casting themselves as experts with this deeper theoretical knowledge of agronomy which they recommend to those with the education and time to acquire it.

Columella, in his preface, lists examples of topics on which theoretical knowledge will be helpful, like grafting and astronomy. He implies that the benefits will be tangible—a better run, more profitable farm. But the Greek models Columella holds up for the learned farmer to emulate are not just scientists or authors of technical works. Although he includes such figures as Eudoxus, the Hellenistic astronomer, most of his examples are people like Democritus or Pythagoras, with more than a little of the *magus* about them, or they are outright mythological, like the centaur Chiron, the seer Melampus, and legendary culture heroes like Triptolemus and Aristaeus. Columella cites the practical benefits of book-learning on agriculture, but his models are superhuman, not scholarly. Although Columella's theoretical knowledge is ostensibly just a refinement of the practical business of farming, he also implies it is magical knowledge. Possessing technical knowledge of nature and agronomy leads to some intangibly greater benefit than mere excellence at farming; or, perhaps, excellence at farming makes one appear magical to the uneducated, as in the stories about philosophers and the weather. Columella and Pliny's educated audience is invited to join them in possessing a theoretical knowledge of the cosmos which will both make them better farmers than other people—both because they know more, and because simply possessing natural-historical knowledge appears to confer ability through some quasi-magical synergy—and will make them seem superhuman to ordinary people, who are incapable of fully comprehending what they do. Such discussions of theoretical knowledge in the agronomists mostly center around astrometeorology; Eudoxus and Meton, the most human of Columella's Greek models, were both astronomers. When people like Vitruvius say that astronomers and meteorologists seem divinely inspired or godlike, these seem to be partly comments on

how they would like to think less educated people saw them, and partly claims to actual superhuman knowledge.

Witches, Kings, and the Weather

Two other stereotypical figures may be a useful preface to looking at actual Roman weather magic. These groups of stories have more to do with control of the weather than its prediction, but arise partly out of the philosophical debate over nature and control which has just been considered. Criticisms of philosophers who claim to control nature are found inverted in the picture of the Roman witch, particularly in the Augustan poets, and from a different perspective in stories about kings who rival the gods in attempting to control the weather.

The Augustan period saw an explosion of literary depictions of witches, and a fairly standard catalogue of their powers developed, in which the ability to alter the course of nature unnaturally was a commonplace. Witches can call down the moon, stop the stars from rising and setting, perform binding spells, curses, and love magic, call up the dead, shape-shift, blight crops, and do other noxious or uncanny things. Ovid's witch Dipsas is typical: she is said to reverse rivers, cover the sky with clouds and remove them, again, and make the stars and moon drip with blood, as well as have knowledge of herbs, incantations, and love magic (*Amores* 1.8.5-14). But an oddity appears. In a list of otherwise threatening powers, Dipsas is said to clear the sky or bring on rainclouds at will. Other witches can also control the weather.[188] Producing rain and averting storms are useful abilities; what are they doing here? The attribution of potentially beneficial weather magic to witches conflicts with their otherwise gruesome, terrifying or ridiculous

[188] E.g., Lucan's Thessalian witches (*Pharsalia* 6.465-472); Tibullus' witch (1.2.43-52); Ovid, *Metamorphoses* 14.346-415 and 7.153-4.

image in Augustan literature. While the possession of awesome abilities is typical, a willingness to use them benignly is absent—Augustan witches are almost universally antagonists, set on harming others or, at the least, frustrating elegiac lovers. Nor do they show much interest in agricultural life; what literary references there are to witches at work in the countryside involve malicious magic, the destruction of crops and herds.[189] The inclusion of weather magic among their powers seems mostly a device to emphasize the magnitude of their abilities; nature and the gods themselves submit. By Lucan's day, some attempt is made to make these powers more immediately threatening. Lucan's Thessalian witches do not just cause a storm or two, but fill the whole world with rain (6.461-68). But they also disperse the storms they create.

Augustan witches are composite figures invented by (mostly) poets, and have little resemblance to actual practitioners. The elements in this composite include the *lena*, so-called bawd-witches, who pervade Republican literature but are generally more ridiculous than threatening;[190] Greek witches, especially Medea and Circe, the witches *par excellence* (the Roman poets prefer their gruesome aspects to their aspects as epic demigods), and *goetes*, root-cutters and similar lower-class figures who, Gordon suggests, influenced their portrayal.[191] Although some claims of control over nature appear in the portfolio of classical and Hellenistic literary witches, it is not a strong or consistent enough element to explain its omnipresence in Augustan poetry.[192]

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[189] E.g., Ovid, *Amores* 3.7.27-36.
[190] The *lena* is a native Roman figure, with perhaps better claims than later literary witches to reflect real practices. Dickie (2001) 164-168.
[191] Gordon (1999) 182-84.
[192] For the idea of the Roman witch as a composite of earlier magic workers, see Gordon (1999) 204-5. Gordon sees them as "a composite [idea] in which ethnographic allusion to the goês, the root-cutter, and the wise-man or woman, is overlaid by images of natural reversal and the violent disruption of natural order."

The best parallel for the witches witch with power over nature is Orpheus, whose ability to tame nature with his songs was well-known to the Augustans; Horace, for one, comments that he could stop streams and the wind, and draw oaks after him.[193] Orpheus was also credited with the ability to control the stars, calm storms, draw rocks as well as trees after him, and tame animals.[194] The work which most clearly juxtaposes Orpheus' powers with a witch's is in Seneca's *Hercules Oetaeus*, although, since the comparison explains some of the anomalous powers of the Augustan witches, it is likely that it was already in the minds of earlier poets. A choral passage late in the work describes Orpheus' music and descent to the underworld: his songs stopped rivers; drew birds and animals to him or made them fall from the sky, tore cliffs off mountains, and melted snows; in Tartarus, Ixion's wheel stopped turning, the vultures stopped eating Tityos' liver, and Sisyphus' stone followed Orpheus, among other marvels (1031-89). Another character in the play boasts of having mastered nature and visited the underworld: Deianira's old nurse, who says she has made trees bloom in winter, stirred up and stilled the sea against the prevailing winds, stopped thunderbolts, reversed day and night, opened new springs in dry ground and moved rocks, and shattered the doors of the underworld, made the dead speak and Cerberus be silent (453-64). She, too, uses songs and prayers to accomplish this, although Orpheus' abilities are described in more generally favorable terms. The association of witches and Orpheus was persistent; the late antique *Orphic Argonautica* made Medea a student of Orpheus.

[193] Horace, *Odes* 1.12.
[194] On Orpheus, see Graf and Johnston (2007) 165-84.

Why should attributes of Orpheus (and other early Greek shamans) be grafted onto the developing Augustan witch-figure?[195] Several of Orpheus' powers dovetailed conveniently with the rest of the image of the witch being built up. Seneca's play suggests one: the Orphic descent to the underworld recalls the Augustan interest in necromancy and contact with the dead, and necromancy becomes a common power of Augustan witches. Moreover, Orpheus was primarily known for his songs. In Roman thought at this period, the two main concepts of magic, *venena*, magical substances, and *carmina*, spells, are often found as a pair.[196] The poets may have felt that their witches lacked a pedigree for using *carmina*; the other, female, practitioners who went into the witch figure were primarily users of philters, herbs, poisons, and other plant and animal-based compounds which fall under the rubric of *venena*. Medea, in particular, had a well-established reputation as an expert in *pharmaka*, and brought a precedent for this to new depictions. Orpheus provides an archetypical model for the *carmina*-based practitioner, filling out the Roman magical dyad.[197] Orpheus was also usually portrayed as a Thracian, making him perhaps an easy male analogue for witches, who are often from marginal peoples—especially Thessalians, but also Sabellians, Marsians, and other Italian groups.

By acquiring Orphic powers, witches added Greek shamanism to their pedigree and became more nearly a female version of the male learned magician, who in

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[195] On "shamans", see Dodds (1951); Gordon (1999) 135-78.
[196] Graf (1997) 36-60; Collins (2008) 142-62.
[197]This may be particularly relevant to weather magic, where witches, unlike the agronomists, prefer *carmina*. (The agronomists, as will be seen, prefer to discuss weather magic using natural substances which could reasonably be described as *venena*.) Literary witches use herbs for many things, but it is usually incantations which they use to affect nature on a large scale, perhaps because prayers to the gods were such a prevalent method of trying to obtain better weather; magical *carmina* were an inversion of this. In *Metamorphoses* 14.346-415, Ovid's Circe has actually been gathering herbs when she meets Picus and decides to pursue him; she drops her herbs and uses a *carmen* instead to darken the sky with clouds and fog. (Although Medea's herbs in the *Metamorphoses* (7.153-4) are said to calm the sea and stop rivers, they are actually being used to put the serpent to sleep.)

contemporary Roman discourse was likely to have ties to Pythagorean or Orphic movements. As female magic workers, whose primary domain is erotic magic, witches are irrational, emotion-ruled counterpoints of philosopher-mages. The magic literary witches use resembles that of learned magicians in its methods, if not its goals; witches use *venena*, potent substances, in a way quite similar to that which the agronomists recommend; it is a type of physical magic typical of the learned magicians. Natural magic could be suspect even in learned magicians, but in witches it is far worse; in them the claim to control the gods, which critics like Plato impute to magicians to prove they must be charlatans—because that is the natural extension of their claims, and who can control the gods?—becomes literal: Augustan witches actually do control the gods, who, as Lucan says of Jupiter, marvel (6.464-5). This is typical of how the Augustans make their witches alarming; they tend to take philosophical explanations of why magic does not work and twist them into expressions of horror by supposing that it does. [198] The learned magician at least sometimes is believed to approach natural magic in a spirit of inquiry; literary witches always use their magic for frivolous or wicked ends, as when Horace's witches sacrifice a boy for a love spell to enhance their withered charms, or when, in Apuleius' *Metamorphoses*, a witch threatens to cover the sun with clouds if he does not set faster and allow her to summon her lover.[199] Witches are assimilated to Orphic initiates as well as to Orpheus himself. While men could indulge in Orphism reputably, female Orphics were more stereotypically Bacchants. Witches get the dark side of Orphism, including an association with bacchants and maenads, ecstatic worship, and

[198] In another example, the explanation that magic cannot work, because otherwise people who claim exorbitant powers would never be brought to trial for fear of their powers, is changed into anecdotes involving people who do accuse witches and are then magically punished by them. See, e.g., Horace *Epode* 17; Apuleius, *Apology* 26, and *Metamorphoses* 1.10.
[199] *Metamorphoses* 3.16.

mystery religion, things that the Roman state was notably skittish about. Learned male magicians can claim the philosophical, Pythagorean aspects of Orphism and shamans. In Seneca's play, Orpheus' descent to the underworld ends with a very Stoic-sounding account of the natural laws which even the god who arranges the seasons must obey, and the final catastrophe which will end the world. Instead of philosophy, the nurses' endeavors to aid Deianeira—although not involving her own magic—end with the poisoned robe and Hercules' death.

The problem of the gods is inescapable in the case of Augustan witches, who exist in a literary, mythological world of gods, heroes, and epic. While philosopher-mages could turn away criticism by objecting that their critics' understanding of the workings of nature, and of the ways in which gods did or did not interfere in natural laws, was fundamentally flawed, and that they did nothing contrary to nature, witches run immediately into the problem that the gods are very personally present in their universe. To Augustans aware of the criticisms of magic, the witches' mastery of the gods was the working out to a logical conclusion of the collision between epic poetry and philosophy.

An alternate male counterpart to the Orphic witch is the insane or recklessly hubristic king who claims control over the weather (usually thunder and lightening).[200] While the witch lives in a highly personified universe, has extraordinary powers, and defies the gods themselves, insane kings—of whom there are many stories—also live in a universe where the gods are actors, but prove that human attempts to control the weather are ultimately punished. This was such a common trope that Plutarch says bluntly that kings envy the gods and almost wish for the power to produce thunder and lightening.[201]

[200] Fiedler (1930) collects these stories.
[201] *De tranquilitate animi* 10 (=*Moralia* 470b).

These stories fall into a pattern: a ruler tries to produce or imitate thunder and lightening; they may try to claim Zeus' divine perquisites; and they are ultimately destroyed by the gods. Salmoneus, who uses his chariot to produce noises imitating thunder and torches for lightening until Zeus strikes him with a thunderbolt, is the canonical example; a lesser-known Roman story about the archaic king Allodius is very similar, though with the novel detail that his house was struck by lightening and drowned by rain and the rising waters from the nearby lake.[202] (Zeus' response in such stories tends to be unequivocal.) Similar stories accrued to real rulers. Among Caligula's other bizarre behaviors, he was said to have had a machine constructed to give answering peals of thunder during storms, to hurl javelins at rocks in imitation of lightening, and to have challenged Jupiter to a fight to the death.[203] Xerxes' chaining of the Hellespont is an outlying example of a king claiming godlike powers over nature, but was a sufficiently similar story to be partly assimilated to the trope; Juvenal puts Xerxes back in the realm of myth and moral examples by comparing him unfavorably to Aeolus (*Satires* 10.179-184). In all of these stories, the emphasis is on the insanity of a mortal trying to claim a god's powers, and the subsequent reprisals. They perform sympathetic magic, but without the power to back it up, and with sufficient hubris to annoy the gods in the process; and are in a sense both failed witches, who do not have the magical power they think they do, and failed philosophers, who are deluded in their claims to godlike power, since their actions cannot actually produce the effects they want. Despite the chance for the audience to laugh at the kings' pretensions, there is also a strong implication that most people are

[202] Salmoneus: Apollodorus, *Library* 1.9.7; Vergil, *Aeneid* 6.585-594; Valerius Flaccus *Argonautica* 1.662; Hyginus, *Fabulae* 61.250. Allodius: Dionysius of Halicarnassus, *Roman Antiquities* 1.71. See Fiedler (1930) on kings as weatherworkers.
[203] Cassius Dio *Roman History* 59.28; Seneca *De Ira*, 1.20.8.

too foolish to see through their claims—Salmoneus and Allodius both fool their people for a time.[204]

Weather Magic

Weather magic was half of a farmer's arsenal in protecting their crops. However, when predictions were dire, a farmer could take more aggressive steps, and try to conjure rain or avert hail or other disasters. Weather magic ranges from official, communal rituals conducted by civic officials to private practices with or without overt ritual attached, and the agronomists record a number of measures that individual farmers could be take, including cultic prayer and natural magic.[205]

Causing Rain

Rituals attempting to cause rain were common, drought being a perpetual problem in the Mediterranean. The agronomists have little to say here. Most of the rainmaking rituals which there is evidence for were communal, not individual efforts, and thus outside of the tight focus of the agricultural writers on the estate. Attempts to cause rain mostly operated on the assumption that the gods were responsible for the weather; supplicatory prayers were central and provided the overt logic by which ritual was supposed to be effective. However, where we know anything about the context in which these prayers were delivered, the rituals surrounding them also exploited the symbolic associations of clothing, objects, or other physical details to encourage the desired

[204] An exception to the pattern is Numa, a king who successfully produces thunder: cf. Ovid, *Fasti* 3.285-398; Arnobius *Adversus Nationes* 5.1. But Numa has exceptional religious qualifications as the founder of many Roman religious institutions (and the story often winds up being about the correct propitiation and worship of Zeus, as Numa, with the aid of rural deities, draws Jupiter to earth to ask him how to propitiate thunderbolts correctly), and philosophical qualifications, as he was said to be contemporary with Pythagoras and to have studied with the philosopher.

[205] For ancient references, see generally Fehrle (1912); (1920); Fiedler (1930) ; and the numerous articles by McCartney listed above, note 106.

weather. Other methods dispensed with prayer and sometimes with ritual entirely and tried to bring about rain by directly controlling the elements, a process our sources sometimes express discomfort with.

Some prayers for rain are general, anticipatory requests that the weather that year be good. Horace in the *Carmen saeculare* (29-32) prays on behalf of the state that Jupiter's rain and breezes will nourish what Ceres bears. Elsewhere in his poetry Horace describes a chorus of boys and girls, like the ones who performed the *Carmen saeculare*, who "beg rain from the heavens", avert disease and other unspecified dangers, and achieve peace and good harvests by their song; he calls the production of the invocations they sing one of the good deeds of poets.[206] In the *Carmen saeculare*, rain is simply listed as one of the possible benefits which are to be hoped for from the gods, not as an urgent request. Anticipatory prayers like this aim to head off drought and other disaster before it occurs.

The only ceremonies to pray for rain definitely attested at Rome itself were at irregular events like the *ludi saeculares* where the *Carmen saeculare* was performed in 17 BC. Despite annual holidays promoting the fertility of the earth or the health of the crops, there does not seem to have been a particular festival dedicated to securing good weather at Rome. Although some Roman holidays incorporate rituals which have been interpreted as rainmaking ceremonies, none of them can be securely interpreted as such—and even if the "original" function of rituals like the immersion of the Argei or the Poplifugia was to secure rain, this goal was not apparent by the time of our observers.[207]

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[206] *Epistles* 2.1.132-38.

[207] Immersion of the Argei from the Sublician bridge: Burriss (1928) 116; Fowler (1899) 119; cf. Scullard (1981) 120-21. Poplifugia/Nonae caprotinae: Robertson (1987) . Morgan (1901) 83 points to an eagerness in scholars to discover rain ceremonies.

This lack of regular rain prayers may be an artifact of our sources, since works set outside of Rome imply that other communities held annual rites to ensure propitious weather during the growing season. However, the most usual scenarios (and, admittedly, the most dramatic literary material) are prayers made in an effort to end existing droughts, when the year's harvest and the prosperity of the community is at stake.

Tertullian describes both regular, annual processions to pray for rain and spontaneous ones in times of drought (*De ieiunio* 16.4-6). Prayers for rain seem to have been accompanied by similar rituals whether they were proactive or reactive:

> Sed et omnem ταπεινοφρόνησιν ethnici agnoscunt. Cum stupet caelum et aret annus, nudipedalia denuntiantur, magistratus purpuras ponunt, fasces retro auertunt, precem indigitant, hostiam instaurant. Apud quasdam uero colonias praeterea annuo ritu saccis uelati et cinere conspersi idolis suis inediam supplicem obiciunt, balnea et tabernae in nonam usque cluduntur. Unus in publico ignis apud aras, aquae nec in lancibus. Niniuiticum credo iustitium. Iudaicum certe ieiunium ubique celebratur, cum omissis templis per omne litus quocumque in aperto aliquando iam precem ad caelum mittunt. Et licet cultu et ornatu maeroris munus infament, tamen fidem abstinentiae adfectant et stellae auctoritatem demorantis suspirant.
>
> But, more than that, the heathens recognize every form of mental debasement. When the heaven is becalmed and the year arid, barefooted processions are announced, the magistrates lay aside their purple, reverse the fasces, plead a prayer, prepare a victim. There are, moreover, some colonies where, besides, by an annual rite, clad in sackcloth and sprinkled with ashes, they offer a supplicatory fast to their idols, and baths and taverns are closed untill the ninth hour. They have one fire in public, on the altars; no water even in their platters. A Ninevitan holiday, I think! A Jewish fast is certainly celebrated everywhere; while, neglecting the temples, all along the shore and in every open place for a long time they send up a prayer to heaven. And, although they disgrace the duty by the dress and ornament of mourning, they affect a faith in abstinence and sigh for the sanction of the slow-coming star.

Tertullian implies that the irregular processions, performed as needed, are the expected form of rain prayers, and the regularly scheduled ones are even more

astonishing behavior than usual on the part of pagans. He gives a slightly different description of prayers in times of need at *Apology* 40.13-15, where he says that rain rituals are called *aquilicia* and are offered on the Capitol to Jupiter, and complains that, after Christians move their God to pity with their fasting and abstention from luxuries and he sends rain, Jupiter gets the credit. Tertullian's descriptions are reminiscent of the procession described by Ganymede, one of Trimalchio's dinner guests in the *Satyricon* (44), who reminisces about processions of matrons which were once held in response to drought and famine:

> Quod ad me attinet, iam pannos meos comedi, et si perseverat haec annona, casulas meas vendam. Quid enim futurum est, si nec dii nec homines eius coloniae miserentur? …Antea stolatae ibant nudis pedibus in clivum, passis capillis, mentibus puris, et Iovem aquam exorabant. Itaque statim urceatim plovebat: aut tunc aut nunquam, et omnes ridebant udi tanquam mures. Itaque dii pedes lanatos habent, quia nos religiosi non sumus.
>
> As for me, I've eaten up my rags, and if the famine continues, I shall sell my hut. What will happen, if neither gods nor men take pity on this town? …It used to be that robed matrons went barefoot up the hill, with loose hair and pure minds, and begged rain from Juppiter; and immediately it rained by buckets—then or never—and they all laughed like drowned rats. So the gods come woolly-footed to our destruction, because we are not pious.

Prayers assume that gods can be moved to pity; the rhetoric of the prayers seen so far emphasizes the participants' helplessness and dependence on the gods in the face of meteorological disaster. Or they may be reminded of human deserts; the scholia to Hesiod say of the farmer who puts his hand on the plough and prays to Zeus and Demeter to witness his work that he does not merely make a request of the gods, but claims his due from them.[208] Although humans are the typical suppliants in this community, they are not the only beings that can beg for rain. Pausanias (1.24.3) mentions a statue of Gaia on

[208] Scholia in opera et dies 465.

the Athenian acropolis begging Zeus to rain on her.[209] Tibullus (1.7) says that the plants of Egypt, having the Nile, do *not* need to supplicate Jupiter.[210] Prayers for rain rely on communication with the gods, on seeing them as part of the community, with obligations or at least good will towards humans.[211]

Who organized such processions? In Tertullian's description, some prayers for rain are official annual affairs, although in addition to the main procession, people pray *per omne litus quocumque in aperto aliquando*, along the shore in every open place. Others are more spontaneous, but are *denuntiantur*, announced, presumably by the officials who then take part in the procession. Although the magistrates walk with the usual symbols of their offices, the toga *praetexta* and *fasces*, removed or inverted, they still conduct the ceremony and the proceedings have an official character.

Ganymede's procession of matrons seems to be of a different character, at least from what detail we can draw from his short description. Here no officials, or indeed men, are mentioned. This appears to be an all-female ritual, a type not uncommon in Roman life.[212] The *aitia* proposed for such rituals are often occasions on which the men of the city had, as a body, either failed the state or opposed the interests of the women in a sufficiently intolerable fashion to prompt cooperative female action.[213] Such rituals usually involved, at least theoretically, a particular subset of Roman women, such as matrons at the Bona Dea festival or slave women at the Nonae Caprotinae. The prayer of

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[209] Morgan (1901) 91-4 criticizes this interpretation of the passage.
[210] Egypt's freedom from reliance on Zeus was a topos as early as Herodotus (2.13); see Morgan (1901) 99.
[211] In the Greek world, this community membership was sometimes made explicit, as when Thurii supposedly granted the personified wind Boreas citizenship in exchange for destroying an enemy fleet (Aelian, *Varia Historia* 12.61), and Athenian claims of kinship to the same god (Herodotus 7.189, where Boreas is similarly said to wreck the Persian fleet).
[212] On women's rituals, see Kraemer (1992) 50-79; Schultz (2006); Takács (2008) .
[213] For example, Ovid's account of the Carmentalia (*Fasti* 1.461-542) and Nona Caprotinae (Plutarch, *Roman Questions* 29). Collective female action is not limited to the ritual sphere; compare the legendary intercession of the Sabine women between their kin and their new husbands (Culham (2004) 141).

Ganymede's matrons, made when drought has already arrived, may be exploiting the symbolism of a last-ditch effort when more regular, official and male, action has failed. Disastrous weather was often thought to be a result of moral failings on behalf of whole peoples or prominent individuals (Ganymede blames his drought on the degenerate morals of the age); in this context, the fact that matrons, the most stereotypically respectable of Romans, conduct the prayer "with pure hearts" in place of the usual religious actors may also be significant.

There are obvious similarities in the ritual actions and symbolism used in these rites. They take place outside, in view of the sky, a logical location when the gods' meteorological aspects are in the forefront. Tertullian emphasizes that they abandon the temples to pray in the open. So do the matrons in Petronius, who in addition, seek high ground. In the similar passage in the *Apology* (40.13-15), Tertullian contradicts himself and pictures the pagans looking absurdly up at the temple ceilings on the city capitol for rain; since this picture contravenes both other sources and the general custom of outdoor rites, we should probably assume that he has distorted his picture for the sake of polemic. Both Tertullian and Petronius mention that the people in the processions they know go barefoot, and in all of the rituals the participants' clothing is in some degree of disarray, from the purple robes the magistrates remove to the sackcloth and ashes worn by others and the loosened hair of Ganymede's matrons (whose dress is also mentioned, although not specifically disordered). This may be an attempt to metaphorically unbind and loosen the clouds and persuade them to release their moisture.[214] Unbound female hair can be a metaphor for many things; Tesoriero makes a case for it being compared to rain in a

[214] See Collins (2008) 64-103; Graf (1997) 118-74 on binding/unbinding in magic.

passage of Lucan (appropriately enough, on witches' ability to cause downpours).[215] The matrons' hair symbolizes and encourages the desired effect.

In the case of Tertullian, however, ideas of persuasive analogy cannot explain the rituals as wholes. The people praying for rain in his second rite dress as mourners, in rough clothing and ashes; the point is to persuade the gods to take pity on them and prevent this state of affairs, not to bring about the actual misfortune symbolized by the clothing. Sympathetic magic cannot be the governing logic in this case. Nor does mere supplication explain the proceedings. In Tertullian's first example, the irregular processions, the people are asking for relief from an existing disaster. But the annual processions in mourning dress are anticipatory: the people are demonstrating to the gods what state they *will* be in if the year is bad. They mimic the conditions of drought—they keep water hidden, and establishments like baths or taverns that consume water are closed; they fast in imitation of famine. Is this a reminder to the gods of why they need rain, or an attempt to put one over on them, to fool the gods into thinking that things are worse than they are? The Christian prayers for rain which Tertullian describes are similar to the pagan ones—the Christians also envision a god who needs to be persuaded to take pity on them, and to that end, they supplicate him while fasting and disheveled. The only difference is that the pagans pray to the wrong god—who then, Tertullian complains, gets the credit.

These have all been communal, urban prayers rain. More private practice on the farm is also attested. Vergil, in the *Georgics*, comments that there is no use in a farmer praying for rain unless he also works hard; the Hesiodic commentator's description of the hardworking famer praying and receiving his due is the flip side of this. Ovid depicts

[215] Tesoriero (2001) .

farmers praying for rain at the Sementivae, with offerings that include cakes, *far*, and pigs.[216] Some Greek sources complement this picture; Alciphron says that all the farmers in a drought-stricken Attica have sacrificed what they could to Zeus Hyetius, according to their means; the offerings he lists include rams, incense, cakes, and bulls, which he says no one in Attica can afford.[217] Marcus Aurelius admired a simple Athenian prayer for rain (*Meditations* 5.7). Plutarch says that people in Doris pray for a bad period of hay-gathering, because rain may spoil the hay, but at a period when the grain crops need the moisture.[218] This rhetorical approach, which assumes that the universe is contrary and liable to grant what you do not want, is reminiscent of the curses pronounced on seeds to make them come up better.[219]

The most discussed rainmaking ritual of Rome, if perhaps the least understood, involved a stone called the *manalis lapis* which is mentioned in several, mostly late, sources.[220] The earliest notice of it is by Varro, who comments that "we call a vessel a wash-pitcher (*aquae manale*) because water is poured into the wash basin from it. The *manalis* stone is named after this in the books of the pontifs, because it is moved when rain is wanted;" *urceolum aquae manale vocamus quod eo aqua in trulleum effundatur. Unde manalis lapis appellatur in pontificalibus sacris, qui tunc movetur cum pluviae exoptantur.*[221] This rather obscure picture is elaborated by Festus and Servius, who comment on it for linguistic reasons.[222] Festus mentions it twice; he says that the *manalis lapis* was a stone outside the Porta Capena, near the temple of Mars, which was dragged

[216] *Georgics* 1.157; *Fasti* 1.657-704.
[217] Alciphron *Letters* 33.
[218] *Natural Questions* 14.
[219] See Chapter 3.
[220] On the *lapis manalis*, see Samter (1922) .
[221] Varro ap. Non. 574.10.
[222] Festus p. 93 Thewrewk; Servius ad Aen. 3.175.

through the city when it was dry. Rain would immediately follow.[223] Festus speaks of this as a thing of the past, as does Servius. Servius adds that it was the pontifices who dragged the stone, although this may be his inference from Varro. However, Festus places the *manalis lapis* within a larger category of rituals to bring about rain, which he implies do still take place in his own day: "It is called an *aquaelicium* when rain is elicited with certain remedies, as used to be done, if it can be believed, by taking the *manalis lapis* through the city;" *Aquaelicium dicitur, cum aquae pluvialis remediis quibusdam elicitur, ut quondam, si creditur, manali lapide in urbem ducto.*[224]

A great deal has been conjectured about the *manalis lapis* and how it was manipulated. Fowler, picking up Varro's comparison of it to a wash basin, suggests that it had a hollow top which was filled with water, and the drops which sprinkled from it were meant to imitate rain; Burris wanted, fancifully, to see it as a meteoric stone.[225] The only reasonably secure facts are that the *manalis lapis* was dragged or carried through the city, probably under the auspices of the pontifs, and was thought to bring about rainfall. However it was used, it was one of many stones in antiquity which were cult objects. What is clear is that there is some mechanical element to this ritual; while the dragging of the stone may have been accompanied by prayers, sacrifice, or other ceremony—and since it took place under the auspices of civic cult, it very likely had some of these elements—the manipulation of the object is an effective part of the rite. A similar technique used outside of civic cult would likely have been explained as natural magic, and considered part of the realm of the *magi* and similar practitioners.

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[223] Ganymede, too, comments on the immediate efficacy of the matrons' prayer, in the good old days of the previous generation. Magic is always more effective when distant in space or time.
[224] Festus p. 2 Thewrewk.
[225] Burriss (1928) 115; Fowler (1899) 233. See Morgan (1901) 102-6 on the *manalis lapis*.

Festus' use of the term *aquaelicium* highlights the nature of these rituals, at least as understood in his day: they do not create rain, but elicit it, either from gods or natural forces which are withholding it unseasonably. Rain is *supposed* to occur at the right season to nourish the crops; the potential is there, perhaps even visibly, in clouds which are not close enough or saturated enough to drop moisture on the desired area.

An interesting comparison for the *manalis lapis* comes from Greece, where Pausanias (8.38.4) says that:

> ἢν δὲ αὐχμὸς χρόνον ἐπέχῃ πολὺν καὶ ἤδη σφίσι τὰ σπέρματα ἐν τῇ γῇ καὶ τὰ δένδρα αὐαίνηται, τηνικαῦτα ὁ ἱερεὺς τοῦ Λυκαίου Διὸς προσευξάμενος ἐς τὸ ὕδωρ καὶ θύσας ὁπόσα ἐστὶν αὐτῷ νόμος, καθίησι δρυὸς κλάδον ἐπιπολῆς καὶ οὐκ ἐς βάθος τῆς πηγῆς: ἀνακινηθέντος δὲ τοῦ ὕδατος ἄνεισιν ἀχλὺς ἐοικυῖα ὁμίχλῃ, διαλιποῦσα δὲ ὀλίγον γίνεται νέφος ἡ ἀχλὺς καὶ ἐς αὑτὴν ἄλλα ἐπαγομένη τῶν νεφῶν ὑετὸν τοῖς Ἀρκάσιν ἐς τὴν γῆν κατιέναι ποιεῖ.
>
> If a drought persists for a long time, and the seeds in the earth and the trees wither, then the priest of Lycaean Zeus, praying to the water and making the customary sacrifices, dips an oak branch in the surface of the spring, not deep. When the water has been stirred up there rises a vapor, like mist; after a time it becomes a cloud, and gathers other clouds to itself, and makes rain fall on the land of the Arcadians.

The *manalis lapis* is unusual in that the parts of the ritual which look mechanical are in the forefront. Aside from Servius' comment that the *pontifices* presided, we know nothing about the rest of the procedure. Pausanias' Arcadian rainmaking ritual demonstrates how natural magic could be incorporated in the ritual of a civic cult; the gathering of the vapor and its condensation into clouds is described as a purely natural process which Zeus does not enter into. And yet it is performed by an agent of cultic worship (as with the *manalis lapis*), and framed by sacrifices and prayers which are evidently unremarkable. It is also worth noting that the stirring is done with a twig of oak,

Zeus' tree, perhaps to transfer Zeus' weather-controlling powers to the water or the priest.

None of the authors who discuss these rituals expresses alarm at them. Other, private, attempts to manipulate the weather by means of natural magic were considered more problematic. Pliny records a weather charm of the pseudo-Democritean tradition in a catalogue of natural marvels accomplished by the chameleon (28.113):

> Iungemus illis simillima et peregrina aeque animalia, priusque chamaeleonem peculiari volumine dignum existimatum Democrito ac per singula membra desecratum, non sine magna voluptate nostra cognitis proditisque mendaciis Graecae vanitatis…. caput eius et guttur, si roboreis lignis accendantur, imbrium et tonitruum concursus facere Democritus narrat, item iocur in tegulis ustum. Reliqua ad veneficia pertinentia quae dicit, quamquam falsa existimantes, omittemus praeterquam ubi inrisu coarguendum.
>
> To these animals I will add others very like them and equally foreign, taking first the chameleon, thought by Democritus worthy of a volume to itself, each part of the body receiving separate attention. It afforded me great amusement to read an exposure of Greek lies and fraud… Democritus relates that its head and throat, if burnt on logs of oak, cause storms of rain and thunder, as does the liver if burnt on tiles. The rest of what he says is of the nature of sorcery, and although I think that it is untrue, I shall omit all, except where something must be refuted by being laughed at.

This method of producing rain has no framework of licit ritual to soften the claim that the practitioner can affect nature. Whether the original practitioners would have accompanied it with additional ritual is not recoverable; certainly any mention of ritual is stripped out by the time Pliny repeats it. The efficacy of the practice is explained only through the wonderful but natural powers of the chameleon's body. It is not clear whether this is helpful rainmaking or malicious storm-making; left with only the bare statement of the effect of burning the chameleon, it could be either. Pliny considers these claims false, although it is unclear why he says that these practices *ad veneficia pertinentia*, tend

towards the sorcerous, but is willing to repeat other very similar stories about the miraculous powers of plants and animals.

Averting Storms

Romans had little interest in raising winds, a distinct difference from Greek practice, where many prayers and sacrifices to the winds are found.[226] The only examples of Roman attempts to raise wind (as opposed to calming rough winds) occur in a naval context as prayers for favorable winds or hopes that enemies will be wrecked at sea.[227]

The agronomists have little to say about rain- or wind-making rituals, but are full of ways to avert storms, strong winds, lightening, frost, and, worst of all, hail. Amulets, spells, and other mechanistic means of changing the weather are more commonly found as protective measures than in attempts to create weather. However, prayers and sacrifices are still commonly found. Valerius Flaccus, describing the Argonauts propitiating the gods after a storm, [228] compares them to farmers who are led in prayers by a priest to appease the "the heavy anger of the gods and Sirius, ravager of Calabrian fields..." Here again bad weather is attributed to the influence of the stars (Sirius being particularly baleful, though more usually associated with drought and heat than

[226] For agriculture and wind magic, see particularly Bacchylides, *Greek Anthology* 6.53, an epigram in which the speaker thanks the west wind for helping him to winnow his grain. Other winds are propitiated so they do not damage the countryside. See especially the story of Aristaeus of Ceos, who elicited healthy winds from Zeus during a time of drought and plague. References are numerous; see Fiedler (1930) , McCartney (1924a); (1924b); (1930a); (1930b); (1930c)

[227] Actual or implied prayers to winds at Vergil *Aeneid* 5.59 and Statius *Thebaid* 4.746.

[228] Prayers to avert storms are found more often in the contexts of storms at sea than agriculture. Cicero (*De Natura Deorum* 3.20) says that generals embarking on a voyage sacrifice to the waves, a practice which Vergil echoes in Aeneas' sacrifices to Eryx and the Tempests before embarking at *Aeneid* 5.762-78. Private prayers by travelers and their friends to avoid or weather storms are frequent. Particularly interesting is Athenaeus' (*Deipnosophistae* 15.675f-676b) comment on travelers on a ship praying to a statuette of Aphrodite during a storm. For other examples, see Ovid *Amores* 2.11.37-42; Horace *Odes* 1.3; Apollonius Rhodius *Argonautica* 1.1078-1102; also McCartney (1924a); (1924b) .

storms).[229] Seneca, despite scoffing, records that sacrifices were offered at Cleonae to keep hail away: public experts were appointed to watch for it, and when hail threatened, everyone sacrificed what they could, either a chicken, or sheep, or some blood from their own finger (*Natural Questions*, 4.6-7). This account is reminiscent of Alciphron's picture of Attic farmers sacrificing to Zeus for rain according to their means. Despite the public officials, Seneca implies that the action taken is individual; each farmer feels they have to sacrifice to keep their own field safe, rather than communal action being taken to ward off the danger from the entire community. He goes on to muse:

> Rationem huius rei quaerunt: alteri, ut homines sapientissimos decet, negant posse fieri ut cum grandine aliquis paciscatur et tempestates munusculis redimat, quamuis munera et deos uincant. Alteri suspicari ipsos aiunt esse in ipso sanguine uim quandam potentem auertendae nubis ac repellendae. Sed quomodo in tam exiguo sanguine potest esse uis tanta, ut in altum penetret et illam sentiant nubes? Quanto expeditius erat dicere: mendacium et fabula est.
>
> People seek an explanation for this sort of thing. Some, as educated people ought to, deny that it is possible to pacify hail or bribe a storm with little gifts, even though presents do prevail on the gods. Others say they suspect there is some power in blood itself capable of averting and repelling clouds. But how can there be such a strong power in such a small drop of blood that it penetrates to the heights and the clouds recognize it? How much easier to say that it is a lie and a fable.

Seneca offers two models of causation here, one supplicatory and one mechanical. He claims that both are superstitious—despite the fact that supplication does work with the gods—and contrasts such rituals with practical action (the farmers sacrifice instead, he says, of fetching rain gear). Despite Seneca's polemical interpretation that the farmers are sacrificing to the clouds themselves, there is no reason to assume either that the actors

[229] Calling a star personally "angry" is rather unusual, as they were only weakly personified. The stars most often prayed to for safety in storms were Castor and Pollux, who were far more personified than most stars or constellations. Diodorus Siculus (*The Library of History* 4.43.1-2) has Orpheus calm the sea by praying to them, and connects his expertise in this to his initiation into the mysteries of the Cabeiri on Samothrace.

themselves did *not* intend them to win over the gods (as in Alciphron's description), or that they did; it is impossible to guess at which of Seneca's several explanations the farmers themselves would have chosen. However, Seneca's frankness about the range of possible explanatory paradigms for such rituals highlights the ease with which they could be reinterpreted. Cato gives the most detailed account of a private prayer and sacrifice to ward off storms, which are among the dangers which the farmer asks Mars to avert from his land in the *suovetaurilia* ritual: *morbos visos invisosque, viduertatem vastitudinemque, calamitates intemperiasque*; "sickness seen and unseen, infertility and destruction, ruin and inclemency" (141). *Calamitates* and *vastitudo* are storms and other bad weather—sudden destructions, as opposed to the more insidious problems of barrenness or disease. Brehaut suggests that the paired disasters correspond to Pliny's two types of sky-borne crop destruction (storms and blight).[230] Cato's sacrifice is said to purify (*lustrare)* the farm. Brehaut sees the important part of Cato's *suovitaurilia* not as the sacrifice, but the procession of the animals, which draws a magical circle around the fields to keep out supernatural influences.[231]

Carrying something around the fields was a common way of protecting them, as seen of crop magic; it appears equally effective in weather magic. Palladius, in a compendium of advice on avoiding hail damage (1.35; repeated by *Geoponics* 1.14), advises carrying a hyena, crocodile, or seal skin around the land and hanging it up by the house gate, or placing an owl on the ground with its wings outstretched.[232] The final disposition of these objects on the piece of land they are meant to protect makes them a

[230] Brehaut (1933) 120-121.
[231] Brehaut (1933) 120.
[232] Hyena and seal skins were also supposed to ward off lightening; see below. On hanging things up on the gate for protection, cf. Pliny 28.157, where he says that a wolf's muzzle placed there will keep away sorcery.

type of amulets for fields. Other things used to encircle the land only have to be hung up, placed, or planted on the borders. Objects placed in or around the fields are a large category of weather-averters. Most seem to be cases of natural magic—they were substances believed to have a natural antipathy to storms, hail, and wind. The *Geoponics* (1.14) advises hanging up house keys around the land or placing pieces of hippopotamus skin around it. A strip of sealskin is also effective protection against lightening if instead of being carried around and placed near the house it is tied to a prominent vine in the vineyard, protecting one of the plants most likely to be hit (also mentioned at Palladius 1.35). Columella (10.346-7) says that Tarchon planted bryony around his fields to keep lightening from striking them; this is evidently one of the Etruscan rites which Columella has just promised to teach the farmer for appeasing harsh winds and calming storms. Palladius suggests encircling the garden with a white vine to protect it from hail (1.35). Pausanias (2.34.3) describes a similar Greek ritual performed at Methana to keep the summer winds from withering the vines. Two men take a white cock, split it in half, and run in opposite directions around the fields; when they meet again where they started, they bury it. Other objects are simply placed within the fields. Along with Tarchon's bryony, Columella says that the Etruscan inventor of divination, Tages, set up a skinless ass' head near the edge of the field. He does not specify what its function is, but a list of weather charms follows. Pliny (18.294) cites Archibius for the idea that a toad, buried in a new pot in the middle of the field, will protect grain from storms; he gives a similar remedy (18.158) in which a toad buried in a pot protects growing millet from disease. The same passage of the *Geoponics* advises setting a tortoise upside down (presumably it is still alive and needs to be prevented from wandering off) in a field to keep off hail. Pliny

(28.77) says that menstrual blood will drive away hail and whirlwinds if a menstruating woman exposes herself to them; the *Geoponics* repeats this as a remedy against hail (1.14). Plutarch agrees, adding that menstrual blood and moles' blood are both used by the hail-wardens of Cleonae for this purpose.[233]

The use of blood makes the rationale of these charms clear—they are thought to have a natural efficacy against storms with which they protect the land they are placed in. When Pliny says that menstrual blood can avert storms, it is merely the first item in a list of the effects of the blood, which includes its power to kill garden plants, flies and caterpillars, tarnish mirrors, dull razors, make mares miscarry, and blacken cloth.[234] It is a dangerous, corrosive substance; that it has power over nature is not surprising.[235] In another case, Pliny makes the logic of the substance used clear; he says that pouring out vinegar will sometimes disrupt whirlwinds at sea, because the winds are hot and vinegar is a very cold substance (2.132). Pliny's comments on burning a chameleon are also part of a larger passage on the many marvelous uses to which its body can be put, including many amulets for humans to wear. The reasons why certain animals are effective while other animals are not is sometimes explained. Plutarch, for example, mentions that seal and hyena skins are never struck by lightening, and that sailors nail them to masts to keep it away. Looking for an explanation for this phenomenon, he comments that lightening never touches things which are "bitter" or "poor", attributes which he ascribes to both types of skin, as well as to certain plants such as figs (which are also not struck by

[233] Pliny associates menstrual blood's use in averting storms with the caterpillar-killing charm (another instance in which the powerful substance is carried around the affected field); Plutarch *Quaestionum convivialium* 7.2. (=*Moralia* 700c-701d).
[234] 28.77.
[235] Richlin (1997) .

lightening).[236] As with Pliny's toad in a pot which protects the crop from disease, these things do not contaminate others with their poor qualities, but rather absorb bitterness or poorness from the things around them; thus Plutarch goes on to say that rue grown under a fig is sweeter.[237] Pliny (9.42) adds that seal skins remain attuned to the tide and bristle when it goes out. Sea animals were considered safe from lightening, and the sympathetic connection of the skin to the seal's original habitat transfers this safety from lightening to the things a seal-skin amulet touches; hence the advice to tie strips of seal-skin to vines. The efficacy of sealskin and hyena skin against lightening is transferred in the Geoponics to hail. Once an animal had a reputation for a natural power, it seems that attribute could transfer between specific circumstances; power against one meteorological phenomenon transfers to another. Eagles are most usually mentioned as proof against lightening, and the use of an eagle wing against frost may be an extension of this idea.[238] None of these are sacrificial animals; most are not available to the Italian farmer at all.[239] One non-Roman exception is the white cock in the wind ritual at Methana. Although this ritual is not, as described by Pausanias, a sacrifice—the cock is divided in half, not killed normally, and buried in the field rather than consumed—we might wonder if the choice of animal was made because of its sacrificial connotations as well as its availability to ordinary farmers. The rationale of the performers is irrecoverable; if they understood this rite as sacrificial, Pausanias did not portray it as such, although he does say that he also saw sacrifices and incantations used at Methana to ward off hail. There is at least a

[236] Plutarch *Quaestionum convivialium* 5.9 (=*Moralia* 684C); Plutarch *Quaestionum convivialium* 4.2 (=*Moralia* 664B-666D).
[237] For the toad and similar phenomena, see p. 140-44, 193.
[238] Also in the *Geoponics*. Such slippage may be particularly a late antique phenomenon.
[239] The most exotic animals, such as hippopotamuses, appear in the *Geoponics*; those mentioned by the earlier agronomists, including Pliny, for actual use are more prosaic ones like asses. The number of charms Pliny gives calling for the use of parts of hyenas implies that there was some trade which made these accessible.

potential slipperiness between supernatural and natural causality. Seneca contemplates both possible interpretations when discussing sacrifices to hail at Cleonae, where he considers an offering which resembles natural magic—the blood drops—a sacrifice along with more normal animal sacrifices. Although he ultimately rejects the view that clouds can be either naturally repelled or won over by blood offerings, all the sacrifices he mentions can be justified with either a cultic or mechanical explanation.

One notable feature of the weather charms is that there was a more or less agreed-upon body of actions and objects by which weather was though to be controlled, but these were explained in a range of ways both by the practitioners and by our sources. Rather than clear categories—amulets, incantations, prayers, sacrifices, etc.—what we find is an ongoing and creative recombination of magical actions and a reinterpretation of the operative metaphors. Processions around the fields with sacrifices and prayer are found; processions can also make the same circuit with naturally efficacious plants, animals, or substances, which may or may not resemble typical sacrifices (though mostly not, in the Roman world). These substances can also be simply hung up or deposited in or around the area to be protected. Another example from Pliny shows how these field amulets can resemble votives as well as amulets acting through natural properties. In the same passage as his advice to bury a toad in a pot, he cites a lost work of Varro for the advice that a painting of grapes will protect the vines if it is consecrated (*consecretur*) in the vineyard at the beginning of autumn, when Lyra is setting. What god the painting is consecrated to is unclear, and the fact that it is a painting of an object, rather than a real object, is unique except for one much later passage; the *Geoponics* section on avoiding hail repeats Varro's advice to use a votive painting, and adds that wooden images of bulls

will have the same effect if kept near the house.[240] Most of the storm-averting objects the agronomists cite have an inherent potency, like Democritus' chameleon, whereas the painting seems intended to propitiate an unnamed god or perhaps even the storm itself. Although Pliny says that this is dedicated (*consecretur*), what god or goddess is being propitiated is unclear, and a field is not the normal place to display a votive, which would usually be placed in a temple or sanctuary. In one respect this object is a perfectly normal votive offering in that it depicts the thing desired—a healthy grape harvest—but in another, it has been assimilated to the procedure for amulets which work through natural magic. Remedies explained by cultic and natural means look much the same. The same remedies also move smoothly between different problems which they are intended to treat. Thus sealskin protects against lightening or frost; a hippopotamus' skin or an eagle's wing are effective against frost or lightening; Pliny's potted toad, Cato's lustration and a number of other remedies are, as noted previously, effective against the trio of pests, disease, and bad weather.

Incantations were also used to avert storm damage. Pliny twice comments that many people believe that charms (*carmina*) will avert hail, but that he will not repeat the words, since people have such different feelings about these spells.[241] He adds that Cato felt free to include such material in his book, and cites Cato's charm to cure dislocations.[242] The dislocation charm is the most overtly magical instruction in the *De*

[240] Christopher Faraone discusses the use of animal images to ward off pests, bad weather, and evil omens; Faraone's examples are of using likes to ward off likes, or things with an obvious or more metaphorical connection between the apotropaic image and the thing averted. Given the brevity of the *Geoponics*' mention of the bull statues, it is hard to tell why bulls should be appropriate hail-averters. Faraone's Assyrian examples may also cast an interesting light on Pliny's toad-in-a-pot; he cites instances in which images of ominous animals were made and ritually discarded or, sometimes, sealed in pots to prevent the omen from taking place. Faraone (1992) 39-43.
[241] 17.267, 28.29. In the second passage, Pliny includes incantations to heal diseases and burns as well.
[242] *De agricultura* 160.

agricultura, and includes *voces magicae* to be said over the injured limb; thus Pliny seems to be imagining weather charms similarly marked by obscure or magical language.[243] Elsewhere, he ascribes to the *magi* a practice in which tortoise stones (*chelonitis*) were used were used along with prophetic utterances (*vaticinantur*) to subdue storms (37.155). Seneca concurs that the uneducated ancients used to think that incantations could attract or repel clouds, and mentions the *fruges excantare* passage of the Twelve Tables as a similar superstition about the influence of vocal spells on nature.[244] Educated writers are worried about such obviously magical charms, whereas they are less shy about recording natural magic. Vocal magic is more dubious, and harder to rationalize as scientific. The texts of several such incantatory charms to ward off hail survive. Two bronze lamellae found at Avignon contained the text of a Greek spell, which includes *voces magicae* and a request to the gods Oamoutha and Abrasax to help in warding off hailstones, snow, and anything else which might damage the vineyard in which it was placed.[245] The two lamellae were found independently but contain the same text, except for the addition of the name "Julius Pervincus" at the end of one, leading Kotansky to suggest that they were produced locally by the same workshop. (The reference to snow is unusual, and also suggests that they were produced with the local climate in mind.) The less damaged of the two also included magical symbols beside the text.[246] Julius Pervincus is probably the farm owner who bought the second text, which would have been placed in or around the vineyard; the center of the first lamella is pierced with a hole, which Kotansky suggests

[243] On the charm, see Brehaut (1933) 142-43.
[244] On incantations to subdue storms, see also Herodotus 7.191, in which the Persian Magi end the storm which wrecks their fleet with spells and sacrifices. The storm itself had been caused in response to the prayers of the Athenians and others.
[245] Kotansky (1994) , 11A-B (=Heim 240). Kotansky gives a detailed commentary on the amulet. See also Ogden (2002) 269.
[246] Kotansky (1994) includes a picture of lamella A; he does not note whether the second, badly damaged lamella also included more than the text.

means that it was affixed to a stone in the field. The lamellae combine amulets for the fields with the incantations which Pliny and others refuse to discuss in detail, including the *voces magicae* which Pliny's reference to Cato leads us to expect. By exhorting spirits to help, the author may have in mind that they, living in the air, are particularly capable of affecting atmospheric events. A similar inscription was found on a stone at Sidi Kaddou in Tunisia, which lists *voces magicae* and asks unnamed gods to avert hail, mildew, strong winds, and locusts from the vineyards, olive trees, and grain fields of the farmer whose land the stone lay in "as long as these stones engraved with your sacred names are here lying about the land".[247] Fields were not the only things protected by such inscriptions; they are also known from buildings.[248] A lead cross containing a Christian inscription against hail from North Africa gives a nice demonstration of how pagan magical forms could be adapted to a Christian context, and the use of incantations against storms and hail in particular continued into the middle ages; an eighth-century Frankish homily complains about people who ward off storms with inscribed lead tablets and enchanted horns.[249]

Other objects may be used in weather magic. Besides the tortoise stones, Pliny mentions several other types of stone used to control the weather. The *magi* use amethysts (also with incantations) to ward off both hail and locusts (37.124); stones resembling lion skins are burned in Persia to stop storms and waterspouts, to stop water from boiling,[250] and to perform another marvel from the witch's catalogue, stopping

[247] Trans. Kotansky (1994) . See Ferchiou and Gabillon (1985) .
[248] Manganaro (1963) .
[249] The lead cross: Audollent (1951) ; Frankish homily: *Homilia de sacrilegiis* 16. Filotas (2005) 274-6 discusses this and other early medieval instances of weather magic.
[250] Other stones mentioned with the tortoise stones at 37.124, are said to *cause* storms when dropped in boiling water. The operative metaphor seems to be that storms make a motion like boiling; this recalls the priest of Zeus in Arcadia stirring the spring.

rivers (37.142); "tongue-stone" falls from the sky at the waning of the moon, and is used to stop storms, as well as being used by *selenomantiae*, "moon-diviners" (37.164). Isidore of Seville adds that the *brontea*, thunder stone, falls from thunder and averts lightening, while coral protects against storms and hail (*Etymologies* 16.15.24); and that magicians use agate fumes to ward off storms and stop rivers (16.11.1) How most of these are to be used is unclear, but some type of ritual seems indicated by the attribution of these methods to *magi* and diviners. The *Geoponics* says that the stone *chalazites*, when struck with a steel, will avert a hailstorm (1.14). According to the same passage, if you show a mirror to a hail cloud, it will also deflect it. Palladius includes this advice as well, with the explanation that the cloud will either make way for what it thinks is another cloud, or not want to challenge it. Palladius (1.35) also suggests waving bloody axes at hail clouds in a threatening manner, as if they can be scared off. (We might wonder if incantations were used here as well.) This personification of the clouds is rare, and usually only found in skeptical passages, such as Seneca's scornful comments on trying to buy hail clouds off with gifts. Meal, covered with a red cloth, is also said to drive hail away; but Palladius' (1.35) bare statement of this fact does not reveal much about how this was deployed or thought to work, although the cloth may be (or be intended to suggest) a menstrual rag, as cloths touched with menstrual blood have already appeared in other charms.

Sometimes seeds are treated as a precaution, rather than the fields or the growing plants. Columella (2.9.9) says that some people store their seed in a hyena skin for a while before sowing it, to protect it. Although he does not specify what it is thus protected from, the passage is reminiscent of both the hyena skin carried around the fields

in the *Geoponics* and further advice from the *Geoponics* (5.33) to pass the seed through a sieve covered in sealskin, which will protect it against mildew and hail through a natural antipathy to both. Once again, the same objects are felt to be effective when applied in a variety of ways. It also cites Apuleius (2.16) for the idea that mixing a few lentils with the seeds is helpful, for they are antithetical to strong winds.

Lightening posed special threats, practically but especially religiously.[251] Lucretius (5.1218-1225) says flatly that everyone is afraid of being struck by lightening, and excessive dread of it is a standard complaint of philosophers, Epicureans and Stoics in particular.[252] The agronomists on the whole tend to be more worried about thunder than lightning, and what effect it will have on produce; they show only occasional concern for lightening itself.[253] Varro (*De re rustica* 1.40.5) makes light of the fact that people who listen to *haruspices* think that if lightening strikes a tree on which multiple species have been grafted, the bolt will split into as many branches as there are grafts. In addition to Columella's (10.346-7) remedy of bryony planted around a field to ward off lightening bolts, the *Geoponics* (1.16) advises burying a hippopotamus skin in the field for the same purpose. These charms feel rather perfunctory—the hippopotamus skin seems to be borrowed from the *Geoponics*' similar advice on avoiding hail (1.14)—and lightening striking a field, even one with orchard trees or vines, would seems less worrisome than it hitting farm buildings, animals, or workers, a possibility which is not mentioned.[254] Given the philosophical scorn for lightening superstitions, the agronomists

[251] Seneca, *Natural Questions* 2.31-59, discusses Roman attitudes to lightening extensively.
[252] Seneca, *Natural Questions* 2.59; Epicurus, *Letter to Pythocles* (=Diogenes Laertius 10.25).
[253] See p. 202 on the effect of thunder on produce.
[254] Cato (14.3) mentions the possibility of a farmhouse being struck with lightening while it is being built; although his advice for this contingency (*de ea re verba uti fiat*) has usually been taken to mean that an expiatory prayer should be made, this section is part of a list of the duties of the builders, and it seems simpler and more in keeping with their competence to interpret this as meaning merely that they should

may have been reluctant to discuss it, while the effects of thunder on produce and animals was a safer subject.

The classical authors do not take much notice of frost as a danger to plants. When it is mentioned, it is generally associated with mildews and other plant diseases, as though it were a type of crop blight, and with garden pests, rather than with inclement weather. The *Geoponics*, which reached its final form in the climate of Constantinople, does offer ways to protect plants, especially vines, from frost. Remedies include burying the right wing of an eagle in the field to be protected (1.14), planting beans in the vineyard (5.31), or secretly rubbing the vine-pruning knives or its whetstone with bear fat, garlic oil, boiled caterpillars, goat suet, frog blood, or ashes and oil (5.30).[255] Most of these remedies are said to be effective against insects or blight as well. The admonition to keep a procedure secret is unusual for the agronomists, although not uncommon as a magical precaution. Palladius expands on this (1.35); the procedure is supposed to be kept secret from the pruners, and if it is done publicly, it will not work.

One metaphor which seems to be purely literary is that of weather which can be enclosed in a container. The most portable of these weather-holding containers is the bag of winds made from the skin of nine-year old ox which Aeolus gives to Odysseus (*Odyssey* 10.19-26). Philostratus describes a place in India where two jars, a Jar of Winds and a Jar of Rains, are kept, which the inhabitants use to regulate the weather; Philostratus draws a parallel with Aeolus' bag. In the *Aeneid*, the winds are not a substance from which a portion can be measured out and carried with one; they are personified beings imprisoned in a rocky cave, capable of being exhorted to effort or

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inform the owner of the accident. See Dalby and Brehaut *ad loc.* For medieval and early modern Italian worries about lightening, see Wilson (2000) .

[255] On the application of substances to tools instead of directly to the plants, see p. 233.

admonished (1.50-64). Magicians do not, by the surviving evidence, use this way of thinking about the weather; there are no magical instructions on how to confine or release weather. The trope does share the low degree of personification of the weather with magical operations, which is usually seen as a force or substance but not a being. The exception is the winds, which are named and personified and receive cult; but even in this case, a few significant cardinal winds are treated as beings, with most of the sub-winds only weakly personified. The weather itself is not commonly supplicated, but controlled.

Conclusion

The agronomists, as will be seen in Chapter 5, worried about rival sources of expertise on the farm—they are eager to deny that members of their *familia*, especially the *vilicus*, were capable of independent judgment or possessed knowledge in ritual affairs. Weather prediction thus posed a problem for them, inasmuch as it was stereotypically lower-class, practical knowledge such as humble people might be expected to know; but in the literary world, it carried prestige, and in the realm of philosophy, problematic associations with secret knowledge and wonder-working. The two levels of knowledge which Columella and Pliny suggest are at work—practical and theoretical—show their attempts to cope with the fact that the master *must* know more than his subordinates—even when he does not. This attempt by aristocrats to monopolize and hierarchize non-elite knowledge are most obvious in the realm of weather prediction, but probably characterize much of the agronomists' other magical advice. Where did Columella learn to make an amulet to cure a shrew-bite in cattle? Ultimately, much of the lore on veterinary medicine, fertilizers, amulets, bug repellants, and so forth which the agronomists record must come from the countryside. Pliny remarks that many plants with

useful properties remain unknown to science, although country dwellers know them; although the agronomists occasionally imply that much of their advice originated with such people, their works show a continuing effort to launder humble knowledge through natural philosophy and make it the exclusive possession of the educated; or, more charitably, to improve on traditional knowledge with modern science.

In addition to the theoretical tensions, weather prediction demonstrates the literary tensions at work in the handbooks: the agronomists want to seem like unpretentious farmers, but they also capitalize on the fads for weather signs and calendars. The result is that their personas as authors show an occasionally odd mix: they are plain folk, but aware of literary and cultural trends; they are wealthy and educated, but have the knowledge of poor, illiterate rustics; and they are scientists, but do not entirely deny that understanding nature grants them special powers.

CHAPTER III

Crop and Animal Magic

Introduction

As we might expect, a great deal of magic was focused on the actual produce of the farm. This chapter will examine how Romans attempted to encourage, influence, and predict the growth of their crops and animals and ward off agricultural disaster.

Formal cult offered many ceremonies concerned with the major stages of agriculture—plowing, sowing, harvesting, and so forth; and so cult will be more visible in this chapter than in subsequent ones. Where to draw the line on discussion of these ceremonies is somewhat difficult; whether we want to discuss them as magic or not often depends on how instrumental we think they are. How direct a benefit for the crops did a farmer expect to receive from propitiating agricultural gods? However, many of these celebrations are at least formally explained as taking place to directly benefit the crops or animals. In general, I have tried to at least mention rites which appear to be purely propitiations of agricultural deities[256], even if I do not feel there is much to talk about in terms of magical effects; but since nearly every ritual of Roman religion has been postulated as having an agricultural origin at one point or another, I have tried to confine discussion to rites where it is reasonably well attested that actual farmers made use of them, and ignored ones only connected to agriculture by, for example, ancient etymological speculation. Nor have I much touched on rural deities who were propitiated

[256] Although what constitutes an agricultural god could be a matter for some discussion, for which Varro's agricultural pantheon provides a start (1.1). Do we, for instance, consider the sun and moon agricultural gods?

but do not appear to have been thought to influence the farmer's produce directly, like Faunus; nor the celebrations of rites which were related but ancillary to agriculture, such as the Fornacalia, at which grain was toasted.

The agronomists, it turns out, are not much interested in formal cult; apart from injunctions to make sure festivals are observed, they say relatively little about the agricultural festivals which, we know from other sources, were intended to propitiate the gods who might help the famer and to enlist their aid. Cato is the exception, since he gives instructions for the performance of several festivals; but he focuses more on the practical arrangements than on what benefit he expects the farmer to derive. After Cato, the agronomists appear to feel that cultic ritual is outside of the proper scope of their books, and largely pass over the matter. They are far more concerned with natural magic—the operation of sympathetic connections which they can manipulate to their advantage—and offer reams of advice on how to prepare fertilizers, amulets, charms, and other tricks which constitute both marvels and the ordinary working of nature. These things offer both more specific remedies than cult, and ones which anyone can use. As will be seen in Chapter 5, the agronomists are very concerned about who can perform ritual on the farm; natural magic, on the other hand, although they often express uneasiness or surprise at it, is available for anyone to use casually—an obvious advantage, since farm owners could thus leave matters in the hands of their staff, wheras cultic ritual demanded their attention.

When examined together, it becomes clear that agricultural magic shares a common grammar of magical forms and actions—processions, the use of amulets, and other, similar elements—which appear alike in cult, natural magic, and overt magic,

although with different rationales. Likewise, ingredients and objects have webs of associations which can evoke, for instance, cultic practice even when they are used in ostensibly natural remedies, or which suggest a natural-historical basis for cultic practices.

General Precautions

A few general precautions regarding the timing of work throughout the year appear so frequently that they require some discussion before moving on to discuss particular farming operations. The Roman festival calendar dictated days on which work could and could not take place for religious reasons; the agronomists also record less formal taboos on the performance of work, which many people appear to have observed despite the fact that they were not required to by official cult. The phase of the moon was also taken into account when timing work, as it was believed to affect the growth of crops and animals.

Festivals and Other Restrictions on Working Days

Cult and custom placed restrictions on when work could or could not be done, and what kind of work was appropriate for certain periods. Heavy work was avoided on festival days, although lighter work such as clearing weeds, grinding grain, cleaning and taking produce to town could be done.[257] The sanctity of the festivals was to be observed, and the members of the *familia* be given a rest. In particular, oxen were not to be yoked, although Cato lists light tasks for which exceptions were made (138). Cato notes that mules, horses, and donkeys were only given family festivals off, whereas oxen received the communal festivals as rest days and even had their own festival along with their

[257] See Cato 2.4, 5.1, 138; Columella 2.21.

herders (Cato 83).[258] The animals who do the heaviest work and are most crucial to the farm are treated the most as though they were human members of the household for ritual purposes, although not at other times—this situational change in how animals are regarded will be seen again in regards to methods of dealing with vermin.[259] Columella (2.21) goes into greater detail than Cato about what is and is not allowable to farmers on feast days. While he generally preserves Cato's distinction between heavy and light labor, he also mentions that certain tasks which would normally not be allowable can be carried out if the farmer sacrifices a puppy first—sowing, sheep shearing, gathering grapes, cutting or binding hay. The sacrifice of a puppy, of all animals, is unusual, and in the agricultural realm most immediately recalls the dog sacrifices of April, especially the Robigalia, to keep mildew off the crops.[260] While in the case of the Robigalia sympathetic reasoning may lie behing the dog sacrifice, it is unclear why a puppy is an appropriate sacrifice here. The sacrifice ought to be intended to placate a deity for profaning their festival by performing work which should not be done on it, but unlike the pig which Cato says to offer before cutting a grove or tilling ground, a dog is not a usual sacrificial animal, nor are there obvious symbolic associations which the sacrifice exploits.[261] Columella, who also cites Cato and Vergil as his sources for tasks for festival days, says he has gotten his information from the pontifs on the matter of the dog sacrifices, among other festival-day prohibitions. Despite the seriousness with which the agronomists say to observe the festival days (Cato, 5.1, makes enforcing the prohibitions one of the *vilicus*' important tasks), Columella is ambivalent about a similar taboo on

[258] See also Pliny 18.12 on old public games, the Bubetii, which he says were in honor of oxen.
[259] See Chapter 5.
[260] See below.
[261] Dogs are sacrificed to Hecate, but not to usual agricultural deities. Plutarch, *Roman Questions* 68, seems equally baffled by the Luperci's sacrifice of a puppy.

carrying out heavy work around the start of the year. Those who cultivate very religiously (*qui religiosius rem rusticam colunt*) will not work the ground with iron tools from December 13 to January 13, except to dig vine trenches and to make a good-luck start to all kinds of work on the Kalends of January (Columella 11.95, 98).[262] This prohibition on what kinds of work can be done, like the other restrictions Cato and Columella mention, also more or less limits operations to light work, with an exception made for the important seasonal tasks (here, trenching vines); the only real difference between this and the observance of festival days is the length of time involved (a month, not a day or two) and the lack of an official celebration which it is liked with (although festivals like the Saturnalia and New Year's fall during this period). So why is it, as Columella says, a precaution of only the *religiosiores agricolae*? Because of the lack of an official celebration and the authority of the pontifs or other official sources, Columella appears to consider this a matter of *religio*, superstition or over-scrupulousness in religious matters. But he still only lists labor for this period (we are in his farmer's calendar here) which does not violate this rule. So does he feel the prohibition is worth observing, or that it is rustic superstition? It is hard to tell; Columella does not explain why the period is to be observed; nor does he record whether an offering has to be made if it is violated. He is the only one of the agronomists to mention it, and gives the impression that he is unwillingly acceding to a rustic tradition which he feels is unnecessary. Farmers with smaller estates may have found it easier to refrain from all but light work in winter, and been glad of the break; Columella, who launches into rules for winter rations at this point in his farmer's calendar, still finds plenty of tasks to be done but seems nervous at the prospect of his hungry labor force simply sitting idle for the period. While the

[262] On avoiding the use of iron, see below.

agronomists are emphatic—publicly, at least—that official festivals should be observed, Columella is more reluctant to countenance rural traditions which he can discount as overly observant.

Precautions Regarding the Phase of the Moon

Precautions regarding the phase of the moon are very frequent in the agronomists.[263] The moon was believed to exert an influence on plants and animals, with its regulation of the tides often cited as proof that it must influence life on earth.[264] The waxing moon was thought to make other things increase along with it, hastening and encouraging growth, and making things swell and soften; while the waning moon had the opposite effect, hindering growth, shrinking, and hardening. Moon phase precautions are pervasive in the Roman world, and Pliny's explanations of them typify the way natural-historical, magical/sympathetic, and astrological explanations combined in the rationales for why farmers should take the moon into consideration. Pliny considers the moon's effect to be a type of astrological influence, such as that which he believes the stars also exert on earthly events (2.108-110), while he conflates its effect with those of constellations and says that constellations create weather, and disturb people's bodies; certain trees and flowers, like the heliotrope, are affected by daily or seasonal movements of heavenly bodies; and the moon makes the shells of oysters and other shellfish swell or shrink, affects the tissues of animals like shrews, makes ants vigorous or torpid, makes cattle diseases increase and diminish, and so on (2.108-110). While many ancient explanations were advanced for why astrology worked[265], Pliny seeks a naturalistic

[263] On which, generally, see Tavenner (1918) .
[264] Pliny 2.212-23, especially 221. See also 2.106-110.
[265] Barton (1994) .

explanation for why the moon (and other heavenly bodies) affect earthly things, citing both the moon's moisture, which increases with its disc and causes crop blights and frost (18.275-77), and makes things swell, soften, and decay (2.223), as well as having more directly sympathetic effects.

What this meant for the farmer was that operations in which a cessation or decrease was desirable were thought to be best carried out during the waning moon, and those desiring an increase or growth during the waxing moon. Manure is to be dealt with in a waning moon to inhibit the effect of weed seeds mixed in it; but it is to be spread on the fields in a waxing moon to harness the increasing effect to the manure's own fertility. Eggs are set under hens so that the moon aids the growth and hatching of the chicks. These are only a few of the comments on moon phase found in the agronomists, who advise cutting timber, harvesting, shearing, planting, processing food, weeding, and carrying out other basic farm operations in the correct lunar period.[266] The advice appears already in Cato, who does not bother to explain why one does what one does in a particular moon phase, evidently finding it to obvious to mention; and these beliefs are found with remarkable consistency throughout Roman antiquity, with the *Geoponics* still repeating the basic principles, if occasionally a bit garbled. Sometimes some disagreement is found; Columella, for instance, gives the opposite of Pliny's advice on manuring, saying to do so when the moon is waning to rid it of weeds (2.5.1).

[266] On moon phase beliefs, see especially Varro 1.37; Pliny 2.108-110, 2.112-223, 18.323-5; and *Geoponics* 1.6-7; but also Cato 17.1-2, 29.1, 31.2, 37.3-4, 40.1; Columella 2.51, 2.10.10, 2.10.12, 2.10.30, 2.15.1, 2.17.2, 5.11.2, 6.26, 8.5.9, 8.7.4, 8.11.11-12, 11.2.11, 11.2.52, 11.2.85, 11.3.22, 12.16, 12.19, 12.44-7, 12.55.3; Pliny (selectively) 7.38, 9.96, 10.151-53, 14.136, 15.57-62, 16.190, 16.194, 17.108, 17.112, 17.215, 18.119, 18. 150, 18.200, 18.228, 18.314-325, 19.113, 28.28, 28.77; Palladius 1.6, 1.27-29, 1.34, 11.12, 13.5.6, 10.1, 10.13; *Geoponics* 2.14, 2.18, 2.221, 2.35; Book 3, passim; 4.12, 4.15, 5.10, 5.46, 7.6, 10.2, 10.75, 12.30, 14.7; Theophrastus, *Historia plantarum* 8.10; Vergil, *Georgics* 1.275-86.

The disagreement between Columella and Pliny is symptomatic of an arbitrariness in deciding what the moon is supposed to affect by these precautions, as this last example shows; does the farmer harness the waxing effect on the manure or the waning effect on the weeds? Whichever is chosen the opposite possibility is ignored; Pliny is not worried about encouraging weeds by manuring in a waxing moon, nor Columella about hindering the manure's effect. In any case, these beliefs about the moon were widespread and not restricted to the realm of agriculture; Varro's speaker Agrasius, for instance comments that his father taught him never to cut his hair while the moon was waning, for fear of going bald (1.37). Pliny cites the bean's regenerative powers during the new moon among the reasons it is lucky; it will fill out at this period, even when grazed (18.119). Presumably its regenerative qualities and its sanctity are why he adds that a bean is included in auction lots for luck. Pliny is not the only one to bring astrological principles to bear; Columella and Pliny both make occasional comments on whether the moon should be above or below the horizon for a task, and on the astrological situation, though Pliny only attributes to others combinations of astrological considerations and moon phases.[267] Clearly such advice already existed, even if it was not yet much regarded by the agronomists. By late antiquity, the *Geoponics* includes detailed astrological advice on what to do when (5.46; Book 1 also contains a great deal of astrology). The tendency of timekeeping systems, meteorology, and astronomy/astrology to become ever more combined in late sources is notable in other areas as well, especially weather prediction.[268] Pliny cautions against being too precise in trying to fix days of the lunar month for operations, and complains that Vergil is overly nice in this regard (18.231).

[267] Columella 2.10.10; Pliny 17.215, 18.200.
[268] See Chapter 2.

Although Pliny justifies his advice with natural-historical explanations of why moon phases are important, not everyone will have felt this to be necessary.

The agronomists are obviously drawing from a substantial body of folklore, and there are occasional hints that acting on moon phases could be considered superstitious. Pliny's comments on beans suggests that their tendency to increase might be harnessed magically to make other things increase, such as the auction lots or the money changing hands. Alternatively, they may simply be a good-luck charm in this context; but Pliny anyway does seem to feel there is a connection since he mentions the moon's effects on beans in this context. Pliny also comments that there is a religious scruple (*id etiam religionis servant*) which dictates that a graft be inserted in a tree with the moon waxing and using both hands. Why this particular lunar precaution should be a matter of *religio* is unclear. The existence of a second ritual element may be what makes Pliny label it as such; although he only comments, prosaically, that it is easier to insert a graft with both hands because more force can be applied, restrictions on which hand or hands can be used are common in magical plant-picking rituals such as the ones found in Pliny, the magical papyri, and other sources. It is unclear whether Varro intends for us to laugh at Agrasius' comment that he avoided cutting his hair when the moon was waning; many of Varro's interjections like this are meant humorously, such as Varro encouraging Stolo to recite a charm for Fundanius' sore feet (1.2.27), and Agrasius' comment that he learned this principle from his father suggests that Varro considers this an old-fashioned belief. However, most of the lunar precautions which Varro gives are introduced quite seriously, and Varro is the most cautious of all the agronomists about including what he feels to be superstitious material. For the most part, the agronomists treat lunar precautions seriously

as useful advice for the farmer. Possibly it is the extension of moon phase considerations to non-agricultural realms which they disapprove of, although it is unclear why Varro might consider cutting the hair at certain times of the month to be ridiculous when the moon's effect on crops and animals is something they endorse. Context, perhaps; as often, the agronomists *want* to justify agricultural beliefs which they feel work, but do not hesitate to ridicule similar practices in other spheres of life where they can afford to discard magical help.

Magic for New Crops: Preparing Land and Planting

A large body of ritual and other magic surrounded the preparation of land and the planting of crops, although the largest number of official festivals came later in the agricultural cycle and were aimed at protecting the crop once it had sprouted. A number of natural remedies were also deployed early in the year to aid the newly-planted seeds.

Preparing the Ground

Cato describes two rituals connected, one definitely and one more tenuously, with preparing land. The problematic example comes first and is a prayer and sacrificial procedure to be observed before thinning a sacred grove (139). Why Cato thinks his farmer may need to thin a grove is unclear; the verb (*conlucare*) indicates letting more light in by removing extra branches, not clearing the land, and Pliny (17.267) seems rather surprised that Cato feels this is allowable. In any case, Cato tells the farmer wanting to do this to sacrifice a pig and to say a prayer to the god or goddess of the grove—the prayer provides for the deity to be unknown—asking them to accept the sacrifice in exchange for the invasion of their ground. This looks like a fairly straightforward propitiation. However, Pliny is not merely dubious about the work to be

done, but about the prayer itself, which he lists after Cato's dislocation charm (160), spoken charms against hail, and natural remedies to keep cattle from grazing plants as examples of human ingenuity. Perhaps the mention of Cato's prayer is merely an afterthought, jogged by the mention of the dislocation charm; but in that case Pliny still sees a similarity between one spoken formula and the other. Given his surprise that Cato suggests cutting a sacred grove, the theme appears to be trying to make things right by improper human intervention. Pliny says he will not repeat the words of the hail-charms which he mentions in this section because people feel very differently about them, and he refers people to Cato's book for the words to the prayer, which he also does not repeat. (He does, however, give the recipe for diluted cow-dung to be sprinkled on trees to keep cattle from grazing them; while not obviously natural magic except by association with Pliny's other examples of marvelous things here, the different degree of openness about what exactly this remedy entails is worth noticing.) Pliny seems to disagree with Cato about the propriety of his ceremony.

In any case, Cato also offers this prayer, with slight modification, as a formula to be used when you want to dig ground—whether this means working the ground of the grove or digging elsewhere is unclear, though the latter is more likely, since there were more limited reasons to be digging under trees. A pig is sacrificed, and the sacrifice is specified to be for the sake of doing the work (*operis faciundi causa*). The rest of the prayer is the same, so presumably the offering is made to an unspecified god of the locale or one whose name the farmer supplies; it is not given in Cato. Digging is mentioned, but not plowing; this may be a matter of digging a garden or planting trees, vines, or other plants. Digging or otherwise disturbing the ground was always religiously problematic

and required propitiation, so this is not an unusual precaution to take; Cato, however, is the only agronomist to mention it.[269] What is most notable about these rituals is Pliny's feeling that there is something wrong about them; that the grove-cutting prayer, at least, is not so much licit cult practice as an attempt to create a loophole in religious prohibitions and assert the farmer's desire over the god's. Cato, by contrast, appears to see nothing unusual in the procedure.

The *Geoponics* preserves one bit of magical advice connected to plowing: inscribe your plow with the word φρυήλ before plowing, and it will make the land fertile (2.19). If the word is to be understood as Hebrew, it ought to mean something along the lines of "fruit of God".[270] But this is very late, and unparalleled earlier.[271]

Planting

Once the soil was ready, ritual surrouned the sowing of crops. Lunar phases were taken into account in deciding when to begin planting. Cato and Varro, although they discuss the moon in regards to timing other operations, do not mention it in regards to planting; but the imperial authors are very full of such precautions.[272] In general, things are best planted at the waning moon, with a few exceptions: for instance, Columella says to plant vetch in the waning moon or slugs will damage it (2.10.30). Perhaps the moon helps the slugs more than the vetch because it is associated with moisture and slugs are damp; it is clear that lunar precautions were not a simple matter of associating the waxing moon with increase, but were complicated and carefully considered, at least in authors,

[269] On propitiations when disturbing the ground; see, e.g, Pliny 25.30, 25.105.
[270] Rose (1933) .
[271] Although along similar lines, Pliny has a magical use for earth from the plow; see below, p. 202.
[272] Lunar precautions regarding planting: Columella 2.10, 2.10.15-16, 2.10.30, 11.2.85, 11.3.22; Pliny 18.158-200, 18.228, 18.322-325; Palladius 12.1, 1.6; *Geoponics* 2.14, 2.18, 3.2, 5.10, 10.2, 10.12, 1.6, 1.7.

like these, who are interested in meteorological influences and astronomy to begin with. The *Geoponics* weighs its options: trees planted in the waxing moon will grow larger, but those planted when the moon is waning will be shorter and stronger (10.2).

The farmer had to be careful not to undercut his own efforts, as well as to ward off threats. A variety of precautions had to be observed in regards to sowing. Cato comments that the seed must not be cheated, a maxim which he places among the *vilicus*' duties; for, he says, it brings bad luck (*segetem ne defrudet; nam id infelix est*; 5.4). As to how one cheats a crop, Pliny, who calls this an oracular saying (*oraculum*) which should be observed carefully, takes it to mean that you should not try to spread seed too thin. Whether this is precisely what Cato meant is uncertain; the context, a miscellany of advice and orders, does not help. However, the phrasing *infelix* suggests a more than purely natural problem; however one cheats a crop, it is not a mere practical miscalculation, but an invitation to misfortune. Pliny, whose comments deal purely with the seed investment, does not repeat Cato's "unlucky" comment.

Almost all of the agronomists record prohibitions against working the garden with iron tools, particularly around the time of sowing. Columella, for instance, says that when growing Medic clover, after sowing you should cover the seed using wooden rakes and thenceforth not touch the place with iron, instead using wooden tools to hoe (2.10.27). Pliny similarly says that mint, rue, basil and savory should not be touched with iron, a prohibition that he attributes to an Augustan writer, Sabinus Tiro (19.177). Palladius advises against touching lucerne with iron, preferring wooden instruments, and the *Geoponics* calls it an ancient precept not to touch a vine with iron before it is three years old (3.3). Palladius suggests that this is to avoid injuring the plants, and Columella

describes Medic clover as a weak plant, which has to be protected carefully from weeds; wooden tools seem to be less injurious to the tender saplings. However, iron is often either problematic or especially effective in magical contexts—its effect is always strong, whether for good or ill—and it occurs in clearly magical contexts elsewhere in the agronomists. Columella mentions superstitions against touching the ground with iron at midwinter (above); and warnings not to touch plants with iron, or uses of iron to neutralize powerful or dangerous plants and protect the picker, are familiar from the magical papyri and other plant-gathering rituals.[273] Iron's effect is to bind and restrain, and the agronomists use it to protect setting eggs, cure a variety of plant ailments, and to protect produce like wine; it restrains these things and protects them against spoilage.[274] In other cases, they specify iron tools for treating plants, with or without other natural/magical elements such as smearing the tools with bear's fat or garlic to make the plants immune to insects or avert storms.[275] Columella's *religiosi* farmers avoid using iron tools at the beginning of the year, although on January 1 they make a start of all kinds of work for good luck (a custom mentioned by Ovid, *Fasti* 1.165-9); the point may have been to avoid inhibiting the new year. Alternatively, the concern may have been more intimately connected to the fact that brain was sown in this period. Columella says that very careful farmers (*prudentes agricolae*) do not plow or prune for fifteen days before and after the winter solstice—the same period he mentions at 11.95. The comment is obscure, but these careful farmers seem to be avoiding the use of iron tools during a period when grain was sown and sprouting, perhaps to avoid binding the new crop.

[273] E.g., Pliny 12.29, 23.163, 24.12, 24.68, 24.103, 24.171, 24.199, 25.105.
[274] All discussed below.
[275] See p. 235-6.

The ambivalence which the agronomists show over this matter is typical of how they approach things that are too obviously connected with magic; Columella dismisses the fear of iron in one passage (11.95), approves of it in another (2.8.2), and in a third (2.10.27) tries to give a natural explanation for it harming tender plants, while embracing the binding effects where convenient for protecting things (8.5.12). The difference in how he approaches the avoidance of iron around the winter solstice may be blamed partly on how directly the text is engaged with it; when he complains about superstitious farmers, the passage is immediately concerned with what one can do in particular periods, whereas his comment about careful farmers avoiding iron tools is a tangent to his discussion of sowing. Consciously or unconsciously, Columella is more critical of superstition the more directly attention is focused on it; when the audience's attention is elsewhere, it is more likely to meet with quiet approval.

In a few cases, the agronomists mention that certain crops were planted with prayers or curses. Ritual utterances represent a line for the agronomists; without the use of ritual words, a practice can be treated as purely natural; but with one, it is only overt magic or religious ritual. Pliny records a great number of plant-picking rituals, many of which he treats as useful, but he is more likely to attribute them to magicians or foreigners if he mentions a prayer being part of them. Prayers and curses on plants which are being sown are presented as interesting customs, but the agronomists do not actually recommend that their audience use them; we may wonder whether these prayers, in particular, were more widely used, in more situations, than the agronomists record. Columella, describing the planting of turnips and radishes, comments that the more superstitious farmers (again, *religiosiores agricolae*) observe an ancient custom and pray,

when sowing, that the plants may grow for both them and their neighbors (11.3.62, *servantque adhuc antiquorum consuetudinem religiosiores agricolae, qui cum ea serunt, precantur ut et sibi et vicinis nascantur*). Pliny, who is clearly relying at least in part on Columella, gives a slight variation, adding that the more careful farmers (*diligentiores*) do this. The prayer is perhaps to ask that the crop should be abundant enough for all the neighbors; why these plants should be especially prayed for is not clear. Pliny mentions (19.120) two other plants sown with particular utterances to aid growth—curses, in these cases: basil, he says, is prolific, and when people sow it, they utter curses and maledictions (*maledictis et probris*) to make it come up more abundantly; and when cumin is sown, people pray that it will not come up. The assumption seems to be that the farmer will get the opposite of what they ask for.[276]

One official festival, the Sementivae, marked the period of sowing. Varro gives two brief notices of it. Tellus and Ceres are the two deities said to have been worshipped at the Sementivae, which was a movable festival held on a day decided by the *pontifices*, but which mostly appears to have been celebrated in the countryside; or at any rate, that is what our sources describe. Ovid gives a long description of the country festival (*Fasti* 1.637-704); as he tells it, it was celebrated after the seed had been sown (he places it on his calendar on January 24); the *familia* and the oxen received it as a holiday. Offerings of emmer and pigs were made, and Ovid includes a poetic prayer to Ceres and Tellus, asking them to keep the seed and young crop safe from menaces such as storms and mildew, pests, drought, weeds, and so on; he describes it as a lustration. The agronomists, although they say a great deal about sowing, do not mention the Sementivae or official

[276] Cf. also the Greek charm recorded by Plutarch, *Natural Questions* 14; the people of Doris pray for a bad hay-making period (because the grain crops need the rain then).

sowing festivals, although it must have been one of the festivals they instruct the *vilicus* to make sure is observed; the only notice of the Sementivae is in Varro, who sets the dialogue of his first book on this festival, in the urban temple of Tellus; he calls it very old (1.2.1).[277] Despite the obvious relevance to their business and despite the fact that the Sementivae's tangible goals as described by Ovid were all things the agronomists discuss elsewhere, after Cato they have next to nothing to say about official celebrations except that they should be observed. The celebrations were worth performing, and the agronomists may have believed they did tangible good; but they were outside the bounds of their topic. How accurate Ovid's picture is we do not know; he may have been conflating the Sementivae with the Paganalia, another spring festival about which little is known.[278]

Protecting the Seed

Various measures were employed before sowing to protect the seed and keep it unharmed until it sprouted. Most obviously magical are suggestions to keep seed in an animal skin or a measure covered in a skin for a while before sowing, or to sow it from this implement. This, the agronomists say, will protect the seeds from insects and other pests.[279] The animal used is different each time. Columella (9.9) says that "some people" (his usual way of distancing himself from advice of dubious respectability) put seeds in a seed measure covered with hyena skin and let it stay there for a few days. Palladius repeats this, and adds to dry seed in the skin of a tortoise to keep pests out of the garden (1.35). The *Geoponics* suggests a sieve made with a wolf skin, and repeats Palladius

[277] See also Varro, *De Lingua Latina* 5.3 on the Sementivae.
[278] See Scullard (1981) 68 on the Sementivae and Paganalia and their sources.
[279] This is not the only case in which something used against bad weather is also applied to ward off vermin or pests; see Chapter 4.

(12.7); it also repeats Columella's advice but attributes it to the philosopher-mage Apuleius, whom it credits with a number of spells, especially natural magic (12.8). It says further to use a sieve covered in sealskin to protect the seed against mildew and hail, two problems which, it will be seen, are considered closely akin to vermin. These are all animals with magical connotations, especially the hyena, and are found used magically elsewhere in the agronomists for very diverse purposes—hyena and tortoise skins, for example, are also used to ward off storms, and a wolf skin hung up by the house is said to repel sorcery.[280] In these cases, the magical effect is transferred contagiously to the seeds. The fact that it is not an instantaneous transfer is noteworthy; the agronomists mostly mention that people let the seed sit in the skin-covered containers for a while before sowing.

The practice of leaving seeds in animal skins suggests a rather naturalistic understanding of how the skins affect the seed; their properties need a while to penetrate. The *Geoponics* (2.18), which attributes the advice to use hyena skins which to Apuleius, says that the seed should be left in the skin-wrapped seed measure for a few days to receive physical power and odor (φυσικῆς δυνάμεως καὶ ὀσμῆς) from it. This is not the only place in the *Geoponics* where smell is offered as a naturalistic explanation for sympathetic magical effects.[281] Overt magic is combined with natural explanations in all of these remedies—the yoking of smell and some more intangible power in this example, the attribution of such remedies to a well-known *magi* from classical antiquity, the need for time for the magical animal's attributes to take effect, and so forth.

[280] Hyena: Palladius 1.35; *Geoponics* 15.1; see also Pliny 28.92-104, 8.106 on the hyena. Tortoise: Columella 6.5; Palladius 1.35; *Geoponics* 1.14. Wolf: *Geoponics* 15.1, 17.13; also Pliny 8.80-2, 28.143, 28.157, 11.166.
[281] See also *Geoponics* 12.39.

At other times, preparations which look more obviously like natural remedies were applied directly to the seeds. These are almost all intended to repel insects and other threats to the seeds; although it is occasionally suggested that they prevent bad weather, mildew, and weeds as well.[282] Columella, in a poetic context, refers to these remedies—soot, leek-juice, oil lees, horehound; all sprinkled on the seeds or the new furrows—as *medicina*, a term which can indicate either medical or magical solutions (10.351-6). Varro scorned similar recipes as out of place in an agricultural handbook (1.2.25), but Columella, Palladius, and the *Geoponics* all include them; Pliny, oddly, does not.[283] Some of the same recipes, such as a solution involving cucumber juice and roots, are found repeatedly. These things are applied to the seed before planting; as with the seed measures, there are suggestions that they need time to take effect.[284] Although these remedies are worth discussing at greater length in the context of measures against vermin, a few points are salient here. In particular, these remedies look like straightforward pharmaceutical preparations, and are clearly thought to affect the things they repel by natural means; but they are also interchangeable with things like the seed measures, with which they are often mentioned; the line between natural and overt magic is fluid. A variety of things might also be added to seeds or plants when they were planted to protect them or encourage growth; both organic fertilizers, some of which may have been believed to work through sympathies (as with other liquid preparations, many of the ingredients look like they are meant to work through sympathies, such as applying refuse from the wine press or fresh grape pits to vines (Cato 33; *Geoponics* 4.5); and things

[282] Discussed at greater length in Chapter 4. A plausibly natural remedy for one problem is often transferred to other problems, looking much more magical in the new context.
[283] See Varro 1.2.25; Columella 2.99, 10.351-56; Palladius 1.35, 10.3, 12.1; *Geoponics* 2.18, 2.42.
[284] Columella 2.99, Palladius 1.35).

which look more like amulets, as in Pliny's (17.87) advice to plant fig-trees in a squill bulb. Pliny takes this from Theophrastus (7.13.4), but attributes it to Pythagoras. Many amulets made of natural materials (fish, snakeskins, herbs, etc.) will be seen, with various effects on the plants intended.[285]

Grafting

One last type of beginning to take into account is grafting, an art which the agronomists spend a fair amount of time discussing. The moon is again a factor; slips should be grafted when it is waxing, as it will help them to join with their host tree and grow.[286] Varro and Pliny record several restrictions on what plants can be grafted to what. Varro claims that you cannot graft a pear onto an oak, although you can on an apple; he present this as a technical problem. He adds, however, that what is grafted to what matters to people who pay attention to *haruspices*, who claim that if a tree which is grafted with slips of several different species is struck by lightening, the lightening will split into as many bolts as there are species on it (1.40.5). [287] Varro's train of thought is difficult; he has been discussing the problems with combining particular trees, and moves here to a belief about the dangers of grafting more than one species to the same tree. The Pliny makes the parallel between magical and natural precautions when grafting more explicit: it is not appropriate (*fas*) to mix graft types, just as it is inappropriate to graft them on thorn threes (15.57); and he repeats the belief about lightening bolts splitting.

[285] See esp. Chapter 4.
[286] Cato 40.1; Columella 5.11.2, 7.108, 7.112.
[287] Varro's comments raise the question of who these *haruspices* whom people listen to were. They evidently make themselves available to people in rural communities, and may be the sort of people Cato (5) says his *vilicus* should not consult (on which, see Chapter 5). Despite the repeated complaints of the agronomists about their villa staff consulting ritual specialists, this is a rare glimpse at what sort of advice these people actually gave. We should probably not conjecture much about their activities from the title *haruspex*; Varro may have only chosen the label of Etruscan specialists because they advise here about lightening.

The problem would appear to be the creation of something unnatural: hence Varro's comment that *haruspices*, who deal with portents, give advice on such matters. What, exactly, these people did is not clear; the term *haruspex* may be chosen for them because of their expertise in unnatural things and portents, not because they used the term themselves. Later, Pliny mentions that mulberries are only grown from cuttings, since a superstitious fear of lightening (*religio fulgorum*) prevents them from being grafted to elms. While some grafts are permissible, other combinations are dangerous; while combining domesticated plants is possible, grafting more than one species to another or mixing them with wild species like thorns or hardwoods is not. Pliny's attempts to compare traditional beliefs with modern technical reasons for doing or not doing something is a nice example of how the agronomists both reject what they consider superstition and try to salvage the basic practices which they, on whatever basis, still consider useful.

Protecting Growing Crops and Animals

Once the crops were in the ground and growing, a number of public and private rituals took place to protect them through the growing season. Crops in the ground and animals, especially young or unborn ones (such as chicks still in the egg), were subject to risks from, among other things, disease, storms, predators, and vermin; farm rituals and natural measures were intended to protect and encourage their growth, especially at particularly delicate stages in their development.

Cultic Rituals for Crops and Farm Animals

To begin with, there were a number of late spring rituals for growing crops. We have descriptions of several of these rites, which may or may not have been the same festival; the sources are in general agreement that in or around May, community and individual rituals were held for the good of the young crops.[288] For this month the *menologia rustica*, the so-called farmer's calendars, say *segetes lustrantur*—the crops are purified.[289] Purification is the central component of all the ceremonies for the crops in this period, whatever they are called. Tibullus (2.1) and Vergil (*Georgics* 1.311-50) describe private ceremonies. Vergil's description (although at the end it seems conflated with a harvest ritual) explains that in spring, the farm staff should all worship Ceres: they provide bloodless offerings of wine, milk, and honey, and lead a sacrificial victim three times around the young crops, calling on Ceres to be propitious. Tibullus adds detail; the holiday is a feast for the oxen and the *familia*; they and all the celebrants are decked in their best and refrain from work. Tibullus emphasizes a need for purity—those who have had intercourse the night before must stay away from the altar, and clothes and hands must be clean. The celebrants sacrifice a lamb. Although Tibullus does not specify that it be taken around the crops, the prayer he makes his farmers utter suggests it, being concerned with the boundaries of the farm and casting evil influences out of them. Tibullus' prayer and the general procedure is echoed in Cato's purification of the fields with a *suovetaurilia* (141). Cato gives more detail about the sacrificial procedure and the

[288] Scullard (1981) 124-5 tries to untangle the sources.
[289] On the *menologia*, see Broughton (1936) . Despite the fact that they give partial farmer's calendars and astrometeorological information, they are clearly a product of educated Roman taste. Scullard includes partial translations of them at the head of his chapter on each month, but demonstrates an unfortunate tendency to try to separate authentic (and preferably rustic) celebrations from the foreign festivals which they also include. Thus for March, he includes a rite to Mamurius, the Liberalia and the Quinquatrus in the list of festivals the *menologia* prescribe for this month, but quietly omits the Sailing of Isis.

words of the actual prayer he wants used. Cato's lustration, although different from Vergil and Tibullus in many details, clearly has the same aim: to propitiate the gods (here Janus, Jupiter, and especially Mars, not the more Hellenized Ceres and Bacchus of the poets), to purify the crops and fields, and to make sure that no vermin, storms, blight, or other destructive events harm them. The Arval Bretheren held a sacrifice *pro arvis*, for the fields, in honor of Dea Dia in May (Paulus 5L); and Strabo (5.3.2) mentions a festival called the Ambarvalia held by priests at several boundary places around Rome; this may or may not be identical with the Arval sacrifices, which may be the same as the festival or festivals which Cato, Tibullus, and Vergil describe. The emphasis on the purification of the crops in this period reflects a belief that pollution of all kinds was dangerous to the growing crops, and to other things on the farm. Pollution, it is said, can kill plants, turn wine, and otherwise destroy the prosperity of the farm (on specific types of pollution and methods of dealing with them, more below). As will be seen in later chapters, many of the threats Cato and Tibullus mention—blight, vermin, and bad weather—were thought to be attracted or even created by dirt and pollution; thus, to avoid the destruction they caused, the farm must be purified anew each year. The procession around the area to be protected is typical of Roman ritual, both the procession—a fundamental part of most Roman ceremonies—and the delimiting of boundaries with it.[290] Many overt or natural magic procedures designed to combat these same problems also carried their ingredients around the field they protected-- hyena, crocodile, or seal skin is carried around the fields to ward off hail, for example (*Geoponics* 1.14). These are basic elements in the ritual repertoire of Rome (and many are shared with Greek and other ancient ritual, of course). These spring lustrations effect purification by calling on the gods and asking them for

[290] Rüpke (2007b) 93-5.

aid; the sacrificial victims and other offerings are there to get the gods' good will, not because they are naturally efficacious. It will be seen that some of these other rituals, instead of invoking the gods, rely on the natural sympathies and antipathies in their ingredients to achieve the protection wanted; they share the outward form of the ritual, but with a different logic.

The Liberalia (March 17) celebrated Liber, a vine god identified with the Greek Bacchus, and Libera, his female counterpart. Varro sees them as connected with human fertility, saying that the former presides over male seed and the other over female; and Ovid mentions old women in the city who would offer to make private sacrifices to Liber Pater on behalf of clients; but only Augustine describes this as an agricultural festival.[291] Augustine says the festival was celebrated for the sake of the crops, and in particular, to repel witchcraft from the fields; it involved drawing a phallus around the countryside in a wagon and then into the town, while people sang ribald songs. About any celebration of the Floralia, which lasted for several days in late April, little is known. Varro (1.1.6) lists the Robigalia, the Floralia, and the Vinalia as festivals which were established to honor gods who protect the growing crop—the Robigalia to Robigus, god of mildew; the Floralia to Flora, goddess of blossoming things, and the Vinalia to Venus, who protects the garden. Pliny picks up on Varro's description and gives a slightly different emphasis to it (18.284-87); these festivals, he says, were instituted at dangerous points in the year for crops, to help protect them. Of the Floralia, he says that it was established in 238 BC in response to an oracle, and was meant to ensure that plants would shed their blossoms correctly and move on to the next stage of growth. He connects the date with astronomical calculation (for which he cites Varro; there is no doubt that he has the *De*

[291] Varro, *De Lingua Latina* 6.14; Ovid, *Fasti* 4.76-65; Augustine *De civitate dei* 4.11.6, 6.9, 7.21.

rerum rusticarum in mind when he discusses these festivals); if a full moon occurs for several days before or after this, it will harm blossoming things, and so the festival was placed on April 23 to avert damage. On Pliny's astronomical rationales, for now, it is worth noting the different focuses of his and Varro's description of these three festivals. Varro's mention of them is part of the invocation of an agricultural pantheon with which he opens his manual; it is a highly literary passage and at a rhetorically strong point in the work, and is notably unlike anything else in the agronomists. Varro calls upon twelve agricultural deities to help him, explicitly substituting them for both the Muses whom he might invoke and the urban gods with images in the Forum. His focus is on invoking and propitiating them as a farmer's allies. Pliny's passage, on the other hand, is merely part of the body of Book 18; instead of describing the festivals as propitiations, he focuses on them as instrumental ways of protecting the crops. Pliny is not much concerned with the gods they honor, but with their function for the farmer. Pliny links the traditional dates of the festivals with times when the stars and moon can be particularly harmful to growing things; in his view, people recognized that these were danger points in the year for plants, and established cultic celebrations to avert harm. He does not venture an opinion on whether this was an effective measure or not—in his view, the peril is meteorological, and if he believed that propitiating Flora prevented a full moon's effects from harming the crops he does not say so—but he is concerned to give a rational reason for why the ancients should have arranged the festival calendar as they did.

Pliny also mentions the Vinalia Rustica as a celebration concerned with protecting the crops, the vines in this case. There was an earlier Vinalia, in April, in honor of Jupiter, at which the previous year's vintage could officially go on sale; at the Vinalia

Rustica in August (the 19th), the new vintage was announced by the Flamen Dialis (Varro, *De lingua Latina* 6.3.16). What else the festival may have done to protect the vines or harvest is not recorded; the Flamen Dialis' involvement will be considered further with harvest rituals. The fact that Jupiter was propitiated may imply that his help as a storm god was sought in protecting against storms which might destroy the harvest just as the grapes were ripe and most vulnerable; Pliny (18.289) claims that Varro described it as a festival for mitigating storms.[292]

Other festivals can be tentatively connected with agriculture: the Ceralia, the festival of Ceres, celebrated with games at Rome; the Terminalia, celebrating Terminus, god of boundaries, which seems to have been especially celebrated in the country; the festival of Anna Perenna, when Lydus says prayers were offered for a healthy year; the Compitalia, the one festival at which Cato says the *vilicus* would normally preside for the *familia*, a neighborhood celebration when the people of several farms gathered at the nearest crossroads.[293] However, what, if any, concrete aim they had in regards to the progress of the agricultural year is not known; and being concerned with ceremonies conducted with a definite practical result in mind, I will pass over these, as well as the day-to-day domestic worship on the farm, such as the attention to the household *lares*. Cato tells his *vilica* to pray to the *lares* for plenty, *pro copia* (143); and many other ceremonies certainly aimed at keeping the household in proper standing with the gods; but these ask for more general and vague blessings, compared to the concrete desire in Cato's lustration prayer for Mars to avert storms and other disasters.

[292] None of Varro's surviving comments on the Vinalia gives that sense.
[293] On these festivals, see Scullard (1981) .

There are fewer festivals on record for the farm animals; Cato gives a description of two spring feasts which he says the farmer should celebrate for the health of the oxen. One (83) is an offering of foodstuffs made to Mars, once for each ox, which either the slave staff or a free person can perform but no woman can be present at; the celebrants immediately consume the offerings in the forest where the offering takes place. The other (132) is a feast of Jupiter, for which Cato gives the text of a prayer to use; although he says the feast is held for the cattle (*pro bubus*), no mention of them is made in the prayer; Jupiter is asked to be generally propitious to the household. This looks like pure propitiation; but the emphasis which Cato puts on the fact that these should be done before the arduous work of plowing began (see also 50, 131) suggests that he expected a tangible benefit for the cattle.

The other main ritual for agricultural animals, the Parilia, we know more about thanks to Ovid, who describes the April celebration for the sheep (*Fasti* 4.475-780). The sheep pens are cleaned out, and the sheep are purified with a fumigation; water is sprinkled from laurel branches, and aromatic branches are made into bonfires, which Ovid says the shepherds leapt across. Pales is asked to keep harm away from the flock. The Vestals also had purification materials, but how these were connected to the rural festival is unclear. Of the agronomists, only Columella mentions the Parilia in passing (7.3.11). The elements of the festival will be seen again in natural magic: the use of laurel, the fumigations, the bonfires, the bean stalks, ashes, and blood of the Vestal's materials, and the combination of physical and ritual purification.

In general, we might look at the agronomists and wonder where all of the gods are. While poets frequently mention the propitiation of agricultural gods with prayers and

offerings, the agronomists largely ignore them; although they say the festival days must be kept, festivals mostly appear in the farm manuals as time markers, and very little is said about the actual gods.[294] Nowhere in the agronomists, for example, is any mention made of worshipping Ceres, the goddess of grain, much less the multitude of rural gods mentioned by Augustine (*De civitate dei* 4.8).[295] Even Cato, who describes several agricultural festivals, is not much interested in the gods themselves; he concentrates on the steps of the ritual as the human participants need to carry it out. While the behavior of the farmer is part of the agronomists' topic, and in particular the need to control the *familia* and to make sure that festivals were properly kept, the gods are largely outside of their purview. The farmer's own behavior is within his control, while the divine response is not; the agronomists do not seem to feel there is any point in dwelling on it.

Polluting Influences on the Farm

The spring lustral ceremonies were intended to purify the farm and remove all polluting influences. Pollution was not an abstract threat, but was thought to have a number of destructive effects on the farm, a few of which have already been mentioned. The polluting influences which the agronomists mention are particularly destructive to things they consider delicate or pure. Bees, with their reputation for cleanliness and purity, are said by the agronomists to be susceptible to a number of disturbances. Varro comments that they are naturally pure, and dislike both bad odors and the smell of perfume; bees, in this conception, respond best to unadorned, old-fashioned virtue

[294] For festivals used as time markers, see, e.g., Columella 10.419, 11.2.27, 11.53, 11.3.36, 11.3.47; Pliny 18.132, 19.69, 19.114; Palladius 13.1.
[295] Cato's harvest pig may very well have been intended for her, but he does not specify a recipient, and the gods his festivals invoke elsewhere are not the ones we might expect from other sources (cf. the spring lustrations; Cato has offerings to Jupiter, Janus, and Mars, while the poets mention Ceres and Liber).

(3.16.5). Columella elaborates: bees are very clean, and the beekeeper must therefore also be clean so as not to disgust them; he must not be drunk or recently have had sex, or have eaten anything strong-smelling, like garlic (9.14.3). Other bad smells like burning crabs and mud should also be kept away from them, as should echoes. Bad smells, including from some of these same sources (such as garlic and crabs) are used elsewhere in the manuals to combat undesirable insects and other vermin.[296]

The warnings about exposing bees to bad odors, perfume, echoes, and people who are unclean or immoral—drunk, recently having had intercourse, dirty, menstruating, lazy—recur in later authors. Sex is one of the conditions which the agronomists comment upon repeatedly. Besides bothering bees, it will disturb other things. Columella says, in his discussion of storing things used for hospitality and on festival days, that food and drinking vessels should only be handled by children (assumed to be chaste) or those who have abstained from sex (12.4.3). The later agronomists mention a few prohibitions on unchaste people dealing with plants and produce; the Greeks, Palladius says, say that olives should be gathered by unpolluted boys and girls, and that the tree is under the tutelage of Chastity (1.6); and wine should be moved by someone chaste or an unpolluted youth (11.14). The *Geoponics* (9.2) expands on the olive trees; olive-pickers should be chaste, and swear that they are not adulterers, because the olive tree is naturally pure and will produce more in the future if it is only touched by the pure; it claims that is prohibition is followed in Anazarbe in Cilicia, and the olives there are very productive. This last comment admits that very few people actually follow this rule; it is a marvel when they do; but there is a feeling throughout the agronomists that very pure things will do better if they do not come into contact with impurity. Suggestions that plants should

[296] See Chapter 4.

be gathered by the chaste are found in Pliny (e.g., 23.130, *caprifico quoque medicinae unius miraculum additur: corticem eius intumescentem puer impubis si defracto ramo detrahat dentibus, medullam ipsam adalligatam ante solis ortum prohibere strumas*, "the wild fig is also said to have one amazing medicinal quality: if a prepubescent boy tears the sap-filled bark off of a broken branch with his teeth, the pith tied on before sunrise will prevent sores"), but only in relatively formal plant-gathering ceremonies for special purposes, not as part of ordinary farm operations, and these suggestions may reflect Greek magical practices, as seen in the papyri, more than ordinary Italian customs. The late agronomists show a tendency to extrapolate ideal conditions from earlier folklore which they knew were not and could hardly be followed on a regular basis. This may mean that, as with other farming lore (for example, meteorological systems; see p. 66), taboos on sex experienced a gradual creep in what they were thought to apply to; or it may mean that the earlier agronomists had more practical experience in what was and was not manageable on a farm, and less knowledge or interest in the more elaborate forms of magical ritual. The agronomists do not much explain *why* sex is an issue, besides the fact that bees and olives are pure—although the original impulse is clearly a moral one, it is clear that in the later agronomists, at least, some sort of natural reasoning occasionally motivates them, since wine, unlike bees or olives, has no particular purity, and unlike bees, no particular virtue of its own to be offended. A natural corrupting force in the unchaste is what harms it, because wine is a delicate product and susceptible to harm. Columella, although he does not discuss sex in particular, is emphatic that during wine pressing things must be both physically clean and ritually appropriate, with the press-room thoroughly cleaned, sacrifices made, and watch kept to make sure that

everything was done in a pure and clean way (*pure munde*; 12.18.4). Columella's connection of physical and ritual purity is typical of the way pollution can be either physical or moral and have either a natural or social explanation.

Chastity is only occasionally mentioned; what upsets the agronomists far more is menstrual blood, menstruating women, and, occasionally, women and their activities *in toto*. Among the greatest threats to plants were, apparently, women, especially menstruating women, who could kill growing things with as little as a look. The agronomists from Columella on comment on the need to keep women away from garden plants. Mere femaleness is the objection in a few cases; Columella remarks that you should keep women out of a garden where you have cucumbers and gourds planted insofar as possible, for the growth of green plants is slowed by mere contact with a woman; and if she is menstruating, her look will kill them (11.3.50). However, it is almost always a specifically menstruating woman at issue. Their touch kills growing things, especially tender garden vegetables and herbs, although Pliny says they will also dry up crops and vines, and that their touch is especially harmful to medicinal plants like rue and ivy (Pliny 28.78). At other times, according to the *Geoponics*, they merely make plants bitter (12.20). Pliny, in his sections on remedies from humans and animals, includes a long excursus on the powers of menstrual blood, which is powerful both on its own and through the woman it comes from (28.77-86).[297] A menstruating woman will tarnish mirrors and brass, blacken linen, dull razors, cause horses to miscarry, dull purple, and more. This power can be restrained by a waxing moon or if the woman carries a red mullet. Its power can be harnessed to good effect, as in the caterpillar charm already discussed; it will also counteract malicious magic if smeared on doorposts, a use Pliny

[297] See Columella 11.3.38; Pliny 19.176, 28.78; *Geoponics* 12.25.

approves of, and a menstrual rag is part of a spell in the *Geoponics* to keep nuts on a tree until they are ripe (10.64). The blood itself can be smeared directly on something to affect it, or menstrual rags can be used. But it must be deployed cautiously; if the caterpillar charm is performed at sunrise, the woman will kill plants as well as the caterpillars; and another menstrual rag can be used maliciously in the *Geoponics* to kill a nut tree (10.67). As a type of pollution or infection (which is how Pliny repeatedly describes it), menstrual blood causes problematic pollution; bees will abandon their hives if a menstruating woman touches them (Pliny 28.79). From all this, it is clear that the agronomists felt that they had to control women's movements and effluences carefully; they could be dangerous, but also useful.[298] Pliny points out the contradictory opinions of his sources on its properties; does it cause barrenness or fertility? He remarks that some believed that an ass who ate barley grains touched with menstrual blood would be barren for the same number of years as there were grains; and he frequently says it causes miscarriages in humans and animals. He does not give instances of menstrual blood causing fertility in crops, although he does mention that a mole's touch is thought to make seed fertile (18.158); at first this does not appear relevant, but moles' blood is sometimes treated as interchangeable with menstrual blood, as in charms against hail.[299]

Did the agronomists actually expect to control the movements of menstruating women this closely? From Pliny's catalogue of the blood's effects, they should hardly set foot outside or touch anything in the house. This must have been a deeply awkward state of affairs, if true; as is clear from the rest of the agronomists, women did a great deal of work in the fields, gardens and animal enclosures as well as in the house; restricting what

[298] See also the discussion of charms from women's bodies in Richlin (1997) .
[299] Plutarch *Quaestionum Convivialium* 7.2 = *Moralia* 700c-701d.

work they could engage in for part of each month would have been deeply inconvenient.[300] This is not necessarily to say it was not the practice; but we might wonder if the more extreme formulations of this principle, such as Columella's desire to keep women out of certain gardens even when not menstruating, were actually practicable. Pliny cites a number of written sources for menstrual blood's effects, particularly medical authors, but mentions popular belief relatively little (explicitly, anyway, although it obviously lies behind many of the beliefs he records). Is there a tension between educated theories of menstrual blood's effects and the actual spheres of women's labor, or were women really this constrained? The idea that the plants needed to be protected from women is found as well in Pliny's remark that on many Italian farms a rural custom forbids women to spin as they walk or even to show spindles openly; this will destroy the hope for everything, especially the harvest (28.28). This is part of a list of superstitions which Pliny finds odd; here, instead of an educated collection of beliefs about blood which may or may not match rural practice, we have rural practice recorded by a politely incredulous educated author. The point appears to be that the spindles will exert a binding, hindering influence; Pliny's choice of *adversetur* to describe their effect may be a concrete reference to the twisting of the spindles. The attribution of a baleful effect to a typically female activity is not unlike the litany of effects which a woman's presence or body can have.

Treating Growing Things

The evidence for cultic magic is that it only dealt with important points in the growing cycle—sowing, spring protections for the new crops, harvesting. A number of

[300] On women's labor, see especially Columella's Book 12, on the duties of the *vilica*.

less official precautions and remedies are recorded by the agronomists for managing growing crops and treating their problems.

As always, the lunar phase was taken into account when treating plants, especially when pruning trees and vines; sometimes the astrological sign was also believed to influence the success of the procedure.[301] Occasional mentions are made of more ritual precautions when treating plants, as when vines will be more fruitful if the pruner wears a crown of ivy (*Geoponics* 5.24); perhaps the festive air will encourage the plant.

A number of remedies are offered for trees or vines which are unproductive, or which cast their fruit before it ripens. Some of the remedies look like purely natural fertilizers or medicines; other methods are unabashedly magical. The things to apply to the plants to make them productive range from the purely fertilizing, to fertilizers which may be chosen for some notion of sympathy to the plant (grape refuse for vines, *amurca* for olive trees; Cato 93), to ones chosen because they certainly have magical connotations (e.g., a menstrual rag, *Geoponics* 10.64; odd, since it is offered as a remedy for the same sort of nut tree that it is said to kill at 10.67). They are much the same sort of thing added to seeds or used as bug sprays, and often share ingredients; there is no reason to go through them all. More interesting is the frequent advice to plant something at the roots of a tree or insert something under its bark to make it productive or prevent it from casting fruit. These are first found in Columella, who says to put stones a the root of a pomegranate to keep fruit from bursting and cracking on it; or you can plant squill near the roots, or twist the branches on which the ripe fruit hangs to keep it good (5.10.16). He does not explain why this works; but the squill is frequently planted under or around trees to make them do better, and the advice to put stones under trees is repeated in other

[301] Moon phase precautions: Columella *On Trees* 15; Pliny 17.25; *Geoponics* 5.10.

works.[302] The *Geoponics* explains the squills as working through a natural antipathy, which evidently restrains them (10.30); and *Geoponics* 9.10 implies that the point is to restrain the tree from putting out too much foliage at the expense of fruit, something which restricting the tree's roots may in fact have helped with. Pliny (16.51) says that such stones prevent abortion in trees. The stones appear to have an anchoring effect, and one late charm from the *Geoponics*, which synthesizes a great many charms for unfruitful trees, calls for a stone with a hole on it to be set on a tree branch, which may be a literal anchor (10.87). Pliny's mention of the stones, however, describes the remedy as though the tree needs human medical treatment. Besides putting stones under the trees when they are planted, stones, wedges, pegs and nails can be inserted in the trunks, which are said to have much the same effect of making unproductive trees fruit and keep the fruit on until it is ripe.[303] The earliest mentions of this appear to be a simple substitute for a stone at the roots, to cure a tree which has already been planted (Columella 5.10.20), and sometimes this seems to be the explanation for other versions of this remedy; but later accounts also suggest that a variety of sympathetic and magical effects are being brought into play. Often when a peg is inserted, the type of wood is specifies; some of these seem meant to impart their qualities to the plant, as at *Geoponics* 9.8, which says that to make a sterile olive tree fertile you should insert two shoots from a fruitful olive. Grafts are sometimes treated as though they are also a type of peg which will treat the host tree.[304] In the *Geoponics*, metal nails rather than wooden pegs are inserted in tree trunks; with this we

[302] Pliny 16.51; Palladius 12.7, 12.9; *Geoponics* 10.30; see also *Geoponics* 9.12, which says to fill a bean with wax and place it under a clod near the tree.
[303] Columella 5.10.20; Pliny 16.51, 17.253; Palladius 12.7; *Geoponics* 5.35, 5.36, 5.39, 9.8, 9.10, 10.61.
[304] Palladius 12.7.

are very definitely in the realm of binding magic.[305] Although the nails in fruit trees alone might look like another attempt to affect the tree physically—and they, and these other remedies, are often listed in conjunction with liquid applications to fertilize the tree—several passages make it clear that the tree is also being bound. Pliny, who elsewhere advises putting stones and wedges in trees, comments (16.51) that yew trees are so poisonous in some areas that they will kill a person who falls asleep under them. The solution is to drive a copper nail into them, making them harmless.[306] The nail restrains the yew's effects, as they elsewhere restrain domesticated trees from putting all of their energy into leaves. Lest there be any doubt, the *Geoponics* says that the same effect can be obtained by tying a lead pipe to the tree (10.18) or binding lead around the trunk like a wreath (10.87); lead's use (and particularly lead from water pipes) in binding magic, particularly *defixiones*, was ubiquitous in antiquity.[307] Amulets of natural materials can also be hung on trees; in some, they have medico-magical connotations, such as the snakeskin Palladius (12.7) says to hang on peaches; others, like the fig-branches hung on figs in the *Geoponics* (10.48), are conflated with both grafts (also suggested there) and pollination methods. That there is a complicated mixture of logics and outward forms, combining regular farming techniques with overt magic, is obvious. This material culminates in a passage of the *Geoponics*, which says that you can keep fruit on a tree by any of these methods: making a wreath of darnel pulled up by the roots (a frequent instruction in plant-gathering rituals) and hanging it around the trunk; tying mullein around it; tying on a crab; binding lead around it like a wreath; inserting cherry wood or a stone in the roots, bolstered by a verse of Homer (*Iliad* 5.387) which supports the desired

[305] Nails: *Geoponics* 5.36, 10.64.
[306] Cf. also Livy 7.3, where a nail driven into a wall by state officials is said to prevent plague.
[307] For an overview of lead as a magical material, see Gager (1992) .

effect; as the stone is confined in the roots, the verse describes Ares imprisoned.[308] Or a stone with a hole in it, inscribed with a charm the *Geoponics* gives, describing a tree bearing fruit, will keep the fruit on if tied to the tree; or the herb *polium* if it is hung on the tree. Here amulets of naturally-effective herbs and animals are used[309]; one herb is made into a wreath, as if for a celebration, and the tree is garlanded; and the lead is further compared to the wreath. Cultic measures are combined with binding magic, and both with natural remedies; spoken and written charms support the use of the stones in the roots.

The *Geoponics* reports one further method of getting a recalcitrant tree to fruit: the farmer is to go up to it angrily with his clothes tucked up and an axe in his hand, as if to cut it down; a friend is to come up to him and argue him out of it, making himself responsible for further crops; and the farmer is to act persuaded. The tree will bear well in the future. The *Geoponics* goes on to add, nonchalantly, that mulching it with bean stalks will work. The lack of distinction between a dramatic ritual gesture and the use of a natural remedy is typical of the compilation; these things are found cheek-by-jowl, and it is not always easy to tell what, if any, significance there is in the fact that they are found together.

Other miscellaneous magic was deployed when dealing with animals. Several moon phase precautions come into play: animals are to be fattened and eggs set under hens in a waxing moon, and castrated in a waning moon; the reasons are clear.[310] Magical solutions are offered for a few common problems, such as taming animals and keeping ones like birds from escaping. Bulls can be subdued by tying them to a wild fig tree or

[308] See Collins (2008) 104-131 on such charms.
[309] The crab, mullein, and *polium* look like other amulets hung from trees to keep pests off; see Chapter 4.
[310] Columella 6.26.

tying a fig branch around their neck, which Pliny calls a miraculous property of the fig; among fig-trees' medicinal properties, he says the counteract bull's blood and other poisons (Pliny 23.130; *Geoponics* 15.1). Placing *lysimachia* on the yoke will calm quarrelsome draft animals, which, Pliny says, shows how powerful a plant it is (25.72). There are ways to tame goats, dogs, and rams as well; to make sheep follow a shepherd; and to keep pigeons and bees from flying away.[311] The pigeon charms are a nice example of how the late agronomists, especially the *Geoponics*, include overt magic more openly. Columella (8.8.7) says only that pigeons will not leave the farm if you plaster up the young of a kestrel (a predator and the pigeon's enemy) in a pot, and put this in the coop; it makes the pigeons love their coop and not want to leave. The pigeons see their enemy destroyed; it is the inverse of getting rid of vermin by making an example out of one member of the species.[312] However, by Palladius' time, you can also hang up over the coop's windows a thong, chain, or rope used in an execution (1.24) or the head of a bat or a wild vine (14.2). The logic of the original is lost; more generally magical items are used. A few other tricks for managing animals are also to be found.[313] And are these tricks, *paignia*, or are they practical advice? The earlier ones, in Columella especially, seem genuinely meant. The *Geoponics*, however, is very fond of magical tricks, and magical solutions to most problems increase in number and variety in it.

[311] Goats: *Geoponics* 15.1; 18.9. Dogs: Varro 9.6; *Geoponics* 19.2. Rams: *Geoponics* 18.5. Sheep: *Geoponics* 18.4; Pigeons: Columella 8.8.7; Pliny 10.109; Palladius 1.24; *Geoponics* 14.2-3. Bees: Palladius 1.39.
[312] Discussed in Chapter 4.
[313] *Geoponics* 17.9, 17.13, 18.10, 18.12.

Dealing with Disease

One of the major threats to crops was disease, such as mildew, which could kill the plants or render the products inedible; it forms one of the three main things the agronomists worry about, alongside destructive vermin and storms. Several of the rituals already mentioned include crop diseases among their portmanteau of requests to the gods, such as the Sementivae and Cato's spring lustration. In these instances, it is left partly in the gods' hands, although the purifications which some of these rituals were thought to effect also combated disaster. One official ritual specifically targeted crop disease, the Robigalia of April 25. The Robigalia is one of the more picturesque festivals of the agricultural year; so much so, in fact, that the agronomists almost ignore it but the poets find it interesting. The agronomists notice this festival only three times: once in Varro's agricultural pantheon (1.1.6); once in Columella, in poetry, where he says that a puppy was sacrifice and Robigo was placated with its blood and entrails (10.342); and once in Pliny, who groups it with the Vinalia and Floralia as festivals placed at danger points in the year for crops. Pliny is certainly relying on Varro's passage here. This leaves, essentially, no references which do not envision the Robigalia in the context of a highly literary tradition; the agronomists nowhere discuss celebrating the Robigalia in real life. Perhaps they did; but it does not form a part of their calculations. Pliny's notice is interesting insofar as he attempts to explain rationally why the ancients placed the festival when they did; it coincides with the morning rising of Sirus, which was though to have a baleful effect on crops. The poetic sources are very interested in the odd aspects of the festival: Ovid describes the sacrifice at a grove of Robigo, during which wine, incense, and sheep and dog entrails were offered and a prayer made to Robigo to be propitious. He

explains that a dog is a victim to placate the dog star, who is ascendant, and he describes Sirius' influence; but this is about what we would expect from the *Fasti*, with its learned interest in astronomy, meteorology and myth. What other people though the rationale of the festival was is less clear; the oft-cited link with Sirius may be Ovid's addition. Other dog sacrifices occurred around the same time of year and have often been conflated with the Robigalia; Festus says red dogs were sacrificed, and much has been made between the connection between red dogs and red mildew; but very little is known about the actual festival, much less its significance to real farmers.[314]

The agronomists are, on the other hand, much concerned with natural remedies for disease. The remedies which they offer for avoiding blight or treating diseased plants rely on, once again, sympathies and antipathies, and on other ostensibly physical reactions; but the ingredients used and the way they are deployed point, again, to ties with cult.

Fumigations are recommended to protect trees and vines from blight: Pliny says that some burn three crabs alive and fumigate the plants with the smoke (18.294), or use a type of fish. He is clearly distancing himself from this method, which he immediately follows with Varro's obviously magical advice that a votive offering of a painting of grapes will protect the vines from storms. Palladius' advice (1.35) to burn smudge piles to protect against damp and blight looks like a straightforward attempt to regulate damp and temperature, but it is followed by many other remedies against disease, storms, and pests, some of which are obviously magical Among them is recipe for water in which crabs have been soaked, attributed to Democritus and said to protect plants from all threats. Crabs, for whatever reason, frequently recur in attempts to protect plants; Pliny's

[314] Festus 325L; see also Pliny 18.15.

mention of them as a fumigation looks, in this context, like a more magical remedy than simple instructions to burn crabs might otherwise. Crabs are also found in medico-magical remedies in Pliny, such as at 29.101 in a cure for rabies; they are especially (32.55) good against poisons; and Pliny attributes (32.55) some remedies that use them to the *magi*. The *Geoponics* (5.33) combines these remedies, saying that you should burn crabs with straw and dung, when you see a blight; it also attributes this to Apuleius. It offers several other fumigatory preparations, plus liquids to add to the plants; and it extends the use of seed-wrapped containers to protect against mildew. These cures are aimed at warding off blight in the first place, much as people seek to ward off hailstorms; Palladius and the *Geoponics* say to prepare your piles to burn when you see clouds approaching or rising in the air. They are treated as much the same problem; not surprisingly, since blight was often thought to be caused by meteorological conditions. The same remedies will work on both.

Fumigations may be intended to work naturally, but they also evoke purifications, particularly official or ceremonial purifications, such as the fumigation of sheep at the Parila. The smoke has both a physical and a religious purifying force, and fumigations may be used, again as at the Parilia, in tandem with physical cleaning and tidying; Columella, discussing the preparation of the press-room, mentions fumigating the casks among his other injunctions to make the room physically and religiously purified (12.18.4).

Other cures, rather than trying to avert blight, are designed to treat affected plants by drawing the blight out of them and into something else. Pliny (18.161) says that if you stick laurel branches in the ground, the mildew will pass out of the grain and into the

branches, which the *Geoponics* (5.33) repeats, attributing the measure to Apuleius. Despite the later attribution to a philosopher-mage, Pliny voices no doubts over the matter. Laurel is not the only plant which he says will absorb bad influences from other plants; mushrooms, for instance, will absorb bad flavors and poisons nearby (22.94-5). Laurel, of course, had religious and magical connotations—it is not struck by lightening (Pliny 2.146), it was used in garlands and wreaths in celebrations and to protect against lightening, was a sign of peace and victory, and was used in purifications; Pliny spends a fair amount of time discussing all these uses, especially its role in purifications (15.127-138). The use of laurel to evoke mildew obviously draws on its purifying connotations, whatever the rationale is.

The outward form of the charm is also found repeatedly, as a number of branches placed or stuck in the ground in or around the area to be protected;[315] more broadly, amulets with sympathetic or symbolic properties were used this way, being especially placed in the four corners and the middle of fields.[316] Pliny's best-known remedy for mildew (also, birds and worms) involves protecting millet against it by burying a toad in a pot in the field to be protected (18.158), at night.[317] He does not explain the rationale of this, but does say to dig it up again before sowing (next year, presumably, since it is buried before hoeing), or the land would turn sour. It looks as thought the toad is thought to absorb the bad influences and must then be removed and discarded to avoid plowing them back in afresh. Yet the injunction to do this at night suggests magical secrecy; and the deposition of the toad in a pot recalls the burial of other charms.[318]

[315] See, e.g., Pliny 18.160.
[316] E.g., *Geoponics* 2.42.
[317] This charm was later extended to protect against bad weather; see p. 140.
[318] See p. 193 for the parallels.

Some cures for animals also involved this method of drawing out bad influences into another vessel. Of these, the most striking is the cure for sick sheep which Columella attributes to Bolus; if the flock is ill, one member is to be buried upside-down at the entrance to the pen, so that the other sheep have to walk over it (7.5.17). Columella cites Bolus' work *Sympathies and Antipathies* for this, so it is certainly meant as a natural remedy; the disease will be drawn into the buried animal and leave the others healthy. This may also be the logic behind his remedy for tumors in pigs; a split fennel stalk is hung around their neck in contact with the swelling (7.10.3), and is perhaps meant to draw off the sickness.

There are a great many cures and preventative measures for sick animals in the agronomists; some are purely surgical, others pharmacological; and some are natural or overt magic; they include draughts and ointments with magical ingredients, ritual ways of administering medicines or gathering ingredients, amulets, fumigations, and a type of cures that involve showing the sick animal things.[319] Veterinary medicine is an enormous topic, far too large to do more than touch on here; but to list just a few of the more interesting remedies: Chicks can be fumigated in a sieve to keep them healthy, reminiscent of other purifications with smoke (Columella 8.5.16); Cato gives draughts for oxen which the ingredients all come in threes, and they have to be prepared standing, and must be administered with both the ox and the administering human fasting and standing up (70-71); Pliny says that you can prevent flatulence in oxen by boring a hole in their

[319] Cato 70.1-2, 71.1, 72.1, 73.1, 96.1-2, 102.1, 103.1; Varro 10.10, 3.9.14; Columella 5.12.1, 5.12.2, 6.4, 6.5, 6.7.1, 6.27.10, 7.3.24, 7.5.17, 7.10.3, 7.12.14, 8.5.16; Pliny, esp. 11.127, 11.149, 23.12, 23.82, 24.104, 24.170, 24.174, 24.176, 24.180, 25.49, 25.55, 25.59, 25.112, 28.8; Geoponics 2.39, 12.21, 14.7, 16.1, 16.3, 18.7, 18.11, 18.17.

horns and inserting human bones in their horns (28.8), and Columella tells us that internal pain in oxen will be relieved if they look at a duck (6.7.1).

Affecting and Predicting the Final Produce

The agronomists were concerned not only to raise healthy crops, but sometimes wanted to impart specific qualities to them. They contain a great many instructions to make sure that produce keeps well, imparting medicinal qualities to it, making it sweeter or more colorful, and tricks such as producing letters on the skins of fruit. While cult was concerned with keeping the crop safe until harvest, natural magic offered ways to tweak the eventual products of the farm into more useful, more enjoyable, or simply more surprising forms.

Predicting Crops and the Sex of Animals

The *Geoponics* records several methods of predicting early in the year how the crops will turn out, some by observing other plants, some by arranging one's own signs. For one, the lentisk produces three crops of seed in a year; the sowing which will turn out the best is the one which corresponds to the lentisk's heaviest fruiting (11.12). Similarly, if the ilex fruits well, it will be a sign of plenty (11.14). There is also a list of ways to tell if the vintage will be good (5.43). These predictions look much like long-term weather predictions made by observing plants, the behavior of animals, and so on; these are common in folklore around the world, and the *Geoponics* records several such predictions (1.4-5), such as that winter will be long if oaks bear lots of acorns or if sheep breed twice. Although these ways of predicting the outcome of crops are not recorded in

earlier agronomists, plenty of other long-term predictions or sympathies between parts of nature are found; for instance, Pliny mentions that diseases which strike when cabbage, wheat, hemlock or violet are in bloom will recur when these plants bloom again (24.158). Farmers and others whose professions relied on nature were always on the lookout for things which would give them a hint about the year's prospects. The *Geoponics* suggests a way of arranging predictions for the crops if nature does not provide a handy one; the farmer can sow experimental batches of every kind of seed you intend to plant around the rising of Sirius, and those which it harms, they can avoid bothering with that year, and focus on those crops which do well by this method. This is not an insubstantial time commitment on the farmer's part; the *Geoponics* mentions that it will take twenty to thirty days of watering for the seed to sprout before it can be seen how they fare. The *Geoponics*, in several of its astrological calendars, notes ways of predicting agricultural events from the stars or other celestial signs; for example, if the sun is in Leo when Sirius rises, there will be a large harvest of grain and lots of oil and wine.

As crops could be forecast and produce affected by the farmer, the sex and markings of farm animals was thought to be predictable and possible to influence.[320] The agronomists give several ways of telling what sex of lamb or calf has just been conceived, mostly from the behavior of the parents. Thus Varro says that if a bull dismounts the cow on the right side, he has sired a male calf, and if on the left, female; he cites as his authority Aristotle, who in turn cites Anaxagoras and unspecified other physiologists for the fact that the right side of the womb supplies male seed and the left female.[321] Whether this conjecture about the bull's behavior was originated by Varro or

[320] See McCartney (1922b) for an overview of the topic.
[321] Varro 5.3; Aristotle *De generatione animalium* 4.1.

not, it is taken up by subsequent agronomists; Columella repeats it (6.24.3), and so does the *Geoponics* (17.6). Pliny does not discuss the matter with regards to oxen, but gives a similar tip regarding horses; the direction the mare runs after intercourse will tell you the sex of the foal, north for males and south for females (10.180). The color of the lambs was also predictable, not from the color of the parents' fleece, but from whether the ram's tongue was spotted; this led to spotted fleeces in the young, which, Vergil points out, were undesirable.[322]

Affecting the Sex of Animals

Predicting these qualities only did the farmer so much good; being able to decide them was better. The advice about inspecting a ram's tongue carries the obvious corollary that you should reject a spotted animal for breeding stock. The agronomists say further that changing sheep's water can affect the fleeces of their young.[323] The belief that different sexes were generated from different halves of the body led to attempts to take advantage of this to get the desired sex. Columella is the first to suggest that one can do so, and he cites Democritus as his authority; the philosopher, he says, tells us to take a cord and tie up a stallion's left testicle (the female side) to get a male foal, and vice-versa for female; and he says that one can do this with other animals. The attribution to Democritus and the phrasing Columella uses (Democritus says it will be our choice," *nostri arbitrii fore Democritus affirmat*) suggests that he regards this as something more like a trick; it is perfectly logical, if one accepts that males are generated from the right; but it is the sort of hidden knowledge of nature which can be used to marvelous effect

[322] Varro 2.14; Vergil Georgics 3.387-95; Columella 7.3, 18.6.
[323] Varro 2.14; Pliny 8.188.

which is typically attributed to Democritus and other philosopher-mages. And although the tips on predicting sex and predicting or choosing color are presented in a fairly straightforward manner—Varro, for instance, merely lists the ram's tongue among the physical points to look at when buying an animal—they are associated with ways to influence sex, are often presented with them in the manuals, and have something of the same aura of hidden knowledge. Thus Pliny (8.188) repeats the advice about a ram's tongue color along with ways to affect lambs' sex and markings, the advice that thunder makes solitary sheep miscarry, and a way to tame rams by piercing their horns. Perhaps he would not classify any of this as magical, but the section might as well be entitled "strange things you ought to know about breeding sheep" and it is very much like the sort of advice found as natural magic. The advice on the ram's tongue is marked by its company as much more notable than it is in Varro's listing of points. Columella, at any rate, goes on to say (7.13.12) that Democritus' method can be used for sheep, although he notes that this is difficult to put into practice with large flocks. Pliny, as noted, also repeats this method (8.188), as does the *Geoponics* (18.3), which also suggests it for cattle (17.6). However, Columella also offers a more practical method for large-scale use, and like Varro, cites Aristotle for it; he says that to get male lambs, you should pasture the flock facing a north wind, and the sheep should look in that direction when they breed, whereas south winds will yield females.[324] Pliny (18.336) agrees, with some added precision about direction, as does the *Geoponics*, which also extends the method to cows (17.6).

[324] Aristotle, *De generatione animalium* 766b, who explains that a south wind makes semen more liquid and less able to coalesce.

Testing Produce

A few ways are suggested for testing produce, although these are aimed more at buyers than producers. Cato (111) suggests a way to test whether wine has been watered, using a cup of ivy wood, which will let the wine through but retain the water; this may rely on a notion of sympathy.[325] Tangentially, it is worth noting that there is a very great body of magic and medicine which relies on agricultural produce as ingredients.[326] The qualities of the plants and animals used are often very specific and would have required long-term cooperation from the farmer from whom the produce was obtained; Cato's recipes for laxative wines (discussed below) are an example. In much the same way, animals and produce intended for cultic use needed particular qualities, something the agronomists occasionally discuss providing[327]; for example, Pliny mentions that wine made from grapes grown on untrimmed vines should not be used in libations (14.88, 14.199). The provision of medicinal/magical ingredient by farmers is too vast a tangent to touch on here. I will restrict myself to the methods the ways of affecting produce which the agronomists mention, which are more for general purposes. But it is worth noting that as early as Cato instructions for how to produce wines with medicinal qualities are given.

Ways of Affecting Produce

First of all, lunar phases were used to affect the final qualities of produce. Timber should be cut in a waning moon, because it will be harder, dryer, and decay less easily; birds and other animals fattened in a waxing moon; eggs set under hens when it is waxing, because if timed right, the chicks will also hatch just as it is waxing again and

[325] Also Pliny 16.155.
[326] To give just one example, Pliny 22.119-164 lists medicines from grain, grain products, and legumes.
[327] E.g., Varro 1.5.10; Pliny 16.35, 16.44; 14.91; 14.88; 14.119.

get its benefits—Columella's timing is precise; garlic should be sown and gathered in a waning moon to decrease its smell; foods which will be preserved should be gathered and processed when it is waning.[328] Other meteorological events could also be capitalized on; thus Pliny says that medicinal honey is produced after certain stars rise or a rainbow is seen (11.37). Other times of year one had to be wary of; *ervum*, Columella says, will produce brain disease in cattle if sown in March (2.10.34); vetch can be either medicinal or harmful depending on when it is planted (Pliny 18.139).

However, many more specific properties, it was believed, could be affected than mere increase or decrease, and with greater precision than by having to wait for conditions outside of the farmer's control. Things could be added to the growing plant to affect the produce: Cato's laxative wine (114-15) is achieved by applying hellebore to the vine roots and then making the wine from their grapes. He adds that you can also get the same effect by adding hellebore to wine from normal grapes; but the treatment of the parent plant is a very common method they recommend.[329] Treatments my include pouring things into the roots, letting sap out, putting in a wedge or peg, and so on. Companion plantings are sometimes suggested—roses will be sweeter if garlic is planted among them, as it draws off any bitterness (*Geoponics* 11.18).

Aside from treating the parent plant, it was thought that particular qualities could be transferred to it if the seed was affected before planting. Thus Columella says that soaking an almond in honey water before planting will make its eventual fruits sweeter

[328] Timber: Cato 31.2, 11.2.11, 11.2.52; Pliny 17.215, 16.190; Palladisu 12.15; *Geoponics* 3.1, 3.10, 3.15. Garlic: Columella 11.3.22; *Geoponics* 12.30. Fattening animals: Cato 89.1, Columella 8.7.4. Eggs: Columella 8.5.9; 8.11.11012; Pliny 10.151-3. Food to be preserved: Columella 12.16, 12.19.3, 12.44-47, 12.55.3; Pliny 14.136, 18.319, 18.232; 18.317; Palladius 13.6.

[329] There are too many to list, but see especially the late agronomists, e.g. Palladius 11.14, *Geoponics* 10.51, 10.34.

(5.10.12); soaking chickpeas in water first makes them larger, evidently because the seed swells (*Geoponics* 2.36); lentils will also grow larger if wet with certain preparations (*Geoponics* 2.37); nuts will have tender shells if the parent nut is cracked open and wrapped in wool or leaves when planted (*Geoponics* 10.66); peaches will be red if you pour cinnabar in the pits (or plant roses under the tree; *Geoponics* 10.66); artichokes will grow without prickles if the end of the seed is blunted on a stone (12.39). Some of these methods appear to be more in the way of party-tricks, especially a group of charms which says that letters can be made to appear on nuts, fruits, or eggs by writing on the pits of the parent tree or the egg shells.[330] Other party-trick type advice includes ways to make white wine black and black wine red (*Geoponics* 7.21), to make grape clusters have multiple colors of grapes on them (*Geoponics* 4.14), and to make figs that are black on one side and red on another (*Geoponics* 10.53). The *Geoponics* is full of these sorts of methods, as well as many other clever tips such as ways to make wine look cloudy (7.29), to keep from getting drunk (7.31); to keep someone else from wanting wine too much or to sober them up (7.32-3). To keep someone from craving wine is familiar from Anaxilaus' *Paignia*, table tricks, many of the things in the *Geoponics* are of this sort. Whether a farmer would actually try inscribing an almond and waiting for the tree to grow to see if the fruit bore the inscription is dubious. Other methods promised to grow fruit that was nicely-colored or had no pits.[331]

A few other things are said to affect produce. Some special places or methods of planting, it is said, will affect the crops. Flat-leaf parsley will come up curly if you run a roller over the seed (Columella 1..3.33-34), planting wild mint with the top inverted

[330] *Geoponics* 10.14, 10.47, 10.60, 14.10.
[331] Palladius 11.12, *Geoponics* 10.16, 10.19, 10.29, 10.31, 10.33, 11.18, 11.20.

domesticates it (Columella 11.3.37); and plants with aphrodisiac qualities are best planted near the garden Priapus statue (Columella 10.105-9); though this last may be a poetic device.

Magically Protecting the Final Products

A number of measures to protect produce are recorded. Most deal with produce and animals (which will be easiest to include here, rather than with veterinary medicine) at delicate stages—setting eggs, stored wine, pregnant animals. These were particularly liable to damage from meteorological influences or natural antipathies.[332] Columella lists (8.5.12) a number of ways to keep thunder, which is said to spoil a number of farm products, from killing unhatched eggs. Putting grass, laurel branches, and heads of garlic fixed with iron nails under the nests where hens are sitting on eggs are, Columella says, precautions which people regard as remedies. The worry over the thunder recalls the religious and practical dread of lightening, which is the paradigmatic superstition for philosophers like Seneca, and which has already been seen in things like lightening supposedly striking grafted trees.[333] Columella appears doubtful of these beliefs, but Pliny (10.151-53) repeats some of the advice to use an iron nail placed under the nest; earth taken from the plow (perhaps because it has been in contact with iron) will also work. The binding force of iron in these charms seems evident; as nails will keep fruit on threes, they will keep eggs good.[334] Pliny adds that eggs will spoil if the hens sitting on them hear a hawk's cry; possibly it is the hen's fear of a predator which makes this situation comparable to the effects of thunder and lightening, which frighten humans.

[332] Ripening fruit was also thought liable to damage from thunder; Pliny 17.260.
[333] Seneca, *Natural Questions* 2.59.
[334] Garlic is used in many natural remedies, and the combination of garlic and iron appears again in iron tools smeared with garlic before pruning to keep insects off the vines (*Geoponics* 1.14).

Sheep, Pliny says, will miscarry out of fright at the sound of thunder (1.188); they should be kept in flocks to prevent this, so that the company keeps them cheerful.

The *Geoponics* (7.10-14) includes lots of advice to keep wine from turning. Most involve additions to the wine, like almonds, gypsum, fenugreek, and ashes; but several show similarities with the egg charms. Rain, wind, thunder and lightening can all turn wine, it says; but laying iron or laurel branches on top of the wine jars prevents damage, just as they keep eggs good; and the wine, it says, will certainly not turn if you inscribe the containers with the charm "Taste, and see that the Lord is good" (Γεύσασθε καὶ ἴδετε ὅτι χρηστὸς ὁ Κύριος); or you can write this on an apple and put it into the wine. This is obviously late; but it appears to work on the same principle as the Homeric incantation found much earlier in antiquity.

Averting Hostile Magic

So far, accidental pollution and naturally-occurring disasters have been considered. In addition, an occasional concern over hostile magic appears, and a felling that the villa and crops must be protected from baleful influences. When the Theodosian Code excepts those who avert storms from prohibitions on magic, it also mentions, as a counterexample, brewers of tempests (*Theodosian Code* 9.16); and worries about the evil eye and other magic from jealous or angry neighbors was an occasional concern. Some of the remedies are part of official cult celebrations; others are private countermeasures.

Pliny, who frequently states his dislike of overt magicians, lists a number of things which can be hung up, applied, or planted at or near the villa in order to ward off magic. Certain animals with magical connotations can be used to avert spells; thus Pliny says that hyena blood, touched to the door-posts, prevents the spells of the *magi* by

stopping them from speaking with the gods by any means of divination (28.104). This comes in the middle of a very long list of magical properties attributed to different parts of the hyena's body (28.92-106), most of which uses Pliny attributes to the *magi* themselves. The hyena is found in other agricultural uses, such as to cover seed-measures and impart the animal's power to the seed (above); its skin was hung up on doorposts for other reasons as well (as, at *Geoponics* 1.14, to avert hail storms). The wolf, another animal whose skin is used on seed measures, also had parts of its body applied to door-posts and entrances to protect the house. Wolves and hyenas are felt to have similar powers, and are often interchangeable in such applications. The wolf's fat is also used; Pliny cites a Masurius for the fact that the ancients considered wolf's fat potent, and brides smeared it on door-posts to keep out all *mala medicamenti* (28.142). Other parts of the wolf are effective: a wolf muzzle, Pliny says, is hung up on the gates of villas to counteract sorcery (*veneficia*), and the ruff and legs will also work for this; Pliny says this is due to the tremendous power of the species (28.157). A wolf's tail will also appear later tied up by the oxen's crib to keep them from harm when eating (*Geoponics* 17.13). Pliny says that in his own day, pig's fat was used by brides in the same way as wolf's fat, not because the animal has magical uses or magical powers of its own (such as those which Pliny says were commonly attributed to they hyena, 28.92, 8.106), but because it was sacred (*religiosus*) to the ancients (28.135). Pliny does not venture an opinion about whether these things work or not, or how; although the hyena and wolf have overtly magical associations and are used to counteract magic, and the pig, which invokes cultic practices as a sacrificial animal, has the same function. Pliny also adds that menstrual blood on the doorposts will likewise frustrate the spells of the *magi*.

These doorway charms can be used for other purposes: the *Geoponics* suggests hanging a crocodile, hyena, or seal skin by the villa gate to ward off hail (1.14), and horse's hair stretched across a door to keep gnats out (13.11). And things besides animal parts are put in doorways against hostile magic. Pliny suggests hanging squills in a doorway to achieve the same thing (20.101). Other plants he says can be merely planted around the villa: holly (24.116), palm (13.40), cyclamen (25.114), which Pliny says people call an amulet, which keeps off evil spells, and which he thinks should be grown everywhere for this purpose. These are only a few of the plants which says to use in one fashion or another to avert magic.[335]

Here we have a complex of interlocking ritual actions and methods (things put in or on doorways), ingredients (what animals and plants, and what parts of those were used), applications for them (these charms ward off various problems), and rationales by which they work. And, expanding the web of associations outwards, these methods can be used for other problems, and the ingredients in different types of charms. Wolves have magical properties; their tails, their fat, and parts of their pelt are used here; to which we might add other parts of their bodies, such as in the wolf's-tooth amulet Pliny mentions (11.166). They are among the things placed in doorways and gates, which include plants, animal body parts, and ointments of animal fat and menstrual blood. These can be meant to counteract hostile magic, pests, or storms; and they are explained by means of the claims of overt magicians, who act by supernatural aid; by the sacral qualities of the ingredients, that is, by a cultic rationale; and by the natural power inherent in menstrual blood or particular species. And each of these ingredients is found used in other religious and magical contexts: wolves and hyenas to perform other agricultural magic; menstrual

[335] Examples are very numerous; but see especially Book 25 and 28, *passim*.

blood in the many natural charms (and proscribed actions) which Pliny mentions; pigs in many sacrifices, such as Cato's harvest pig[336]; plants let to grow around the villa to act, much as certain plants are set in or around fields and gardens to act as naturally-growing amulets for the crops against pests and other problems. And these tangential associations lead us on to others—the many plants and animals hung up on trees or vines as amulets; wolves in wayfaring signs and prodigies, and the similarity of these to weather-signs; the animals besides hyenas hung up on gates or in fields to ward off not magic, but storms, and the other contexts in which these (seals, hippopotamuses, and so on) are said to be useful. The components of a spell are not necessarily chosen because of their applicability to the particular situation—why a hyena's blood should avert hostile magic when touched to the doorposts may not depend on a particular appropriateness of either the hyena or its blood or the doorposts to this goal. This method may rather be determined by the larger place of hyenas, blood of all kinds, and entrances within the magical grammar of antiquity. Note the way ingredients are often interchangeable: many things can be applied to doors; and the association of certain groups of ingredients persists in other contexts: wolves and hyenas can be substituted for each other in many charms. The *Geoponics* gives (15.8) another charm to protect bees, fields, houses, cattle, and workshops from enchantment; many of the ingredients it says to bury by the door also have natural and ritual significance—cumin, squills, sulfur, wool fillets, torches, and so on. And of course, it combines buried amulets with doorway charms.

[336] Pigs, naturally, would be much easier to obtain than the other animals suggested. They are the one animal in this complex which an agronomists claims to know was actually used for this purpose, historically; the fact that hyenas and wolves are still recommended is typical of a tension between the necessity for ingredients to be obtainable and a feeling that more exotic ingredients were more powerful.

The Evil Eye

Pliny vaguely talks about the spells of the magi, but what other sorts of hostile magic were these things designed to protect against? The threat most often mentioned in connection with agriculture is the evil eye, which could dry up and destroy crops, trees, vines and flocks. Vergil makes his Menalcas complain that some eye enchanted (*fascinare*) his flock (*Eclogues* 3.103). Other Augustan poets make occasional mention of witches attacking crops through assorted means; but malicious agricultural magic seems to have been more of a literary, especially poetic, trope, in keeping with the interest of Augustan poets in magic, especially gruesome magic. The agronomists hardly mention the matter of the evil eye or other specific malicious magic at all. Only Pliny describes the evil eye, and it is in the ethnographic, not the agricultural, part of the *Natural History*. He describes various foreign people who have odd, often harmful, powers in their bodies or especially their eyes, including certain families in Africa who practice magic, and can dry up meadows and kill trees and infants with their praises (*laudationes*), and the Triballi and Illyrians who enchant with their gaze (7.16-18). He describes the evil eye with less reference to agricultural harm among his books on magic (28.30-32). Pliny is interested in it as a demonstration of the natural antipathies between certain people's bodies; it is a natural phenomenon. However, it is absent as a concrete worry in the agronomists. Either it was simply not a real consideration for them, or it is too obviously magical for them to openly concern themselves with; although Pliny explains it by natural means, he clearly still thinks of it in the company of other magic. Scattered references suggest that others did feel they needed to protect their farms against such threats. Gardens were particularly in need of protection, perhaps because of the

tenderness of the garden plants. Pliny says that gardens are felt to have a certain sanctity, and he describes the custom of putting up statues of satyrs in the garden to protect against the evil eye, as phallic symbols were a common means of averting it. Columella refers in passing to the statue of Priapus in the garden (10.108), which he calls fruit-bearing (frugifero Priapo); such decorations had both apotropaic and fertilizing effects. Pliny, referring to the satyr statues, adds that Plautus had said that gardens were under the protection of Venus; precisely what Plautus meant by this cannot be said, since the reference is not to any exant play; but the goddess of love is certainly appropriate to the context. In any case, references to phallic statues in working or pleasure gardens are common; besides avertin the evil eye, the served as decoration and scarecrows. Horace's fig-wood Priapus statue who narrates *Satire* 1.8 claims that he was set up to scare off birds and thieves, but ends the poem by driving off witches.

However, such measures were not limited to the garden alone; phalloi could also do crops good; and so Augustine says that at the Liberalia a phallus was carried around the fields on a cart before being taken into the town, for the good of the growing crops and to avert enchantment (*fascinatio*) from the fields.[337]

With these remedies we see again chains of association and similarities. The evil eye is in some ways treated as a threat much like menstrual blood—both are particularly dangerous to garden crops and growing things; the evil eye is sometimes particularly associated with women (Pliny, among his list of people who possess it, include Italian women with double pupils); and the descriptions of their effects on plants—they dry things up and burn them—are similar. And, like menstrual blood, Pliny offers natural explanations for the evil eye's working (on which, more below).

[337] *De civitate dei* 4.11.6, 6.9, 7.21

Fruges Excantare: Enchanting Crops Away

The most famous piece of Roman agrarian magic occasions similar disinterest from actual agronomists. This is the famous prohibition n the Twelve Tables on enchanting another's crops, *fruges excantare*. Pliny (28.17-18) is the only one of the writers to mention this practice, and he merely quotes two phrases from the Twelve Tables: *Non et legum ipsarum in duodecim tabulis verba sunt 'qui fruges excantassit' et alibi 'qui malum carmen incantassit'?* "Is it not written in the laws of the Twelve Tables themselves "who chants out crops" and elsewhere "who chants an evil spell?" This is part of his discussion of whether words have power, and he seems to include the legal provisions merely as further examples of a Roman belief in efficacious words. The meaning ought to be that no one is to draw away anyone else's crops by means of a spoken spell; Rives, who collects the evidence for the law, shows from citations of it by Servius and others that a second clause forbade enchantment of crops by means of *venena*.[338] Rives suggests that it was originally proposed to cope with anxieties over land distribution and crop shortages in the early Republic. Pliny (18.41-43) also gives us the only known anecdote regarding the application of this law, the prosecution of C. Furius Chresimus for enchanting his neighbors' crops away, which ought to be dated to the second century BC if the name of the aedile who judged the case is accurate.[339] By the end of the Republic and the early imperial period, the law was clearly used rarely, if at all; when our first citations of the law begin, it is among authors who consider it an oddity. The Augustan poets may be responsible for bringing the belief in enchanting

[338] Rives (2002) .
[339] Forsythe (1994) 377-8.

crops away to the notice of the literary world; Vergil (*Eclogues* 8.99) and Tibullus (1.8.19) both mention it. It is worth noticing that Vergil's mention of it comes not in the *Georgics*, but in the semi-mythical bucolic world of the *Eclogues*, where Vergil is much more interested, like other Augustan poets, in magical vignettes, than he is in the *Georgics*, which, as didactic poetry, more closely echoes the concerns of the agricultural handbooks before and after him. By this time people seem confused over what sort of action the law envisions; does *excantare* mean to destroy crops, physically entice them away into another's field, or to drain off the fertility and vital force of the field into another's? Rives makes it clear that the original meaning must have been to transfer crops, whether tangibly or intangibly, onto another's land; but the classical writers did not completely understand the ancient law; Seneca thinks it means to call down hail storms on someone's crops, malicious weather magic. While belief in the possibility of enchanting crops away may have had popular currency, the authors who comment on it treat it as a belief of the ancients, not of their own day—excepting the poets, who frequently profess a belief in things which prose authors consider superstitious; this importation of old-fashioned folklore into the Rome of their own day is another reason to treat poetic evidence for magic with caution. It is never discussed in the context of actual, practical agriculture, and the pure agronomists pass over it in silence, not even ridiculing the belief that it was possible.

A Brief Hostile Interlude: Malicious Magic in the *Geoponics*

The *Geoponics* contains several particularly odd moments, in which it gives actual instructions for how to perform *malicious* magic, by which you can kill someone's

trees, harm their garden, or keep them from catching fish (10.67, 12.11, 20.5). This is completely unparalleled in the classical writers, and how it made it into the compilation of the *Geoponics* and from what source is mysterious. The compiler who exclaims disapprovingly over protective charms does not even comment upon the malicious magic, which probably means that they entered the collection very late.[340] The charm for killing a nut tree offers several different methods: you can chew on lentil seeds while fasting, and then bite the tree, which will dry up. Or you can stick a hot spike into its roots, or bore a hole and insert a piece of tamarisk, or bury *dictamnus*, beans, or a menstrual rag at its roots. What is notable about these measures, besides their hostile nature, is the fact that they all resemble helpful magic in form, if not in intent. The instruction to bite the tree is the most unique; but although it presents a very strange picture, the elements have been seen elsewhere: the instruction to fast, the use of legumes and the transference of a harmful influence by a bite (seen less often with humans than with animals like wolves; woolen cloth made from a sheep wolves have bitten is said to breed worms; or goats, said to make vines barren with their bite).[341] The red-hot spike is an extreme version of the assorted wedges, spikes, stones and nails inserted in trees to make them productive, as is the direction to insert a piece of tamarisk wood, which Pliny calls unlucky (24.68). Beans can be either propitious or ill-omened (Pliny 18.119), and the point of the menstrual rag is obviously polluting, although elsewhere (10.64) is found buried under a nut-tree as a helpful element. Hostile magic exploits the same forms and methods as helpful magic, or at least was imagined to do so; these sections may not be the work of a practicing

[340] For disapproval of magic in the *Geoponics*, see, e.g., 13.5.
[341] Fasting: eg, Cato 70-71, and widely in cult and magic; see Rüpke (2007b) . Legumes: Pliny 18.119. Wolf-bites: 11.113-119. Goat-bites: Pliny 8.204; 17.237.

magician so much as invented by an author who had read a great many of the helpful charms they resemble.

Conclusion

The agronomists focus mainly on natural remedies for dealing with crops and animals, although with a marked tendency for more overt magic to find its way into the late manuals; but they are as a body unconcerned to describe the yearly round of agricultural festivals which we might expect from other sources. Although the agronomists say the festivals should be kept, cultic celebrations do not seem to enter into their practical considerations in regards to getting definite benefits for the farm. This is not to say that they are not interested in the festivals; in fact, they have a great deal to say about who can perform them and under what circumstances.[342] However, as far as imparting practical advice to farmers, they have more to say on natural magic, which carried less social baggage, and was thus not fraught in the same way that cultic magic was. However, cultic and overt magic were often in the background of even natural-looking remedies; although the agronomists favor natural explanations for how they work, others, including their neighbors, the members of their *familia* who actually administered veterinary cures or amulets for the fields, and even their readers, might well have seen their advice as magical.

[342] On which topic, see Chapter 5.

CHAPTER IV

Magic for Weeds and Pests

Introduction

Wildlife could be a serious problem for the Roman farmer. Pliny claims that the Italians were often forced to consult the Sibylline books for a solution to plagues of locusts, while the inhabitants of the Balearic islands appealed to Augustus for military aid against the rabbits infesting their countryside.[343] Vermin did not usually require such drastic measures, but all farmers encountered more mundane problems with caterpillars, mice, and flies, as well as unwanted plants. A great deal of magic is aimed at protecting the farmer's produce and livestock from weeds and from vermin.

Marking magic that deals with weeds and pests as a separate sphere is to some degree an artificial division of the subject, as many of the rituals found here under the heading of crop and animal magic were also meant to protect plants or animals against damage. However, a broad distinction can be made between rituals which focus their action on the thing to be protected, which are more often preventative measures, and those which attack infestations of mice or weeds directly. Magic dealing directly with vermin has some unusual aspects, including a tendency to treat pests as quasi-people. It seems best to consider this material together, and to examine the much smaller body of magic dealing with weeds in light of these oddities.

Cultic magic has a much smaller share in dealing with weeds and pests than in magic dealing with crops or livestock, and the agronomists rarely mention it. Natural

[343] 11.105; 8.217. See also Aristotle, *Historia Animalium* 6.37, on the destruction of crops overnight by mice.

magic, capable of being construed as either magic or non-magic, is the method which they most often recommend; their remedies are sometimes described as *medicina*, medicines, with pests cast as an illness that can be treated (and with the ever-present ambiguity over whether magical or pharmacological solutions are meant). Some of the natural magic remedies are so natural-sounding that there is no reason, superficially, to identify them as magic at all. Many of the agronomists' suggestions involve things like foul-smelling solutions to pour or smear on plants to drive insects away or poison to kill rodents; there is little that is obviously magical about them, and many of them may have practical value. Why should ancient rat poison be any more magical than modern rat poison? However, mechanical remedies had, despite the sometimes explicit rationale of natural causation which the agronomists offer, much in common with cultic approaches and with several genres of supernatural magic; the logic which governed the choice of ingredients, the metaphors which informed a Roman's understanding of how such cures work, and the outward form of the remedy—as amulet, potion, or other type of application—could resemble and invoke practices which no one would deny were magical. And although the agronomists downplay the magical connotations of their advice, others enthusiastically considered such material part of the magician's repertoire. Consider the following recipe:

> κόριας ἐν οἰκίᾳ μὴ εἶναι· χολὴν αἴγειαν μετὰ ὕδατος μεταμείξας σκόρπισον.
> ψύλλους ἐν οἰκίᾳ μὴ εἶναι· ῥοδοδάφνην μετ' ἅλμης βρέξας καὶ τρίψας ῥᾶνον.
>
> So that there are no bugs in the house: Mix goat bile with water and sprinkle it.
> So that there are no fleas in the house: Wet oleander with salt water, grind it and sprinkle it.

The prescription is unremarkable; similar ones can be found throughout the agronomists. This recipe, however, is found between a "Homer oracle" and a calendar of days and hours which are good for divination, in a magical papyrus which also contains medical spells, instructions for dream oracles, scrying spells and divination with boys, charms to induce insomnia and love, "table gimmicks" attributed to Democritus, and other diverse magical material (PGM VII.149-54). That a minor recipe for bug spray found its way into this company is a reminder of the fact, of which the agronomists were acutely aware, that such remedies would always be magical to some people.

Between the cultic and the natural approaches to weeds and pests is a wide gulf of practices into which magic which could be considered neither cultic nor purely mechanical fell, and of which we catch only occasional glimpses. As always, the agronomists are extremely reluctant to deal with this type of spell. There are a few examples in the farm manuals, particularly the famous charm for killing caterpillars which Columella and Pliny both record. A few hints of other overt magic are also found, but most are clearly not considered suitable for extended discussion in the genre. There is relatively good evidence for one approach to vermin which does fall into this gap between cult and science. A group of spells deals with vermin in the context of human society, envisioning them as neighbors with whom human methods of mediation and chastisement will work. The late antique agronomists are more comfortable than their predecessors with the treatment of vermin as agents, although some examples of this type of magic may be found earlier as well, particularly in Columella, where the attribution of agency to vermin is only clear in light of the later and more explicit examples. The

obscurity of this approach in the earlier agronomists demonstrates the way in which they could ignore entire genres of magic which evidently had popular currency.

The Republican authors will not appear much in this chapter. Cato gives some fairly straightforward recipes for preparations which will keep insects off the vines and out of the granary and threshing-floor (92, 95, 129); there is nothing in the recipes or the context to suggest that Cato or his readers would have understood them magically. His suovetaurilia prayer may be one of the few suggestions of cultic approaches to vermin in the agronomists. Varro scorns both magic and the subject of vermin as out of place in a book on agriculture proper and makes fun of the Sasernas' recipe for bug spray (1.2.25), although he does let slip a few comments of interest on pest control. The Republican works are shorter and more idiosyncratic, if not always restricted, in the subjects they touch upon, and they have little to say about vermin or weeds; the topic is only taken up more seriously, among the surviving works, in the imperial period. The Sasernas' recipe which Varro quotes suggests that other republican agronomists whose works have not survived may have found it a worthwhile topic. In the imperial period, Columella has a fair amount to say on the matter of vermin, as does Pliny, in keeping with their longer works and more detailed interest in nature. Both take a more natural-historical approach to agronomy, listing obscure plants and animals with interesting properties and many natural methods of controlling damage. The technical literature of the period was philosophically positioned in such a way as to facilitate the borrowing of material from literature on natural magic, in particular, which may be why the remedies which are preserved are slanted towards this type of cure. While cultic approaches did not require the farmer to know much about the animals and plants to be warded off, the details being

left up to the gods, natural magic dealt with the peculiarities of individual species and required that the farmer possess a fair amount of natural-historical expertise in wildlife, at a level of detail which cult generally did not offer for vermin. The greater imperial interest in scientific literature and an emphasis on personal experience and the observation of nature which Columella, in particular, stresses, found more of interest in the detailed view of nature taken by natural magic than in the more abstract view which cultic language generally offered. Natural magic and the life sciences had similar conceptions of the world, making it easy for authors on each to find things of interest in each others' work.

The late manuals contain many prescriptions for pest control, often with franker discussion of magic than earlier books. Palladius is deeply indebted to Columella, but also collects some other magical lore on the subject. Much of his discussion of pests is in turn contained in the *Geoponics*, which, in bringing together material from diverse ancient sources, demonstrates how agronomy could assimilate the interests of magicians, who were, after all, a type of technical writer. Apuleius is cited cheek-by-jowl with Varro, and Democritus with the Quintilii. The tradition of agronomy could draw on their works equally.

Cultic Approaches to Vermin

Cultic approaches to pests are known mostly from Greece, where certain deities might be petitioned for help against vermin; a sensible approach, since vermin were often conceived of as one punishment which an angry god could inflict on mortals. Apollo Smintheus is perhaps the best-known instance, as a god connected with mice. His infliction of plague on the Greek army in the *Iliad* (1.39) is probably not unconnected

with his aspect as a mouse god; vermin and plague are often linked. However, he is also found repeatedly as the protector of humans against crop-destroying mice. Strabo (13.1.48) describes a statue of Sminthian Apollo pressing a mouse under his foot, and Aelian (12.5) tells a story in which the Aeolians and Trojans, having applied to the Delphic oracle for a solution to the plague of mice eating their harvest, were told to sacrifice to Apollo Smintheus for help.[344] The mouse population was reduced and the harvest saved. Apollo was also said to be an aid against locusts (Strabo 13.1.64, Pausanias 1.24.8) and mildew (Strabo 13.1.64, Eustathius ad Iliad 1.39). Heracles, Zeus, and other gods and heroes are also invoked against vermin, including locusts, mice, flies, and worms.[345] In the Roman world, Pliny says that locusts are considered to be a sign of the gods' wrath; the consultation of the Sibylline books for remedies recalls the Aeolians' and Trojans' appeal to Delphi. The agronomists have little to say about offerings or prayers to the gods for help against pests. The only possible instance may be Cato's suovetaurilia prayer, depending on how much detail we wish to read into it. The prayer asks Mars to keep off *morbos visos invisosque, viduertatem vastitudinemque, calamitates intemperiasque*, "diseases seen and unseen, barrenness and destruction, disaster and untimeliness". Vermin may well be meant as one of the rather vague threats from which Mars is to protect the farm.[346] The language of the prayer makes certainty impossible, but the commonly understood link between bad weather, disease in crops, animals and humans, and vermin (on which, more below) suggests that the prayer was understood to cover all three threats. The ambiguity of the language may suggest one reason why cultic

[344] On Sminthian Apollo, see Bernheim and Zener (1978); Hekster (2002) .
[345] Hercules: Strabo 13.1.64. Zeus: Pausanias 5.14.1; Pliny 10.75. Myiacones: Pliny 10.75. An unnamed god: Pausanias 8.26.7. For further citations, see Frazer (1913) 282-4.
[346] Tibullus' lustral prayer (2.1) also mentions unspecified evils the gods should drive from the boundaries, and mentions wolves which threaten the flock, although no specific threats to the crops are mentioned.

approaches are sparse in the agronomists; for if flies, mice, and slugs existed at a level of detail which had mostly been stripped out of the formal language of Roman cult, then cult would have less to offer in dealing with what were, in its conceptual landscape, minutiae. What stands out the religious conception of the rural landscape are socially significant items: major crops and animals, the farm as a whole, the *familia* as a whole, the *dominus*, the gods. The full text of Cato's prayer exemplifies the reduction of the landscape to symbols in cultic language (141):

> Mars pater, te precor quaesoque uti sies volens propitius mihi domo familiaeque nostrae, quoius re ergo agrum terram fundumque meum suovitaurilia circumagi iussi, uti tu morbos visos invisosque, viduertatem vastitudinemque, calamitates intemperiasque prohibessis defendas averruncesque; utique tu fruges, frumenta, vineta virgultaque grandire beneque evenire siris, pastores pecuaque salva servassis duisque bonam salutem valetudinemque mihi domo familiaeque nostrae...
>
> Father Mars, I pray and ask you that you may be propitious to me, my house, and my household, for which purpose I have ordered the suovitaurilia to be taken around my land, earth, and estate, so that you will forbid, defend against, and ward off diseases seen and unseen, barrenness and destruction, disaster and untimeliness; and so that you will allow my crops, grain, vineyards and nurseries to prosper and to turn out well, and that you keep safe my herders and herds and give good health and wellness to me, my house, and household…

This prayer deals mostly with abstractions, enumerating the whole farm by reference to its most important categories—the estate as a unit, the people and the herd animals as groups, some of the crops and types of plantings[347], and generalized threats and blessings. Minutiae such as insects do not enter into the picture.

[347] *Virgulta* is odd; it ought to mean a place where *virgulae*, slips of trees, are planted; but this is a rather more specific concept than anything else in the prayer, except perhaps the vineyard. The alliteration may have suggested it as a synonym for orchards more generally. Cato does not use the word elsewhere.

Understanding Pests in Natural History

When the locus of discussion shifts to technical writing, a much finer-grained interest in nature appears. Naturalists, medical writers, agronomists, and others whose work relied on observing and harnessing the variety of nature were far more interested in individual species and their peculiarities than the formal language of cult was, and they discuss vermin with great detail and specificity, an attitude summarized by Pliny's comment, prefacing his discussion of insects, that in the contemplation of nature nothing can be considered superfluous (11.4). Natural history had more to offer in terms of vermin-killing or averting remedies because it paid more attention to them. Most of the solutions to vermin which the agronomists offer draw upon such natural-historical observations, and whether they should be considered natural remedies or natural magic is often debatable and probably depended on the attitude of the user. The way natural historians conceptualized vermin and their origins had a great deal in common with magicians; mages, too, found a use for the many peculiarities of nature.

Natural philosophy treats vermin as a natural phenomenon which may be generated by the appropriate conditions. Certain locales are naturally given to producing certain types of animals. As with the unfortunate Balearic islanders who were beset by rabbits, some areas are simply thought to be good for vermin, the way that other places have unhealthy climates or are prone to storms. The phenomenon may be strange, but it is fundamentally regular. Other places are hostile to certain animals. Pliny frequently sets up oppositions between places in which animals thrive and those which kill them, a phenomenon which appears to fascinate him, and notes the results of experiments in which animals are taken to places they are not native. Examples in which the climates

which are good and bad for vermin are very close together particularly interest him, as when he notes that moles will undermine whole fields in one part of Boeotia but dislike the soil in another part.[348] Mechanical magic to deal with pests relies on this conception of them as a regular, predictable natural phenomenon, not a capriciously-inflicted divine one. Each species is something with particular properties which may be exploited for human use in cures or charms, and turned against them in pest-destroying natural magic. Pliny gives an example of two neighboring islands where the vermin-generating and destroying properties of the locales were harnessed to deal with an infestation. The soil of Colubraria, he says, bred snakes, whereas that of Iviza drove away snakes and rabbits; and so people take Ivizan soil to Colubraria. The islanders have noticed the sympathies and antipathies between certain locations and certain species, and have harnessed them for human benefit. Many of the remedies for vermin offered by the agronomists involve, as will be see, this sort of observation and use of the peculiarities of nature; unlike cult, mechanical approaches to vermin rewarded a detailed understanding of the natural world.

However, considering vermin a natural phenomenon did not necessarily exclude the moralizing interpretation of them found in cult's conception of vermin as a form of divine punishment. Pliny frequently combines naturalistic explanations for occurrences of vermin with a sense that natural forces respond to moral ones. He says (2.156) that the earth generates poisons, and herbs and snakes and other poisonous things infect mines as a punishment for human avarice, a claim which combines the fact that vermin occur in particular locales with a conception of vermin as a divine punishment. Nature, for Pliny, is a *numen* (2.1), and the laws of nature thus have an element of divine will about

[348] 8.225-28, as part of a catalogue of such opposed climates.

them.[349] Natural laws which are invoked to explain phenomena are informed by a feeling that morality is itself a natural force. The divinity of nature meant that the world ran on moral and social principles which the governing god was presumed to share with the naturalists, and which thus imbued all of the cosmos. Natural laws thus encapsulated human meanings—social, cultural, and moral norms, which informed the metaphors by which people understood the world. French points to the anthropomorphization of nature inherent in ideas of sympathies and antipathies[350]; the antagonism or attraction which parts of nature are supposed to feel for each other are based on human notions of appropriateness, similarities and opposites, likings and revulsions.

The spontaneous generation of pests demonstrates how natural-historical observations encapsulate human meanings. Vermin are said to arise from many substances, as well as places; and the relationship between the creature produced and the thing from which it comes is frequently governed by a very human sense of appropriateness. Vermin are volatile: they reveal, by coming into existence, the essence of the thing generating them or the circumstances favorable for their growth. The best-known case of spontaneous generation in antiquity is the bougonia, in which bees, the most useful and productive insects for the farmer and considered particularly pure animals, are said to be born out of the corpse of a cow, the most useful domestic animal and the most valuable sacrifice. Their natures match; bees are an appropriate animal to expect from a cow. Wasps and hornets are similarly generated from the corpse of a horse, and beetles from a mule (Pliny 11.70); Ovid points out the similarity between the warlike

[349] Pliny largely absorbs Stoic ideas of the divinity of nature and a governing deity. See French (1994) 196-206; Beagon (1994) 26-33.
[350] French (1994) 205-6.

hornets and the spirited horse.[351] A popular belief was that a snake could be generated from the marrow of a human spine[352]; although the similarity of shape and perhaps the chthonic nature of snakes explains why they should come from the spine of a human corpse, Aelian also adds that the snake-engendering corpses are those of evildoers (1.51), an apt source for a poisonous animal. Butterflies were produced by dew coalescing on leaves (Pliny 11.112), an appropriately ethereal origin, while fireflies arise in copper foundries, evidently because of their resemblance to sparks (Pliny 11.119). Wool shorn from a sheep which has been bitten by a wolf produces worms, the wolf's destructive nature still affecting the sheep's produce (Pliny 11.115). More generally, insects are often said to originate from dirt and mud, corpses, living bodies, used bathwater, and decaying matter (Pliny 11.113-119). Ideas of spontaneous generation were quite common, and many examples do *not* show a significant relationship between the thing generated and the origin, but the ones in which such a marked relationship exists seem to have been more popular.[353] Pliny, whose discussions of spontaneously generated animals owes a great deal to Aristotle, shows a preference for his examples in which the occurrence of vermin is sensitive to the human meanings of things. Since nature generates vermin in accordance with the social significance of animals and in response to pollution like dead bodies and dirt, vermin can be interpreted as a barometer of the general health of the human community; this is not so far from cultic beliefs that vermin are the expression of a god's displeasure. The question which differentiates these natural and cultic paradigms is, as with weather signs, whether the gods cause each incident individually or whether they guarantee the operation of independent natural laws from which they result. It is

[351] *Metamorphoses* 15.368.
[352] See, e.g., Pliny 10.188.
[353] For more citations, see McCartney (1920a); (1920b) .

these metaphorical connections which underpin much natural history, and natural magic of the sort found in the agronomists' vermin remedies. The fact that so much natural history shares in logic typically categorized as "magical" blurs the line between what we can reasonably analyze as magic and what not.

That ancient natural historians could not escape their culture's metaphors is unsurprising; but the vehemence with which the technical writers usually disclaim the practice of magic makes it easy to overlook the fundamental similarity of the ways in which natural and overt magicians and cultic specialists operate, and the principles on which they act. Mechanical magic often shares its underlying logic, metaphors, and chains of association with cultic and supernatural magic, which draw on the same cultural assumptions which underpin natural history. These are modes of thought with often very similar logic behind different and sometimes opposed explanatory paradigms. G.E.R. Lloyd points to the "rationalization of popular belief" which makes up much of ancient science, even in works which self-consciously try to separate themselves from popular ideas.[354] This shared logic is one of the reasons why mechanical magic was susceptible to being reinterpreted as supernatural magic, and vice versa. It also made a fluidity possible, and the types and forms of remedies used against pests, as mechanical magic borrowed remedies from cult or supernatural magic along lines of shared logic and associations.

Bad Weather, Vermin, and Crop Disease as Identical Problems

An example of such shared logic is the complex of associations surrounding storms, crop disease, and the incidence of pests, which demonstrates how natural magic

[354] Lloyd (1983) , *passim*, but concisely at 201-17.

may rely on the metaphors and chains of association also found in cult. In Roman thought, bad weather is closely associated with crop disease and animal vermin, which tend to be spoken of as a group of interlocking problems. Vergil, for one, in the first book of the Georgics persistently associates weeds, pests, and blight, as things Jupiter placed on the earth to make sure life was not too easy for mortals.[355] Columella follows suit in grouping remedies for pests with those for bad weather in his very Vergilian Book 10. Pliny, in his agronomical Book 18, classifies crop blights and storms as the two types of damage coming from the sky, and blames the influence of the moon and stars for both (18.278-9). The degree to which bad weather is treated as something almost identical with crop disease is notable. Several of the gods invoked against vermin are also supposed to help with crop or human disease, or bad weather; the Greek Apollo who destroys locusts and mice also deals with mildew[356]; the people of Elis invoke a god called Myiacores against flies and plague[357]; Zeus, prayed to for help against pests[358], is, as a storm god, of course also an aid against bad weather. Some fundamental similarities fostered the association of these problems: all were insidious and destructive; they were favorite expressions of divine displeasure, and they were thought to be produced by some of the same natural factors, like climate. All were difficult to cope with using normal means. The similarity in how these three problems were perceived, in cult and popular belief as much as in scientific literature, led to a transference of natural-historical knowledge between them.

[355] *Georgics* 1.118-24, 150-59, 176-196; Columella 10.321-68.
[356] Strabo 13.1.64; Eustathius ad *Iliad* 1.39.
[357] Pliny 10.75.
[358] Pliny 10.75; Pausanias 5.14.1.

Storms, disease, and vermin are not just similar problems with similar warning signs, but are said to give rise to each other; precipitation is said to *produce* both crop diseases and vermin. Precipitation and damp, which can encourage mildew and other sickness in plants, are blamed, not without reason, for crop disease by the ancient authors; thus bad weather can be destructive not only because of the immediate effects of hail and wind but because it leads to more lingering problems. So far, so good; modern gardeners encounter the same problem. However, some authors assert that bad weather directly generates vermin as well as crop disease. Generative powers were attributed to both rain and earth, and recently dampened earth was considered particularly productive.[359] Pliny includes rain, dirt, damp, dust, and snow among the things which generate insects (11.113-18). However, at other times, vermin seem to be produced by storms less because of the generative nature of soil or rain than because storms and pests are both destructive, and this similar nature means that one ought to lead to the other. Thus Athenaeus (333a-b) says that hail produces mice. Aelian agrees, saying that rain and hail produce both mice and toads (1.56). Such beliefs were widespread. Plutarch scoffs at the idea that rain engenders snails, which, along with truffles produced by thunder, were evidently among the products of rain more appreciated by gourmands.[360] Columella calls Zeus *pestifer*, pest-bringing, and blames both hail and insects on his malice; his rain breeds worms and flying things which destroy the garden (10.329-36). Columella uses this as a prologue to his discussion of magical remedies for both weather and vermin.

[359] See, e.g., Pliny 11.113-15; Plutarch *Natural Questions* 2 and 33 on rain and fertility.
[360] Quaestionum convivialium 4.2 (=Moralia 664B-666D).

Because these three things are similar and linked problems, they are treated in many ways as interchangeable; remedies for vermin tend to be exchanged with magic to avert storms or other bad weather. The *Geoponics* contains a passage of remedies which will protect vines against either insects or frost (5.30), and then advice on protecting them from frost or blight (5.31). Frost, a type of weather which earlier agronomists do not offer much advice on, here seems to be conceived of as a sort of crop blight itself. Pliny blames it for causing blight (18.275). Pliny also contains two notable examples of remedies to be used against either storms or vermin. His charm for ridding the garden of caterpillars using a menstruating woman is set in a longer passage on the powers of menstrual blood, which, inter alia, can drive away hail, whirlwinds and storms at sea if merely exposed to them (28.77); and his charm for protecting a field against disease, sparrows and worms, which involves burying a toad in a pot (18.158), he repeats (18.294) as a spell to ward off bad weather. The proximity of vermin and weather magic in Columella has already been noted, and the supplication of particular gods against the whole trio of problems.

Because storms, blight, and pests were so closely associated, in cult and popular belief as well as in the sciences, remedies which look superficially like purely natural ones—such as preparations to smear on vines in the *Geoponics* (below)—transfer easily between weather and insects. Looking only at Pliny, it might seem odd that the same charm should ward off both storms and animals, but in the larger complex of associations the logic becomes obvious. It is this shared web of metaphors which served as a common ground between practices labeling themselves as science, magic, and cult, and which

made possible a common pool of solutions which could be drawn upon, with varying explanations for why they worked, by all.

Natural Magic against Vermin

Since vermin were a natural phenomenon, there were natural solutions available to farmers. Most of the remedies offered by the agronomists are straightforwardly mechanical approaches—a variety of bug-killing solutions, ointments, talismans, fumigations and rules of thumb which would not look out of place in a modern organic gardener's handbook. If animals can be, in Varro's words, a *venenum* (1.2.18), Columella's claim to offer *medicina* (10.357) for pests makes a great deal of sense—they can be treated like a medical problem through quasi-pharmaceutical means. It also highlights the ambiguity of these spells. Although the agronomists generally treat these remedies as something which work through the laws of nature, Columella's comment comes in his poetic tenth book, where remedies which look very much like the natural ones discussed elsewhere in the work are given a more overtly magical cast. The *medicina* he describes are attributed to the authority of mythical seers and heroes; and if they fail, the farmer can call upon "Dardanian arts"—the caterpillar-killing charm which is presented, elsewhere in Columella and in Pliny, as a natural remedy. Columella's *medicina* demonstrate the ever-shifting perception of natural magic and serve as a reminder that *venena* can have magical, as well as pharmaceutical, effects and solutions. While the agronomists prefer to elide the magical element in their mechanical remedies, there are occasional glimpses of other ways that these natural charms could be interpreted.

As with crops, the agronomists advise taking the phase of the moon into account. Columella suggests gathering beans in the dark of the moon, before dawn, and drying and processing them before it begins to wax again in order to protect them from weevils (2.10.12); likewise, planting vetch after the 25th day of the moon protects it from slugs (2.10.30). Pliny also approves of the 25th-30th of the lunar month, repeating Columella's comments and adding the general suggestion to gather anything you want to keep pests out of in this period. You should also sow in this period to prevent pests from disturbing the seed (18.158) and cut vine props to make them immune to insects, either because the insects are affected by the moon or because wood cut in the "dry" period of the moon will keep better (17.215). Other advice about moon phases generally suggests planting while the moon increases, so the farmer here faces the dilemma of whether it is more important to harness the effect of the new moon on the plants or the inhibitive effect of the waning moon on the pests. The advice is contradictory; what lunar phases were thought to affect had a definite element of convenience.

Liquid or solid preparations were applied to either plants or seeds (or, which are more rarely mentioned, animals, people, furniture, buildings and tools) to protect them. Crops, trees, and vines are the most frequent recipients of protective measures. The preparations are commonly lumped together with other remedies for vermin, both obviously magical ones and more natural ones.[361] Columella suggests applying *amurca*, [362] soot, leek juice, or horehound on seeds to protect them from pests (10.351-356); or leek or wild cucumber root, crushed and diluted with water, which the seeds should be

[361] The *Geoponics'* comments on pest control are mostly arranged by species of vermin rather than by the thing protected or type of remedy; the result is a jumble of different types of remedies thought to work on each pest.
[362] Watery oil-lees, a byproduct of oil production and a favorite all-purpose substance for the agronomists.

soaked in overnight (2.9.9). Farmers could also sprinkle these on the seed furrows. Columella calls these things *medicina* in his poetry (10.357), where they are effective but inferior to the menstruating woman charm for getting rid of caterpillars; in prose, he attributes the remedy to others, not saying whether he finds it effective; it immediately follows his comments on hide-wrapped seed measures. Like the seed which has to sit in the measure overnight for its powers to transfer, these seeds must be soaked for a while. Varro makes Stolo make fun of a similar bug repellent (1.2.25), but Fundanius objects that it is good advice even if out of place in a book on agriculture, and Columella's remedies were repeated by his successors.[363] The *Geoponics* mentions it among a large number of other remedies (2.18), including advice to mix bruised cypress leaves, fenugreek, wine, amurca, or hellebore in with seeds to keep pests off, some of which remedies it attributes to Apuleius. These things do not necessarily have to be applied to all the seed; it suggests mixing a small amount of seed with hellebore or water with crabs soaked in it and then sprinkling these seeds around the area to be protected, combining a natural remedy with the drawing of a circle around the area. Or you can soak a stag's horn or a piece of elephant ivory in water and water the seeds with this. Palladius (1.35) recommends applying caterpillar's blood to get rid of caterpillars—to keep them off the growing plants, presumably, not to keep them from eating the seeds like ants or birds, a sign that these remedies were thought to have a more lasting effect than merely to make the seeds themselves unappealing to pests—or to keep mice from eating them, you can apply bull's gall, which he also attributes to Apuleius. He also says that to keep weeds out, the Greeks sprinkle a capon's blood on the seeds (12.1). The odd specificity of the capon recalls Pliny's comment (28.65) that a eunuch's urine will counteract sorcery

[363] Palladius 1.35, 10.3; *Geoponics* 2.18.

which impedes fertility; a similar reasoning, that a sterile thing will counteract sterility-inducing forces, may be at work.

Other liquid and solid preparations are applied to the growing plants. Pliny suggests that a green lizard's gall will keep pests off trees (17.266). Palladius and the *Geoponics* are enthusiastic about these preparations, and list a great many more than earlier sources, often in conjunction with other types of remedies such as fumigations, amulets, and written spells.[364] Cow dung protects vines against reptiles and worms, as does cedar pitch if applied to the root tips. Straw from beans and other pulses, if buried around the vine roots, will both keep the plant warm in winter and keep pests away (*Geoponic* 5.9). This is typical of the *Geoponics*' approach; preparations which are said to be effective against pests usually have some other beneficial effect as well, whether they are nutritive, like manure, or improve the soil structure, or affect the eventual produce. There seems to be a feeling that a substance that does good in one case is likely to do good in another, so that remedies experience a gradual creep in what they are said to cure. Pliny's advice about lizard gall is repeated; in the *Geoponics* it not only keeps caterpillars off apple trees, but also prevents the fruit from rotting. Many of the ingredients found in these remedies are familiar from other magical contexts or medicine. Lizard's gall (and other body parts) are frequently found as a powerful ingredient in medicine and magic, and similar associations exist for other ingredients recommended for use against pests. [365] Laserpicium sap and oil boiled and rubbed on vines protects against worms and other pests (*Geoponics* 5.48). Caterpillars taken from another garden, boiled with dill, and sprinkled on one's own crop of caterpillars will kill them, as will urine and

[364] This is only a small selection of the recipes Palladius and the *Geoponics* offer. Books 12 and 13 of the *Geoponics* and Palladius 1.35 are particularly rich in cures for insects.
[365] See, e.g. Marcellus Empiricus 8.49-50, 29.13, 15.52, 8.50; PGM VII.628-42; Nock (1972).

amurca boiled together (*Geoponics* 12.8). As these last examples show, some remedies are quite specific. Others, like a solution, mentioned more than once, of crabs steeped in water for some days, can be used on "anything you want to keep safe" (ὅσα βούλει ἀβλαβῆ μένειν; *Geoponics* 5.50; cf. Palladius 1.35). The *Geoponics* is hazy on why these preparations work. Several times it suggests that the bad smell of the solution repels the pests (and many of the remedies are quite noxious; the urine and droppings of various animals are favorite ingredients); at one point, it debates whether it is the smell or a natural antipathy which makes certain things effective against mice (12.39). Columella, Pliny, and Palladius also mention smells as a reason why pests will go elsewhere.[366] Tavenner points out the occasional conflation of smell and magical effects in antiquity; smell seems to be used as a tangible explanation for magical effects, either as an explanatory alternative to natural antipathy or as the physical means by which antipathy is thought to find expression.[367] Scribonius Largus, for example, mentions that *hiera botane* or *trifolium acutum* are effective as amulets against snakebite, and that both have a strong odor; we might expect the smell to be what makes snakes avoid the wearer, but the plants also have to be gathered with the ceremony of magical plants—before sunrise, with the left hand, having been located and marked the day before.[368]

Another method of driving vermin off was to fumigate areas or buildings. Pliny says that burning styrax wood is one of many things that will drive away snakes (11.80-81), while all venomous things will flee from a burning ass' lung (18.153-4). The *Geoponics* (5.48) lists a number of things which can be used to fumigate the vineyard to

[366] Columella 8.5.18; Pliny e.g. 10.197; Palladius 1.35.
[367] Tavenner 95-6.
[368] Scribonius Largus *Compositiones* 163.

protect it from worms or other pests: cow dung, *galbanum*,[369] stag's horn, goat's hoof, ivory dust, lily root, a woman's hair, peony, and a plant called *prosopitis*.[370] Some of these appear, again, to rely on the terribleness of the smell to remove the pests; and some of the same ingredients appear as either as fumigations or applied to the plants or tools, as in Palladius' advice both to rub garlic on the pruning knives and to burn it through the garden in order to raise a strong smell which will get rid of worms; he is explicit that these two measures have the same goal (1.35). In other cases, the ingredients have an antipathy to the animal targeted. Fumigations to get rid of snakes make a good case to study, because they are so frequent. One of Varro's few comments on pests is that burning stag horns will keep snakes away (3.9.14). (He also believes that the smell of snakes will kill chickens, a reminder that larger pests could be a danger to farm animals as well as plants, and perhaps an example of a conflation of smell and an antipathy to the farmer's disadvantage.) Varro also says that an oak stake placed in the manure pile will keep snakes out of it (1.38). Both pieces of advice are repeated in subsequent agronomists.[371]Columella agrees that the odor of burning horns (or women's hair, or *galbanum*) is what does the job (8.5.18). But we know from elsewhere that there was believed to be a natural antipathy between deer and snakes. Deer's breath harms snakes (Pliny 11.279), but also attracts them. Pliny says that stags are always at war with snakes, and draw them out of their burrows with their breath; this is why burning stag's horns drive them away, and rennet from a fawn will cure their bites (8.118-119). Deer horns have other wonderful properties when burned, such as stopping epileptic attacks, and

[369] A resin used in incense and perfume; Pliny 24.21-22 describes its medicinal qualities and says its touch will kill snakes.
[370] Again the work contains many more examples, especially in books 12 and 13.
[371] See Columella 2.14.6, 8.5.18; Pliny; 17.5.7.

Pliny says that the right horn of a deer has medicine in it, and that deer are jealous of these properties and hide their shed antlers (8.115). With this context, it is clear that more is at work than the odor in suggestions to smoke out snakes with deer horns. The species are fundamentally incompatible and in a constant state of tension with each other. Some of the other fumigatory ingredients suggested, such as women's hair, also suggest a more than olfactory effect. Burning hair may smell terrible, but gender should be irrelevant. Stag's horns demonstrate the recurrence of favorite ingredients; the passage in the *Geoponics* also contains an aside on a medical use for burning women's hair, said to prevent abortions.

As the example of stag's horns shows, there are often multiple explanations offered for why any given remedy works. Natural antipathies, odors, and pharmaceutical effects (such as Pliny's advice to get rid of rodents by mixing hellebore with barley (25.61), which seems meant to poison them outright) are cited for why potions, ointments, and fumigations work. Similarly, it will become clear that ingredients, once considered effective, are not only applied to many problems but are used in many forms—liquids, amulets placed on plants or in fields, fumigations, or as plants simply allowed to grow in a convenient place.

The preparations in the *Geoponics* include things which can be applied to the stored seed corn (2.29), plaster of the granary (2.27), cows (17.7), and beds (to keep bugs or scorpions out, 13.14; a special recommendation for travelers is given at 13.9), as well as crops, trees, and seeds being planted. Some particularly interesting preparations are salves or liquids meant to be applied to the implements which will be used on the trees or vines which are to be protected, rather than to the plants themselves. These remedies are

first found in Columella's separate work *De Arboribus* (15), in which he says that to get rid of caterpillars, you can either smear the pruning knifes which you have used on the vines with bear's blood, or you can wipe them on a beaver's skin during the pruning whenever you stop to sharpen them. Columella's version is, unusully, much more magical-sounding than later renditions of this charm; particularly striking is the instruction to treat the knives with blood *after* the pruning is finished. While the beaver skin on which the knives are wiped (or stropped, perhaps) might be thought to transfer some property in itself to the knives and thence to the vines, as the skin-wrapped seed measures do to the seeds, the knives annointed with bear's blood are only treated after they are no longer going to touch the vines. Columella does not offer any explanation for his advice. The beaver skin is the only place in the agronomists at which this animal appears; it may be another instance of combating a problem with something like it, since Columella emphasizes the gnawing action of the *volucra* on the vines, and the beaver's ability to chew through wood is one of its more distinctive qualities. Pruning knives can be rubbed with bear's fat to protect the vines against frost, clouds and insects; the fat should be applied in secret, an obviously magical instruction.[372] Palladius explains that the measure may not be effective if it is made known; the pruners, in particular, are not themselves to know about the procedure used on their tools. Who, then, applies the fat—the vilicus? the master? In the *Geoponics* the fat may also be applied directly to the bark to keep insects off. Other things which may be smeared on the knife in the same passage are garlic, bruised or in oil; caterpillars picked off of roses and boiled in oil or water; goat suet, and frog's blood; ashes and oil, or the crushed insects themselves, may be used on

[372] Palladius 1.35; repeated by *Geoponics* 5.30.

the whetstone before sharpening the knives.[373] Similar preparations for tools are found elsewhere in the *Geoponics*; as with the bear fat, the ingredients may often be either hung or smeared on the plant, like an amulet or lotion.[374] The efficacy of the potions is great enough that it will transfer from the knife to the plant. The seed-measure wrapped in a hyena skin which Columella mentions (2.9.9) are a similar case of protection imparted by a tool. It seems meant to give general encouragement to the seed, since he says only that some people store seed in this way in the belief that seed treated in this way will turn out well; but protection from pests was probably meant to be part of the suite of benefits, as he immediately goes on to discuss liquid preparations, such as leek or wild cucumber juice, which will keep underground pests off. Unlike the seed measure, he does not qualify the use of liquids as a belief of others which he is merely reporting. Palladius repeats Columella's advice about the seed measure (10.3), and also suggests drying seeds in the skin of a tortoise before sowing, explicitly so that the garden plants will not produce pests (1.35). The *Geoponics* repeats this (12.7); both it and Palladius give this remedy in conjunction with advice about liquid preparations such as leek and cucumber juice which will achieve the same effect. However the hyena has been transformed into a tortoise, neither Palladius nor the compiler of the *Geoponics* voices Columella's doubts.

Probably the largest class of measures against pests was amulets, which could be hung on animals or plants or placed or buried in fields. Many of these were very simple objects—unlike the amulets of stone, metal or paper with magical words or pictures, these basic amulets might simply be a plant, animal or animal part, or stone which was considered to have special properties and was thus carried, worn, or placed near whatever

[373] All from Palladius 1.35 and *Geoponics* 5.30, which repeats many of Palladius' suggestions with slight alterations.
[374] See *Geoponics* 5.48, 5.49, 10.48, 13.16.

needs its protection.[375] Unlike liquid preparations or ointments, the amulets were not precisely applied; the effects spread to the user contagiously, not physically.

Some plants were simply grown on or around the property to get the desired effect, and can be considered a very rudimentary sort of amulet. Palladius (1.35) makes the comparison clear; he says that some people propagate squills in their garden to get rid of caterpillars, or at least (*vel certe*) hang it up there. Bryony grown around a villa will drive off hawks and snakes and so keep the poultry safe (Pliny 23.26-28). Other live plants which Pliny says will drive off serpents include catmint (2.158), ferns (27.80, also good against lice); *ebulum* (25.119); garlic (20.50), ivy (16.145), and ash trees, the mere shadow of which snakes will flee (16.64). Ash leaves also cure snakebite; like snakes and deer, snakes and ashes have a natural antipathy. The *Geoponics* says that peony or *prosopitis* can be planted in the vineyard to drive off animals (5.48). These plants can also be used in fumigations of the vineyard to kill plants. Arugula, planted next to other crops, will keep off insects; it is not harmed by them, and apparently extends its own protection to other plants (12.7). Wormwood, *artemisia*, and *abrontonum* can be planted around the villa to keep snakes out (13.8). Columella says that cress in the garden kills worms (10.230). Lupines keep mice away (*Geoponics* 4.15); chickpeas are sown in gardens because of superstition (*propter multa portenta*, Palladius 1.35). This is merely a sample of the many such helpful plants. Once again, planting protective crops is unremarkable advice (and sometimes perhaps effective), except for the fact that these suggestions are often found embedded in masses of obviously magical advice and the plants recommended are also found in amulets and other magical preparations. To take one example, worms will not hurt trees and vines if squills are planted around them

[375] On such basic amulets, see Tavenner 96-123; Richlin (1997) ; Dickie (2001) 129-30

(*Geoponics* 9.10, 10.90, 10.46, 10.18) or if the root of the plant is fixed in one when it is put in the ground (Pliny 17.87). Squills have manifold magical uses; just in the agronomists, wolves will not attack cattle if a shepherd carries one (*Geoponics* 18.17).[376] Pliny's advice to plant figs in squills comes from Theophrastus (*Historia plantarum* 7.13.4); and yet he attributes it to Pythagoras.

Pliny, always an enthusiastic cataloguer of amulets, lists many that are useful for pest control. Branches of pomegranate will keep snakes away (23.109); the *Geoponics* adds that people lay them in straw piles for this reason (10.32). A river crab hung up in a garden will kill caterpillars (19.180); this recalls the crab water which the *Geoponics* says is good for protecting anything. Palladius says that some people nail crabs up around the garden (1.35); the nails themselves may be intended to have a magical effect. The *Geoponics* also says that hanging a raven-fish from a tree will kill ants (10.32). Hanging *plistolochia* above the hearth makes snakes flee the house (Pliny 25.101). Even animals can wear amulets; rue hung under a hen's wing will protect it from predators like cats and foxes (14.9, 14.15), and shrews will not bite an ox wearing an amulet which Columella describes (6.17.5-6; see also below).[377] These amulets protect particular plants, animals, or spaces. Others extend protection to whole fields or gardens. Favored locations to place these are the center of the space or at its corners. A plant, the name of which Pliny does not know, will keep birds away if planted at a field of millet's corners (Pliny 18.160); they will not enter the area at all. A mare's (or other female equid's) skull will kill

[376] Squill: Scarborough (1991) 146-7;.Charms to deal with vermin overlap with charms to ward off dangerous animals, particularly in the case of snakes and other venomous animals whose bite can harm either humans or farm animals. The magical or unlucky nature of animals like wolves and hyenas is a further reason for these charms, since their mere glance or crossing of a traveler's path could be dangerous. McCartney (1935) .

[377] Grattius, *Cynegetica* 399-407, mentions amulets to protect hunting dogs.

caterpillars if set up on a stake in the garden (Pliny 19.180); Palladius repeats this advice, saying that the mare or ass should have foaled, and will thenceforth make all the plants near them fruitful. The *Geoponics* says that to prevent worms, mix the ashes of vine shoots with vine sap and wine; this looks much like the potions for plants, but the farmer is to place the mixture in the middle of the vineyard, not daub it on the plants needing protection. The preparation is treated more like an amulet than a lotion (5.30). The heart of an owl, according to Palladius, will deal with ants tunneling in the garden; if they emerge from their holes anyway, you can sprinkle the garden with ashes or lime (1.35). Pliny gives a relatively elaborate amulet for protecting millet from disease, sparrows, and worms; a toad is to be placed in a pot and buried in the field, at night, before hoeing the crop. The farmer must remember to dig it up before he sows again, or it will turn the land sour (18.158). Possibly the toad is thought to absorb the bad influences itself, so that it must be removed and discarded to avoid rereleasing them into the field, much like plants which are said to absorb bitterness and other bad influences from crops, like the laurel branches or the mushrooms Pliny mentions (18.161; 22.94); many other examples of plants which draw bad influences into themselves could be cited. The *Geoponics* (2.18) repeats the charm alongside liquid and solid things to apply to seeds, and attributes it to Apuleius. Pliny's advice to bury it at night is probably to ensure secrecy.

These last examples show how natural magic can borrow the outward form of supernatural magic, even when it is explicitly explained by the action of natural processes. Take Pliny's claim that people carry earth from Iviza to Colubraria: although the rationale is that the soil of Iviza is antithetical to snakes, the practice of importing Iviza's earth is more akin to the use of amulets than to an action like applying fertilizer.

Fertilizer may have almost miraculous effects, but the agronomists recognize that the quantity used and the care with which it is aged and dug in has a direct correlation with the effects it produces.[378] However, even if we accept that the soil of Iviza is efficacious against snakes, any quantities taken to Colubraria must have been trivial; if the idea is that something in the nature of the soil is antithetical to snakes, unlike the soil of Colubraria which is sympathetic to them, a tiny bit of the pest-destroying soil is not likely to have an effect against an island full of venomous animals. As with an amulet of a powerful substance, which is thought to work through natural means (the inherent property of the plant or animal used as an amulet) with an element of magical contagion (the extension of the amulet's properties to the wearer), the soil of Iviza is a regarded as a substance powerful enough to yield an effect out of proportion to the amount used. Although Pliny does not say how this earth was used, we may wonder if it was worn in an amulet to protect the bearer or used as an amulet for fields, much like the ones which were buried in or around property to ward off bad weather or pests. The property of the soil transfers contagiously to the much larger amount of soil which has properties sympathetic to the pests, or at least extends its effect over it. (Some of the things applied to seeds were believed to extend their effects to the adult plants in the same way.) And while amulets for both humans and fields may be explained naturally, they cannot help but invoke another class of human and field amulets which are unambiguously magical.

[378] The agronomists may wax lyrical about the effects of fertilizer, but they do not imply that it is outside of the natural order of things.

Magic Dealing with Weeds

Weeds are a decidedly secondary issue for the agronomists. Although they can be a labor-intensive problem, they are one which develops slowly, visibly, and predictably, and uprooting them by hand or tool is a straightforward solution, unlike dealing with the erratic depredations of pests. Weeds therefore receive much less attention in the handbooks than pests do. A few comments suggest that there were common but unspectacular magical precautions to be taken. Lunar phases again come into play. Columella suggests manuring fields when the moon is on the wane (2.5.1), which will eliminate weeds from the crop; presumably the effect of the waning moon is to inhibit the germination of weed seeds mixed in with the manure, a problem which Columella mentions later (2.14.7-9), with the advice to age the manure enough to ensure that any seeds in it have rotted before you apply it to fields. He likewise suggests that manure should be applied to meadows while it is still fresh and with the moon waxing, since here any weeds grown from the manure will be welcome extra fodder. Cato (50.1) agrees with the advice to manure in a waning period, as does Pliny (17.57). Although Cato does not specify why to wait for the waning moon, he immediately goes on to discuss hand-pulling noxious plants from meadows after manuring. Pliny says that it increases the fertilizing effect of the manure (he adds other precautions which also help, including waiting for the fecund west wind). The *Geoponics* contains a rather garbled version of similar advice (3.5); it advises that you should carry weeds out of the fields while the moon is waning, as antipathy will prevent them from reviving; the author appears to understand neither theories of sympathy and antipathy nor moon-phase superstitions, and to be conflating them. The *Geoponics* also claims that manure used in the same year it is

made will produce venomous animals (2.21), a belief perhaps arising by comparison with the knowledge that fresh manure will produce weeds and the worry about snakes lurking in the manure pile. As with the link between storms, disease, and vermin, weeds and pests seem here to be conceived of as similar problems. The *Geoponics* (2.42) gives the most overtly magical advice on dealing with weeds, in a passage which beautifully demonstrates the fluidity with which it can move between types of remedies. It begins by saying that a weed called *osproleon* will not grow in a field if branches of oleander are fixed at its corners and in middle, which looks both like the way amulets are deployed, and like the branches of laurel which Pliny says will remove mildew from plants (18.161). But if you want the plant to entirely disappear—it is not entirely clear in what way this second remedy is more effective, since the first is said to keep pulses entirely safe—the *Geoponics* offers a second method. Instead of using oleander branches, you set out five ostraka in the same places, on which you have drawn in chalk or another white pigment Hercules suffocating the lion. From a charm with an at least potentially natural explanation we have moved entirely into the realm of magical amulets; this is the sort of image one might find on a medical amulet, to repel disease. The logic of it is explained by a third method, which the *Geoponics* explicitly says works by means of a natural antipathy (φυσικὴ καὶ ἀντιπαθής) and which it attributes to Democritus. A virgin, naked and with her hair unbound, should take a rooster and carry it around the field, and as a lion is afraid of a rooster (which the Geoponics also asserts at 15.1)[379] the weed the work calls the "leonine plant", will retreat, as though it were afraid of the rooster. The plant is said to give way because of natural antipathy; but the charm also depends on the

[379] See Rose (1933) 69 on this charm, with more passages attesting the antipathy between these animals.

name of the plant, and the fact that it presumably shares a fear of roosters with the lion it is named after. The Hercules spell relies on this as well; as Hercules strangles the lion on the potsherds, the amulets are intended to vanquish or scare off the weed. Meanwhile, the rooster is deployed in a manner which definitely recalls other circular processions around fields and other spells performed by women in a state of undress, particularly the caterpillar charm; and the rooster is found in other processions around fields (particularly a Greek spell which Pausanias mentions was used to protect vines from wind).[380] Moreover, the rooster can be deployed in a more immediately physical way; the *Geoponics* goes on to say that other people apply a rooster's blood to the seeds to be sown to keep this weed from harming them, like other liquid remedies on seeds; or the blood can instead be painted on an ostraka and placed in the middle of the field like an amulet. Throughout, although the remedy is said to work through natural means, the weed is also treated almost like a being capable of understanding and emotion. Although the author says only that the plant acts *as though* it were afraid, there are a number of spells for dealing with animal pests which rely on the idea that the animals understand the proceedings.

Mice, Snakes and Flies as Bad Neighbors

The scholar Leo Allatius, writing in 1645, claimed that in the Greece of his own day people believed that caterpillars could be removed from the fields if the farmer took them to court.[381] There are few social approaches this blatant in the ancient sources; but the tradition of treating animals as social agents as a strategy to get rid of them certainly

[380] See p. 140 on the wind charm.
[381] Leo Allatius, *De quorundam Graecorum opinationibus* 29. Allatius' book mentions other remedies of definite antiquity, including Columella and Pliny's caterpillar charm.

goes back to antiquity.[382] At times, the Roman farm appears to exist in a community in which not only people but also insects, caterpillars, mice, and other vermin must be considered neighbors, generally bad ones. A group of charms relies on the idea that the offending animals have social obligations within the human community, or that, at the very least, that they can be communicated with in human terms. These spells deal with unwanted animals by warning them away, remonstrating with them, and trying to exact reparations for damage they have caused, much as one might deal with obnoxious human neighbors. Animals were not the only non-human things which were thought of as possessed of agency and capable of complex interactions with humans. Plants[383]; the dead[384]; inanimate objects (such as the sacrificial axe at the Athenian Bouphonia)[385]; statues and figurines[386]; even words and letters[387] could be regarded as agents.[388]

Vermin were treated as agents for magical purposes at least as early as Columella, although the best examples come from the *Geoponics*. The late antique examples tend, despite occasional expressions of scorn from the *Geoponics'* compiler, to be clearer and more explicit than anything found in the earlier classical authors, who as usual elide the more obviously magical aspects of these charms. The longest and most obvious example of magic which relies on the idea of agency in vermin is a spell from the *Geoponics* against field mice, which the compiler disclaims belief in (13.5):

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[382] Frazer (1913) 274-84 collects a number of examples of similar charms, although he sees propitiation as the basic type of interaction between the farmer and the animals. Agency is also attributed to animals in attempts to obtain their assent (or 'guilty' behavior which justifies the killing) in sacrifice. Parke (1977) 164-5.
[383] See below.
[384] Collins (2008) 73; Johnston (1999) .
[385] Finkelstein (1981) .
[386] Collins (2008) 92-103.
[387] Collins (2008) 76-8.
[388] On agency: Collins (2003); (2008) 95-7; Gell (1998) 66-68.

> Λαβὼν χάρτην ἔγγραψον εἰς αὐτὸν ταῦτα· Ἐξορκίζω μῦς τοὺς ἐνταῦθα καταλαμβανομένους, μή με ἀδικήσητε αὐτοί, μήτε ἄλλον ἐάσητε· δίδωμι γὰρ ἀγρὸν ὑμῖν τόνδε (καὶ λέγεις ποῖον.) εἰ δὲ ὑμᾶς ἔτι ὧδε ὄντας καταλάβω, παραλαβὼν τῶν θεῶν τὴν μητέρα, διαιρῶ ὑμᾶς <εἰς> μέρη ζ′. ταῦτα γράψας κόλλησον τὸν χάρτην ἐν τῷ χωρίῳ, ἔνθα εἰσὶν οἱ μύες, πρὸ ἀνατολῆς ἡλίου (τὰ δὲ γράμματα ἔξω βλεπέτω) πρὸς αὐτοφυῆ λίθον. Τοῦτό μοι γέγραπται, διὰ τὸ μὴ δοκεῖν τι παραλιμπάνειν. οὐ δέχομαι δὲ πάντα τὰ τοιαῦτα, μὴ γένοιτο. καὶ πᾶσι τὰ αὐτὰ συμβουλεύω, ὥστε μὴ προσσχεῖν μηδενὶ τούτων γέλωτος ἀξίῳ.
>
> Take a piece of paper and write this on it: I adjure you, mice found here, do not wrong me yourselves, nor allow others to do so; for I give you this field (and say which). But if I find you here again, calling the mother of the gods to witness I will divide you into seven pieces. When you have written this, put the paper up in the place where the mice are (with the writing outward), before sunrise, on the natural rock. I have written this down, so that nothing appears to be left out. But I do not believe in any such thing, thank goodness. I suggest that everyone do the same, and pay no attention to such ridiculous stuff.

This charm makes some remarkable assumptions. For one, the mice must be able to understand human speech and to read Greek, which are not necessarily obvious premises. In many ways it recalls a curse tablet, in which the deity, ghost, or other spirit invoked is assumed to be able to read and understand the text. [389] Note particularly that the writing is helpfully posted outwards; unlike ghosts or gods, who can read tablets placed in graves or springs or other secret locations, the mice are corporeal and need this notice to be put up

[389] The ability of the deity or corpse to read is contested; see Collins (2008) 73, Versnel (2002) 60-63 for this problem. I accept that in many cases they are believed to do so; although as always with ancient magic, there is no reason to insist that there was an ancient consensus on the mechanics involved. The Bath tablets include several examples where unintelligible scribbles or rows of x's stand in for actual writing; one conjecture is that they were written by illiterate people mimicking the appearance of writing, assuming that the gods would understand what was meant. Tomlin (1988) . Versnel (2002) 68-72 points out the social function of tablets as communication with other human members of the community, who might know that the user has deposited a curse tablet somewhere and perhaps would be moved to make restitution if they thought they were the target. Curse tablets thus have their uses whether the god or the corpse was thought to read them or not. Without denying the social function which Vernel suggests, this secondary message is lacking in the case of the mouse charm. It is hard to see who other than the mice would be targeted by this spell, unless we see it as a general hint at the farmer's own assiduousness (see Chapter 1). The nominal addressees and their perceived degree of literacy are certainly not irrelevant.

where they can see it.[390] The text itself recalls prayers for justice, in curse tablets and elsewhere, in that it calls on a deity as a witness to the bargain being driven between the farmer and the mice.[391] This bargain is remarkably detailed; it assigns the mice land of their own in exchange for their compliance, it calls witnesses, and specifies penalties for further transgressions. The mice are in every way approached as if they are sentient, part of human society, and capable of entering into a reciprocal agreements with people. Moreover, the social connections involved are not limited to the one between the mice and the farmer; the mice's relations to other mice (or perhaps even other animals or people) are invoked, and the mice are made responsible for the behavior of others. They are also expected to recognize and observe property boundaries, both the farmer's and their own (in the plot supposedly set aside for them).

Most examples are simpler, but similarly incorporate animals into human society. Many charms focus on scaring or warning animals away from the farmer's land, often with an emphasis on forcing them to respect the boundaries of the fields. While the written charm from the *Geoponics* is relatively neighborly, other methods leave the animals in no doubt about what will happen if they are caught trespassing. The *Geoponics* (14.25) suggests catching a jackdaw and hanging the dead bird up to warn others of its species away; they will see it and suspect that there are traps laid for them in the fields. Making an example of one animal is a very common strategy. Columella says that the mythical seer Melampus hung owls up on crosses to scare others off (10.348-50):

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[390] Anonymous (1898); Newell (1892) cite two reported American cases of a farmer leaving a polite note for rats, in both of which bystanders evidently found the procedure ridiculous. Newell (1892) discusses the charm from the *Geoponics*, and compares it to later European practice, including medieval excommunications of pests.

[391] On prayers for justice, see Versnel (1991a); (2002) .

> Hinc Amythaonius, docuit quem plurima Chiron,
> nocturnas crucibus volucres suspendit et altis
> culminibus vetuit feralia carmina flere.
> Sed ne dira novas segetes animalia carpant…
>
> Thus the son of Amythaeon, whom Chiron taught many things, hung nocturnal birds on crosses and prevented them from singing their sad songs from the high rooftops. But lest terrible animals eat the new crop… [applications for the seeds follow]

Melampus is also credited with understanding the language of animals in Homer, which makes Columella's attribution of this charm to him interesting if the point is to communicate with the birds.[392] Christopher Faraone points to a widespread use of likes to ward off like in antiquity; while these animal-averting charms are clearly related to some of the other apotropaic images and ways of averting omens which he cites, the social logic involved in dealing with pests is particular to them.[393]

The same belief that animals will benefit from their cousins' mistakes and give the farmer a wide berth is found in the *Geoponics*' advice that if you catch a weasel and either castrate it or cut off its tail before letting it go, no weasels will be found in that spot henceforth (13.3). Disfiguring and releasing a mouse will also make others flee (13.4). (Fleas, on the other hand, will not bother you if you merely exclaim upon entering an infested spot (13.15). Possibly one is supposed to appeal to their better feelings, as with the mice in the written charm.) Snakes and other reptiles captured in jars should be burned outside the borders of the land (13.8); although the *Geoponics* does not here

[392] This particular example is odd, since why Melampus wanted to scare away the birds is not entirely clear. Columella does not say why nocturnal birds are undesirable, beyond the fact that their cries are bad omens, which seems inadequate in regards to the vegetable gardens under discussion. The *nocturnes volucres* occur in a passage which discusses protecting the vegetable garden from pests and from storms; they could be plausibly interpreted as either a sign (or cause) of bad weather or as simply pests which damage crops and prey on small farm animals. It is possible that this has to do with controlling the weather rather than with driving off pests which will disturb the crops. However, whatever the object, the method of communicating by displaying a dead member of the species is the same.
[393] Faraone (1992) 39-43.

specify that this will make other snakes flee, this section is in the middle of a number of other charms which do work this way. It is possible that the logic is that even the ashes of venomous animals should not be left within the land, for fear that they are still harmful—a natural, rather than a social, rationale. However, burning one scorpion or some ants will specifically warn off others of their kind (13.9-10). Palladius also comments on burning grasshoppers and scorpions; although his reasoning for why this works is not explicit, he either is, or shares the source for, much of the *Geoponics*' material on dealing with vermin, and presumably this should be considered another example.

In all of these charms, the assumption is that animals possess something resembling human reasoning—they can be communicated with, they can learn from an example, and they can identify where the boundaries of the land being protected lie. This is different from the legal assignment of responsibility to an animal or object; while in some cases the trial of an object, such as the axe at the Bouphonia, was a polite fiction, in other stories, the agency of objects such as statues appears to be meant as literal truth.[394] The charms described here depend for their operation on a belief in the human qualities of animals. Animals are assigned emotions and human-like morality and logic in other contexts; Pliny frequently describes animals in such terms. Chickens possess a *religio* (10.116); elephants purify themselves and worship the sun and the moon; (8.1); monkeys appreciate compliments on their children (8.215); and so on for many other species.[395] However, the attribution of human sensibility to animals rarely leads so directly to a suggested way of interacting with them.

[394] See Collins (2008) 92-103.
[395] On the anthropomorphization of animals in Pliny, see French (1994) 205-6.

There is a repeated emphasis on removing the animals from the immediate vicinity. While other preparations or spells to get rid of them may focus on killing the animals, the point here is merely to make them go away, and as long as they stay outside of the property lines, they are not the farmer's concern.[396] The belief that animals can understand human property divisions is implied in the written charm from the *Geoponics*, which offers the mice a small plot of their own, and is seen elsewhere, in, e.g., Pliny's comments that flies and dogs do not enter the temple of Hercules, partridges do not cross the Boeotian/Attic border, and no bird flies over the temple of Achilles on Leuce (10.76-79). Pliny places these observations in the context of the natural ranges of birds, which he says cannot live in certain locales, and will die if taken there. What boundaries, he asks, are set for birds? Animals occur in certain places and not in others, and understand the borders instinctively; the way nature causes snakes in Colubraria and not in Iviza. But from the general inhibitive effect of regions, which may be attributed to climate and other local conditions, Pliny moves on to claim that birds, flies, and dogs recognize sacred spaces and political divisions. The human-like behavior is explained by reference to instinctive aversion in this case.

A social logic may lie behind Columella's advice to cure an ox who has been bitten by a shrew by encasing the live shrew in clay and hanging it around the ox's neck (6.17.5-6):

> Caeciliae morsus tumorem, suppurationem molitur. Idem facit etiam muris aranei. Mus perniciem, quam intulit, suo corpore luit; nam animal ipsum oleo mersum necatur, et cum imputruit, conteritur, eaque medicamine morsus muris aranei linitur. Vel si id non adest… Solet etiam ipsum animal vivum creta figulari

[396] We might wonder what a farmer's human neighbors thought about a procedure aimed at driving noxious animals off of one farm and onto the next. Frazer believes that the plot of land set aside for the mice in the *Geoponics* is actually a neighbor's land; Frazer (1913) .

> circumdari; quae cum siccata est, collo boum suspenditur. Ea res innoxium pecus a morsu muris aranei praebet.
>
> The bite of a lizard causes swelling and suppuration. So does the bite of the shrew. The shrew atones for the injury which it has caused with its own body; for the very animal is killed by being drowned in oil, and when it has putrefied, it is crushed and the bite of the shrew is smeared with this medicine. Or if this does not help… [other preparations and surgical remedies follow]. There is even the practice of encasing the live animal itself in potter's clay; when it is dry, this is hung around the neck of the ox. This makes the animal immune to the bite of the shrew.

Corpses of animals hung up as warnings look a lot like the even more common corpses of animals hung up as amulets on trees or in fields or in the house to act through natural magic. Columella's shrew amulet might be thought to be effective because the body of the shrew naturally counteracts the poison which it (future angry shrews) inject into the bitten animal.[397] That is the gist of the remedy with which Columella precedes the recipe for the amulet; the body of the mouse is applied to the bite to cure the poison. However, the amulet can also be interpreted as a warning to other mice: this will happen to you, too, if you harm the ox wearing this amulet! Some of the details, like the fact that a living shrew is to be used, point towards a more magical logic than pure reliance on the natural effect of the shrew's body.

Animals may be asked, in Columella, to make reparations for the harm they have done. One of the other remedies Columella here offers for a shrew's bite involves

[397] Common European shrews do, in fact, have venomous saliva; they are frequently believed in folklore to injure farm animals. Chambers (1979) . Opie and Tatem (1989) 355 cite a tradition from England with notable similarities to Columella's amulet. If a shrew ran over a farm animal, it was believed, it caused great pain, and the cure was to close it up in an ash and whip the afflicted animal with a twig from the ash tree. Shrews are also a common ingredient in ancient magic. A demotic papyrus, PDM xiv.376-94, gives a sample of magical uses for a shrew mouse, alive or dead. The procedures include drowning it in water; pounding or grinding its body, putting it in wine or food, wearing it in a ring, embalming its tail, gilding it, placing it on a donkey, using its gall, heart, or tail, and letting it loose alive in a woman's bathroom. As a method of inducing love, the last seems ill-considered.

drowning the shrew in oil and applying it to the injury.[398] The animal is explicitly said to "atone" for the harm it cause with its own body (*mus perniciem, quam intulit, suo corpore luit*). The mouse encased in clay as an amulet against bites is also envisioned as the particular guilty individual (*ipsum animal vivum*). The *Geoponics* gives a similar remedy for a scorpion sting; it suggests boiling a scorpion in oil and rubbing it on the sting to cure it (13.9). This may simply be a remedy based on sympathies; the same passage says that newts have an antipathy to scorpions and will cure a sting if their bodies are used in the same way. It would not be unusual to find a belief that the thing which has caused the harm can fix it; Pliny is full of remedies based on this principle. However, the language of debt-paying which Columella uses, and his distancing of himself from the shrew-amulet with the comment that "it is customary" (*solet etiam*)—he does not actually recommend this practice, although, like the compiler of the *Geoponics*, he sees fit to include it—suggest that a more magical effect is expected. Pliny (29.90) gives much the same advice that Columella does about shrew bites; the shrew "is itself a remedy for its own bite" (*ipse mus araneus contra se remedio est divulsus inpositus*). It can be split in two and applied directly to the bite; indeed, if the shrew is pregnant when it bites it will immediately burst in half anyway. Pliny says that the remedy will work best if the same mouse which bit the animal is used, but that in case it cannot be caught, people preserve the animals in oil or in clay to have on hand. This looks like a reinterpretation of Columella's advice[399] in terms which Pliny finds more rational. Preservation is certainly not a valid motive for the instructions in Columella, where the mouse is to be used immediately after being drowned or balled up in clay. Pliny adds that earth from a wheel

[398] This oddly recalls the "deification" of animals in the magical papyri, where a variety of animals are drowned as part of spells. See Betz (1992) 3 for examples in the papyri and bibliography.
[399] Or a common source's; Pliny does not cite Columella as an authority for this book.

rut can also be used to cure a shrew's bite, since shrews will not cross wheel tracks, another superstition which endured.[400] Pliny attributes this to a "natural torpor" (*torpore quodam naturae*); later traditions held that shrews which tried to cross a road would immediately be struck dead. This, and the comment on the bursting of pregnant shrews, also look like an attempt to explain magical folklore in natural terms, here, the natural characteristics of a species;[401] something in a wheel rut naturally retards shrews, and so will hinder their venom; there is something volatile about a biting shrew, which makes splitting it and applying it to its bite a logical cure. There is one more possibly relevant example from Columella; he says that when an animal has fallen into a vat of wine and drowned, you may keep the flavor of the wine from being spoiled by burning the animal's body and putting the ashes back into the wine (12.31). It is hard to tell whether the logic of this remedy is one of atonement or chemistry.

The convenient nature of animal agency is highlighted by these charms. Mice and snakes are not ordinarily imagined as community members; only when it would be useful to do so. Social charms are found alongside other methods of pest control which do not envision animals as agents; rather than trying to reason with or scare the pests, most of the solutions in the agronomists involve driving them off or killing them. The written charm for mice is found mixed with poisons and fumigations for getting rid of them. Although other animals on the farm are periodically imagined as possessing agency, this representation of them is erratic. Oxen are in some sense members of the *familia*, but do not generally possess human reasoning; animals may be thought of as having communities of their own, with rituals and social structures, but the fact that Pliny says

[400] Opie and Tatem (1989) 355
[401] On the natures of animals in Pliny, see French (1994) 201, as part of his discussion of Pliny's use of the term *natura*.

chickens possess *sacra* does not stop people from thinking of them as food. In the case of these charms, imagining insects, mice, and the like as people is a convenient metaphor which the farmer can exploit. Instead of the frustrating everyday world of caterpillars which constantly return to eat the farmer's cucumbers despite her best efforts, these spells establish and operate in a world in which vermin are subject to established rules of behavior and methods of coming to an understanding. This is a fairly typical magical strategy of redefining the world in a way which puts the magician in a position to take effective action.[402] If vermin are people, it opens up avenues of negotiation which would otherwise not exist for the farmer; suing insects becomes a reasonable way of dealing with the problem.

Weeds as Agents

It is somewhat surprising that weeds so rarely appear as agents, as there is actually better precedent for attributing agency to plants in magical contexts than to animals. Some spells in the papyri and other magical sources speak directly to plants; one short example from the magical papyri runs as follows (PGM IV.286-95):

> Βοτανήαρσις· χρῶ πρὸ ἡλίου. λόγος λεγόμενος· αἴρω σε, ἥ τις βοτάνη, χειρὶ πενταδακτύλῳ, ἐγὼ ὁ δεῖνα, καὶ φέρω παρ' ἐμαυτόν, ἵνα μοι ἐνεργήσῃς εἰς τήν τινα χρείαν. ὁρκίζω σε κατὰ τοῦ ἀμιάντου ὀνόματος τοῦ θεοῦ· ἐὰν παρακούσῃς, ἥ σε τεκοῦσα γαῖά σε οὐκέτι βρεχήσεται πώποτε ἐν βίῳ πάλιν, ἐὰν ἀπορηθῶ τῆσδε τῆς οἰκονομίας μουθαβαρ· ναχ βαρναχωχα· βραεω μενδα λαυβραασσε· φασφα βενδεω· τελέσατέ μοι τὴν τελε[ί]αν ἐπαοιδήν.
>
> Spell for picking a plant: Use it before sunrise. The spell to be spoken: "I pick you, (whatever plant), with my five-fingered hand, I (the particular person), and I am bringing you home so that you may work for me for (a certain purpose). I

[402] Tambiah (1985b) .

> adjure you by the undefiled name of the god: if you ignore me, the earth which produced you will never again be watered for you; if ever in life I fail at this operation, MOUTHABAR NACH BARNACHŌCHA BRAEŌ MENDA LAUBRRSSE PHASPHA BENDEŌ; complete for me the entire charm.

This spell resembles the address to the mice in the *Geoponics*, including the invocation of a god and the alternating requests and threats. The plant is a sentient being whose permission must be obtained; without its favor, it will be useless as an ingredient. Plants are often told that a god has given the gatherer permission to use them. Other recipes from the papyri include hymns addressed to the plants, much as they are to various deities in the papyri.[403] Naturalists and medical writers preserve ritual instructions for gathering plants with or without including the direct addresses to them.[404] Instructions may include gathering the plant at sunrise using a particular hand, usually the left; explaining aloud why, for whom or by whom it was being gathered; the use of particular tools; drawing a circle around the plant; not letting it touch the ground; praying or leaving a sacrifice in exchange; and other magical precautions. If the directions are disobeyed, the plant, it is often said, will become ineffective or actively harmful. Pliny often attributes plant-gathering rites in which he mentions an utterance to the magi (but not always; at 22.38 he cites the authority of unnamed Romans for a charm involving nettles), and his brief accounts suggest a much shorter and simpler address to the plant than is found in the papyri, either because Pliny has no interest in describing such hymns or because a simpler address was more common.[405] Hymns to plants were popular enough that a Latin example made it into the manuscript tradition, the short poem known as the *Precatio*

[403] See PGM II.64-184; IV.2967-3006; IV.1496-1595 for examples of hymns to plants.
[404] See e.g. Pliny**,** 21.166, 21.176, 22.38, 22.50, 23.103, 24.103, 25.49, 23.137, 24.170, 25.29, 25.30; Aelian 14.27; on ritual plant-gathering see Pfister (1938) ; Gordon (1987) ; Scarborough (1991) 149-51.
[405] See, e.g., Pliny 21.166, 21.176, 22.38, 22.50.

omnium herbarum.[406] And yet, we do not find attempts to reason with weeds in the farm manuals; although Pliny includes ritual instructions for gathering plants, these are always medicinal herbs and other wild species, and they omit any speech directed at them.[407] Aside from their avoidance of obvious magic, possibly ordinary weeds were simply too mundane for treatment as agents. Plant-gathering rituals usually cast the plant as a powerful and mysterious being; the plant is desired by the gatherer precisely for these qualities, which make it an effective ingredient when successfully obtained. Surviving examples of hymns to plants tend to put the plant in a position of greater power than the gatherer and attempt to placate it, unlike social approaches to vermin, which usually put the farmer in a position of greater power and threaten or persuade the animals, which they have no ultimate use for. However, the *Geoponics*' charm for dealing with the leonine plant shows that it was not entirely unheard of to think about plants in this manner.[408]

Other Overtly Magical Remedies

Besides the social remedies, there are a few suggestions of other obviously magical pest-destroying measures. Undoubtedly the best-known is the charm for ridding the garden of caterpillars, first found in Columella and thenceforth repeated in all of the surviving antique agronomists.[409] Slight variations on the procedure are found, but the basic ritual remains the same: a woman who is menstruating is sent to walk three times around the garden or field which is infested with caterpillars, barefoot and with her hair and clothing loosened. The caterpillars will then curl up, fall off of the plants, and die.

[406] The *Precatio* contains a number of linguistic echoes of other hymns to gods and plants and to magical invocations more generally, including the exclamation *huc huc adeste!* For the poem, see Baehrens and Ludwig (1879) 137-41.
[407] Pliny occasionally anthropomorphizes plants as he does animals; see French (1994) 205.
[408] See also *Geoponics* 10.83, a charm in which an unproductive tree is threatened with an axe (p. 188).
[409] Columella 10.357-68 and 11.3.63-4; Pliny 17.267 and 28.77; Palladius 1.35, *Geoponics* 12.8.

The effect of genre on the way this charm, and magic more generally, is presented have already been discussed. The description Columella gives of the charm in poetry resembles his prose description of it in the essential facts, but differs markedly in tone; the poetic version is much more overtly magical.[410] Given both of Columella's versions, Pliny's ethnographic and natural-historical take on it, and the details added by the late antique authors, we have a magical ritual which is uniquely well-documented, and which suggests some ways of understanding how people without a need to strike an acceptable intellectual pose over magic might understand such rituals.

The caterpillar charm contains some familiar magical elements: the bare feet and unbound hair and loosened clothing of the woman are commonplaces for magicians, who often show a desire to avoid binding or constricting elements when they act.[411] The procession around the fields or garden is a regular ritual element in agricultural magic, and processing around the bounds is common in other contexts as well; Columella explicitly says that the woman lustrates, *lustravit*, the garden (10.363). Some of the versions of the charm specify that the circle should be made a magical three times, and Palladius adds that on the third circuit the woman should come out through the middle of the garden.[412]

Pliny's description of the charm, which is part of a longer discussion of the natural powers of menstrual blood, makes it reliant on an antipathy between the menstrual blood, with its awesome powers, and the caterpillars.[413] The mechanism is purely natural; and the intensity and effects can be varied by taking into account other

[410] See Introduction, pp. 52-6, for this discussion and the text of Columella's two versions of the charm.
[411] See Ogden (1999) 26-30 on the metaphors of binding.
[412] Tavenner (1916b) discusses the number three in ancient magic.
[413] On Pliny's take on this charm, and the powers of female bodies more generally in Pliny, see Richlin (1997) .

natural factors, such as the time of day and whether it is the woman's first menstrual cycle. His elaboration on the charm is mostly ethnographic; he describes it as a common and widespread practice, and mentions that it is used in Spain to get rid of flies as well as caterpillars. Despite his apparent belief that it works, and the natural explanation he has to offer, this charm is for him the work of women and foreigners. (The Spanish women, it may be added, pull their skirts up immodestly while processing, something not said of the Italian women who perform this charm. The similarity to Pliny's advice that storms or hail can be averted if a menstruating woman exposes herself to them is another instance of magical elements being used in common for multiple problems—here, again, bad weather and noxious animals.) Columella's prose version of the charm is matter-of-fact, and he attributes it to Democritus, in his work *On Antipathies*, a title which obviously suggests that a natural mechanism is being proposed. The *Geoponics* also attributes the spell to a philosopher-mage with an ambivalent reputation, Apuleius. In his prose book, Columella does not venture an opinion on whether the charm works; he merely repeats Democritus' story. His main proposal is to soak seeds in leek juice before planting, which renders hand-removal of caterpillars unnecessary.[414] In verse, however, the charm is presented as a sure thing, a remedy to use when such *medicina* have already failed the farmer. Columella does not here offer an explanation for why it works. However, he draws a rather startling comparison between the caterpillar charm and the spells of Medea when she subdued the serpent guarding the golden fleece. Why should a mythical serpent be an apt comparison for a caterpillar? Despite the grandiose mythical scale of the simile, it is pointed; both the serpent and caterpillars are sinuous things found on trees, and more

[414] That Columella mentions the leek-juice as an alternative to a highly labor-intensive method of pest control suggests, again, that magical remedies could have the social function of demonstrating that farmers had done everything possible while allowing them to cut their losses.

importantly, Medea's spells have an effect similar to that which the farmer desires. The serpent falls asleep and falls (*delapsum*) away from the fleece which it guards, just as the caterpillars are expected to stop moving and fall from the plants.

Is this comparison purely Columella's invention? The invocation of Medea and her snake looks a great deal like the employment of Homeric verses in ancient spells, or, more generally, to what Tambiah calls persuasive analogy.[415] Verses of Homer were used because something about the immediate words or the larger context of the verse was felt to suggest the outcome the user wanted to achieve.[416] Columella's evocation of the mythological story provides an analogy for the farmer's situation, and it is hoped that the outcome will prove as felicitous. While purely speculative, we might wonder if the caterpillar charm was usually accompanied by spoken incantations which made rhetorical use of such mythological parallels.[417] The caterpillar charm, with the hints of an incantation and the procession around the plants, and the comparison of the plant-picking directions, with the ritual instructions often partly removed in the naturalists but present in the papyri, suggest that the natural remedies of the agronomists may in practice have often been accompanied by ritual words or actions which the agronomists do not record. The occasional suggestions to use secrecy (Pliny 18.158, *Geoponics* 5.30, Palladius 1.35), and especially to conceal the matter from the pruners in the vineyard (Palladius 1.35), suggest that there are at least some ritual concerns and that some of these cures may be considered secret knowledge.

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[415] Tambiah (1985b) .
[416] See Collins (2008) 104-131.
[417] Columella's version is generally more positive than Pliny's rather nervous description of the powers of menstrual blood, but the comparison of the woman performing the charm to Medea adds an ominous note reminiscent of Pliny's comments.

Pliny says that "people believe" that charms can be used to crush snakes (also pottery); the Marsi, who are often said to kill snakes with their spit, gaze, or mere presence[418], are here said to gather them with charms (29.19). Pliny also says that the magi use amethysts to ward off hail and locusts, a process in which they use incantations (37.124). The *Geoponics* preserves a Christian charm for keeping snakes out of the pigeon coop; "Adam" is to be written on the four corners and the windows (13.8). It also gives a means for gathering fleas in one spot to be killed; they will congregate at a dish placed in the middle of the house, with a line drawn around it with an iron sword, especially one that has been used in an execution (13.5). It is not obvious whether Pliny's comment (19.180) that touching plants with bloody, or blood-red, twigs (*sanguineis virgis*) protects them from caterpillars should be considered more akin to natural amulets or to the amethysts and incantations of the magi; but there is an obvious conceptual link (if not literal; are we meant to understand the twigs as actually bloody?) with the menstruating woman charm. Palladius preserves a belief, which he calls Greek, that swarms of locusts will pass by without harming crops if everyone in the area stays hidden indoors and does not look at them (1.35). If there is a logic to this remedy beyond desperate hope, it is unclear; Palladius also recommends a few bug-repellents for this situation.

Conclusion

When it came to insects, Roman farmers appears to have been largely on their own; communal and cultic measures are, while not unheard of, relatively few. The wide variety of homemade amulets, sprays, fumigations, and other charms seems to have filled

[418] See, e.g., Pliny 7.15; Aulus Gellius 16.11.1.

this gap with remedies which were both inoffensively natural-looking and obviously magical. The wealth of symbolism in the caterpillar charm which Columella casually introduces suggests that many of these remedies, although presented as natural by the agronomists, may have been accompanied by ritual words and actions in practice. The very lack of cultic examples to assimilate these charms to may have made the agronomists more aggressive in presenting them as natural remedies. Pests were certainly a menace which needed to be dealt with, both practically and socially; they could not only destroy a harvest, but could be interpreted by a hostile party as proof of the farmer's lack of industry or the moral state of the place where they occurred.

CHAPTER V

Ritual, Authority, and Nature on the Farm

The Agronomists and the Control of Ritual

There has been a fair amount of interest in the role of writing in classical religions: how people use writing in religious affairs, what effect these functions and the simple existence of literacy have of religion and its participants, and what religious writing is and whether we can recognize it.[419] Given these questions, the presence of ritual instructions in an agricultural manual is of interest. We might ask broadly of an agronomist who includes rituals what his object is in doing so, and what his audience gets out of the text.

The phenomenon is largely confined to Cato, the only one of the agronomists to include detailed instructions for agricultural rituals which were part of the generally recognized Roman religious year. Despite the other agronomists' comments about ritual and their magical instructions, no later authors include anything like such full directions for conducting official festivals. Columella, although he felt that farm rituals were a related subject, considered them sufficiently ancillary to be split off into a separate work (2.21.6).[420] Coming as it does near the beginning of Latin prose, the *De agricultura* often looks eccentric in comparison to examples of the genre as it later stabilized, and the ritual instructions could be considered merely one of its many oddities. However, Cato's inclusion of rituals can more usefully be read as part of his overarching concern to

[419] For the general debate, see Beard (1985); Beard (1987); (1991); Gordon (1990); North (2000) ; Wallace-Hadrill (1987) ; Feeney ; and the collection of essays in Barchiesi, Rüpke et al. (2004) , particularly Rüpke (2004) . See also Beard (1998); Scheid (1988) .

[420] Unfortunately, if Columella ever wrote his proposed book on farm ritual, it does not survive.

maintain the authority of the owner on the farm, both in mundane matters and more particularly in the sphere of ritual. Cato was writing at a time when larger estates with absentee owners were becoming more common; he shows a pervasive worry over how to regulate social life on the farm and uphold the authority of the *dominus* while he is gone. The ritual sections of his work seem to be an attempt to create a stand-in for the owner to which the slaves can be referred. By including instructions for ritual in a handbook, Cato both dispenses ritual knowledge to anyone with access to the text and tries to limit the people who can claim true expertise in it. As ever, the different audiences of the text are expected to take away different messages. While welcoming aristocratic equals into the religious cognoscenti, the manuals reemphasize the owner's knowledge to his subordinates.

Cato's foremost concern, with ritual, is who may take part. His ritual directions are framed in a way that assumes the direct involvement of the *paterfamilias*, and his prayers are phrased from the *paterfamilias*' point of view. However, he is confronted with the necessity of carrying out the customary rites without the owner there to lead them, and he gives signs that one obvious solution, allowing others on the farm to perform rituals in the owner's place, was resorted to during the master's absences. This expedient worries Cato, and he repeatedly tries to set rules for who among the slave staff is allowed to perform religious rites on the estate and under what conditions. Cato's initial discussion of ritual on the farm is part of his larger musings on the duties of subordinates, a passage which became the model for subsequent treatments of the problem. Later agronomists, Columella in particular, approach the discussion of the duties of the farm overseer as a set piece, with Cato as the exemplar; Columella's

remarks generally agree with Cato and sometimes make the reasoning behind his terse precepts clearer. Varro follows Cato less closely, but his discussion of the problem of what rules to lay down for slaves (and his quotation of the lost agronomist Saserna, who also discussed it) shows that the topic was of continuing interest within the genre, although Cato's successors seem to find it a less worrisome (if only because well-worn) issue than he does.

Traditionally, the *dominus*, the owner, oversaw the running of the farm and the major agricultural work; his wife, the *domina*, had charge of the work in and near the house, including care of the garden and smaller animals.[421] Cato expounds upon the benefits of the master's presence, but treats his absence as an unavoidable problem.[422] In the void left by the *dominus* and his wife, the *vilicus* and *vilica*, the slave overseer and his female counterpart—who were often a couple as well—took over their roles vis-à-vis the farm work.[423] Columella (12.preface.10) is explicit that they are substitutes for the *dominus* and *domina*:

> Quam ob causam cum in totum non solum exoleverit, sed etiam occiderit vetus ille matrumfamiliarum mos Sabinarum atque Romanarum, necessaria irrepsit villicae cura, quae tueretur officia matronae: quoniam et villici quoque successerunt in locum dominorum, qui quondam prisca consuetudine non solum coluerant, sed habitaverant rura.
>
> Since the old custom of the Romans and Sabine *matresfamiliae* has not just ceased, but died out entirely, by necessity the oversight of the *vilica* has encroached on the duties of the *matrona*. The *vilicus* has also taken the place of the *dominus*, who once, by ancient custom, not only farmed but lived on his land.

[421] On the division of labor on the farm between the owner and his wife, see Saller (1999) 192-5; on the *paterfamilias*, Varro 2.3, Columella 1.15; on the *materfamilias*, Columella 12.10, Pliny 19.57.3.
[422] See Cato 4 on the beneficial effects of the owner, and below for further discussion of this passage. Cato comments on the master visiting the farm (2.1, 4) and on the advantages of a suburban farm which can supply the town house where the owner actually resides (7.1).
[423] On the status and roles of the *vilicus* and *vilica*, see Carlsen (1993); Scheidel (1990) .

Thus slaves are left with the work belonging, at least ideologically, to the *dominus* and *domina*. Cato expects the *vilicus* to oversee all farm operations and maintain order[424], while the *vilica* keeps the house and oversees the female slaves.[425] But Cato, worried that the authority and the prerogatives of the *dominus* and *domina*'s position will accrue to the *vilicus* and *vilica* along with the work, lays out rules which restrict this broad authority and make the *vilicus* dependent on the owner's approval for decisions about more than routine farm work and upkeep. His description of the duties and the expected conduct of the *vilicus* includes a number of provisions designed to limit the *vilicus'* authority, and keep him dependent on the owner. Although the *vilicus* is supposed to excel in all farm work, he is told not to think he knows more than the owner himself (5.2, *ne plus censeat sapere se quam dominus*, "[the *vilicus*] should not think he knows more than the *dominus*"). Columella attributes a saying (not otherwise known) to Cato that it is a sorry state of affairs when the master listens to the *vilicus*, rather than vice versa (1.2.2). The owner's superior knowledge of agriculture is emphasized throughout Cato's work, even while Cato admits that there are cases, albeit shameful ones, where the slaves may know more about farming than the owner of the land does. The *vilicus* cannot lend or borrow, or make contracts or purchases without approval; and he is expected to be literate enough to keep accounts of expenses and income, and to record expenditures of time, labor, rations, and other resources in detail, so that the owner may review them with him

[424] Cato's main discussion of the *vilicus* is at 5.1-4; see also 142 on the *vilicus*' authority.
[425] Cato 143. Columella confirms this picture; his Book 11 is given to the *vilicus*' duties and Book 12 to the *vilica*. The early part of both books contain a general overview of the *vilicus* and *vilica*'s duties and proper conduct, and both contain many echoes of the relevant sections of Cato. Aside from this passage of the *De agricultura*, the sphere of the household is largely absent from Cato. Although he discusses how to preserve food and gives a number of recipes, he does not discuss the chickens or any other small animals, growing most garden vegetables (cabbage and asparagus aside), spinning and weaving, or other household (and female) work. The domina appears only in Cato 143 and female slaves other than the *vilica* are not directly mentioned.

later.[426] Cato advises diligence and close scrutiny on the *dominus*' part; when he visits, the first thing he should do after he greets the *lares* is to inspect the whole farm and to go over the books with the *vilicus* (2.1-4). He also suggests leaving written instructions for the slaves so that they cannot claim there was a misunderstanding about what the owner wanted done in order to excuse laziness. The emphasis is on keeping the estate running smoothly whether the owner is there or not, and Cato tries to make the *vilicus* behave as though the *dominus* were always there to supervise him—the use of written instructions and the *vilicus*' accounts are explicitly intended to hold him accountable. Care is taken to make sure that the *vilicus* forms no connections to anyone off the farm, whether by visiting neighbors, loaning out supplies or money, hiring the same people repeatedly, or acquiring a parasite. Cato reminds the *vilicus* to heed no one except the *dominus,* or someone else whom the *dominus* has told him to obey. The rule against visiting or having guests is seen too in the *vilica*'s instructions. Columella (11.1.23) agrees that the *vilicus* should not receive visits unless necessary; Varro (1.16.5) quotes Saserna to say that the *vilicus* should not go off the farm without the owner's permission (nor other slaves without the *vilicus*' permission).

The restrictions on their behavior are meant to keep them from forming attachments, both above and below them in the social hierarchy, to people outside the control of the *dominus*. Dalby suggests that Cato is thinking in terms of the *vilicus* forming patron-client relationships, but deliberately avoids using such terminology about a slave.[427] Cato wants a linear hierarchy controlled by the owner, whose knowledge is again emphasized—the slaves are not to rely on outside authorities. He advocates friendly

[426] Varro and Columella also expect literacy from slaves in positions of responsibility. Varro 1.17.4, 1.36; Columella 11.3.65 says that his treatise itself is meant to be useful to a *vilicus*.
[427]Dalby (1998) 67.

relations with the neighbors, but seems to envision the *dominus* dealing with them himself as much as possible (4). Outside interference with one's familia and the maintenance of one's own authority was a perennial worry for Roman *patresfamiliae*.

Cato's list of the *vilicus'* duties contains comments on his responsibility for ritual. This is expressed mostly in the negative. Cato is emphatic that it is the *dominus* who is responsible for all religious rites; the *vilicus* must not take it upon himself to perform ritual without permission (5.1-4):

> Haec erunt vilici officia: disciplina bona utatur; feriae seruentur… rem diuinam nisi Compitalibus in compito aut in foco ne faciat iniussu domini… haruspicem, augurem, hariolum, chaldaeum nequem consuluisse uelit.
>
> These are the duties of the overseer: he must keep good order. The feast days must be observed… He should not perform a religious rite without having been ordered to by the master, except on the occasion of the Compitalia at the cross-roads, or before the hearth…. He should not consult a fortune-teller, or prophet, or diviner, or astrologer.

Columella echoes this: *Sacrificia nisi ex praecepto domini facere nesciat*, "he must not think of offering sacrifices except on an instruction from his master" (11.1.22). Similarly, of the *vilica* Cato says (143.1-3):

> Rem diuinam ni faciat neue mandet qui pro ea faciat iniussu domini aut *domina*e: scito dominum pro tota familia rem diuinam facere… Kal., Idibus, Nonis, festus dies cum erit, coronam in focum indat, per eosdem dies lari familiari pro copia supplicet.
>
> She should not engage in a religious rite herself or get others to engage in it for her without the orders of the master or the mistress; she should know that the master attends to the rites for the whole household… On the Kalends, Ides, and Nones, and whenever a festival day occurs, she should hang a garland over the hearth, and on those days pray to the household gods according to her ability.

The only ritual the slave staff may routinely perform is the household worship, as in the instructions for the *vilica* to decorate the hearth and worship the household *lares*. The *vilicus* is also allowed to worship at the hearth, and is responsible for observing festival

days and enforcing the prohibitions on various kinds of work during them[428]; and he is allowed to take part in the Compitalia, which also involved worship of the *lares*.[429] Columella adds that the *vilica* is normally responsible for the preparations for the vintage, including a sacrifice to Liber and Libera and to the vessels of the wine press (12.18.4).

The *vilicus* and *vilica* may only be routinely authorized to perform basic domestic worship, but it is implied that they often did more. Cato says that the *vilicus* cannot perform religious rites *iniussu domini*, without the order of the master—suggesting that the *dominus* might give permission. Likewise, Columella tells the *vilicus* not to perform sacrifices *nisi ex praecepto domini*, except by the order of the master. The *dominus*, during his absences, must have often delegated the *vilicus* to perform the rites which he was supposed to carry out. This pattern can be extended to the *vilica*, who cannot perform ritual *iniussu domini aut dominae*, without an order from the master or mistress. If the *vilicus* acts as a stand-in for the *dominus*, the addition of the *domina* here reinforces the *vilica*'s role as the *domina*'s substitute in ritual as well as household management.

As the *dominus* or *domina* can delegate ritual to the *vilica*, the *vilica* can delegate others to carry it out for her. This possibility is only discussed in the negative—she should not get others to perform a *res divina* for her without permission from the *dominus* or *domina*—but it again implies that permission for other members of the familia to engage in ritual was not unheard of. We can certainly extend this theoretical ability to delegate ritual to the *vilicus*.[430] The hierarchy that applies to ritual matters is the same one that is found in the day to day running of the farm, in which the *dominus* and *domina*

[428] Which Cato discusses at 2.4 and 138.
[429] Cato 2.4 and 13.8 list work suitable for festival days. Columella (2.21) gives another list.
[430] In Cato, the passage on the *vilica*'s conduct is in fact phrased as instructions to the *vilicus* on how to supervise her. Columella also makes it clear that the *vilica* is subservient to the *vilicus* (12.1.4).

appoint subordinates to carry out their functions, and the *vilicus* and *vilica* can further delegate. The difference is that in ritual matters, the set of activities which the *vilicus* and *vilica* are routinely authorized to perform is much smaller than in ordinary work, where it is assumed that the *dominus* will give broad instructions but that the *vilicus* and *vilica* will know to do many things on their own. The point is not that they are inherently unable to perform ritual, but that they need permission first.

Other passages in the *De agricultura* also imply the participation of the slave familia in ritual, as for example in the offering to Jupiter Dapalis (132.1):

> Iovi dapali culignam vini quantam vis polluceto; eo die feriae bubus et bubulcis et qui dapem facient. Cum pollucere oportet, sic facies: "Iupiter dapalis, quod tibi fieri oportet in domo, familia mea culignam vini dapi, eius rei ergo macte hac illace dape pollucenda esto."
>
> Present a cup of wine, as much as you wish, to Jupiter Dapalis. The day is a holiday for the oxen, the oxherds, and those who perform the feast. When you are to present, you do so thus: "Jupiter Dapalis, my *familia* brings a cup of wine to the feast, as is proper in your domestic worship. Therefore accept the presentation of this feast of ours."

The prayer for the health of the cattle (83) makes the suggestion that a slave may conduct the ceremony explicit: "Either a slave or a free person may make this offering" (*eam rem diuinam vel servuus vel liber licebit faciat*). Cato also describes the suovetaurilia ritual as though the *dominus* had the help of assistants, who were likely to be household members (141.1): "order the suovetaurilia offering to be taken around" (*impera suovetaurilia circumagi*). The frequency with which ritual might be handed off to the *vilicus* or other slaves is suggested by the prayer before working the ground (140):

> Si fodere velis, altero piaculo eodem modo facito, hoc amplius dicito: "Operis faciundi causa;" dum opus, cotidie per partes facito; si intermiseris aut feriae publicae aut familiares intercesserint, altero piaculo facito.

> If you want to dig, offer another expiation in the same way [as when thinning a grove], with the addition of the words: "for the sake of doing this work." So long as the work continues, the ritual must be performed in some part of the land every day; and if you miss a day, or if public or domestic feast days intervene, a new offering must be made.

Even if the *dominus* were in residence at the time, he may well have chosen to leave this daily task to the *vilicus*.

Cato's preference for keeping outsiders from interfering on the farm or establishing relationships with his familia appears again when dealing with ritual. The *vilicus*, he says, is not to consult a *haruspex*, an *augur*, a *hariolus*, or a *chaldaeus*, all diviners of various types.[431] The usual explanation has been that Cato regards these people as charlatans or otherwise disreputable characters.[432] But Cato does not have to inherently disapprove of these people to want to keep the *vilicus* away from them. Their main function is to give advice, and Cato has just explained that the *vilicus* should not turn to other people in the community, outside of the owner's view or control, for help with even ordinary matters. Forbidding him to consult ritual specialists is in keeping with Cato's policy of socially isolating the *vilicus* and emphasizing the *dominus*' authority and knowledge (cf. 5.2) over that of both the *vilicus* and of outsiders. The point may have seemed more urgent in the ritual field. Republican literature contains a number of suspicious comments about such marginal religious specialists. Cicero, in the *De divinatione*, says: [433]

> Non habeo denique nauci Marsum augurem, non vicanos haruspices, non de circo astrologos, non Isiacos coniectores, non interpretes somnium,
> sed superstitiosi vates impudentes harioli

[431] The *augur* and *haruspex* are presumably lower-class versions of the religious specialists well-known at Rome; a *hariolus* is another diviner.
[432] See, e.g., Brehaut (1933) 13.
[433] Cicero, *De divinatione* 1.58.132 (=Ennius cxxxivb, 266-9 Jocelyn). There is some debate over where Cicero's phrasing ends and the quotation of Ennius begins.

> aut inertes aut insani aut quibus egestas imperat,
> qui sibi semitam non sapiunt, alteri monstrant viam.
>
> I do not recognize… Marsian augurs, or village haruspices, or circus astrologers, or prophets of Isis, or interpreters of dreams. For they are not diviners either by knowledge or skill, but [and here he quotes Cato's contemporary, Ennius]—
> "superstitious *vates* and shameless *harioli*,
> either lazy, or crazy, or forced by poverty,
> who do not know their own path but show others the road."

This is a remarkable catalogue of low-class, marginal figures who claim divinatory power. Many of them are foreign, or from Italian peoples regarded as particularly prone to magic: haruspices are associated with Etruscan traditions; the Italian Marsi were often called sorcerers; astrology was a foreign import, as was the cult of Isis; and Cicero singles out specifically *village* haruspices, rural and low-class. The Roman elite were suspicious of these marginal practitioners and their claims to direct contact with the gods, and Cato is eager to keep their influence out of his household.[434] Other agronomists speak scornfully of the superstitions of such figures. Varro remarks on the number of people who believe that a bolt of lightning will split on a tree with grafted limbs because *haruspices multum audiunt*, they pay much attention to haruspices (1.40.5).[435] Columella says that the *vilica* should refrain from superstition, which is grouped with other things to be sampled only moderately: "For it is very important to consider whether she is far from being addicted to wine, food, superstition, sleep, and men" (*nam in primis considerandum erit, an a vino, ab escis, a superstitionibus, a somno, a viris remotissima sit*; 12.1.3). He also adds, immediately after his comment that the *vilicus* should not

[434] On Roman suspicion of people claiming to have unmediated converse with deities, see Beard (1990) .
[435] Varro is skeptical, but he includes other ambivalent comments on beliefs that we would consider superstitious, and it is sometimes difficult to tell if he finds such beliefs laughable or merely extraneous. One of the characters in his dialogue, Stolo, repeats Saserna's charm for sore feet while *subridens,* but Stolo also complains about the inclusion of recipes for cakes and ways of caring for furniture in works on agriculture (Varro 1.2.26-28). It is unclear whether the charm is in itself being mocked, or is merely considered too tangential to belong here.

perform sacrifices, that he should not on his own initiative consult a *haruspex* or a *saga*, who disturb the ignorant with superstition (*haruspicem sagamque sua sponte non noverit, quae utraque genera vana superstitione rudes animos infestant*; 11.1.22).

Cicero attributes to Cato a remark that he wondered why, when one haruspex saw another, he did not laugh, and this, taken together with Cato's comments on haruspices and other practitioners, has muddied the waters sufficiently that Cato has been imagined as a thoroughgoing skeptic where divination was concerned.[436] However, ritual specialists were not always unwelcome on the farm. In Cato's instructions for the *suovetaurilia* (141), there is reference to taking omens from the sacrificial victims; unless we assume that someone on the farm was competent to read the entrails, one of the rural *haruspices* that Cato and Cicero both warn against must have been employed. That the *paterfamilias* might read the entrails himself is not impossible; however elsewhere in the suovetaurilia a Manius is addressed who is definitely present to help with the proceedings, and whose judgment Cato implies is trustworthy:

> Agrum lustrare sic oportet: impera suovitaurilia circumagi: "Cum divis volentibus quodque bene eveniat, mando tibi, Mani, uti illace suovitaurilia fundum, agrum, terramque meam quota ex parte sive circumagi sive circumferenda censeas, uti cures lustrare.
>
> This is the way to purify a field. Order the suovitaurilia to be taken around: "So that with the gods willing everything may turn out well, I order you, Manius, to take care to purify my farm, field, and land, wherever you drive or carry the suovitaurilia, as you think best.

Manius is a generic name standing for an actual participant. Suggestions as to his identity have included various members of the farm staff, but the phrase *uti cures*, if it is not wholly formulaic, may suggest the employment of someone more competent than the

[436] Cicero *De divinatione* 2.24.51. Beard (1986) and Schofield (1986) discuss the problem of Cicero's position in the *De divinatione*, with extensive bibliography.

paterfamilias on this point.[437] If so, the relationship between *dominus* and specialist in the suovetaurilia is similar to that between state officials and specialists; it was the magistrates who officiated at state sacrifices, with augurs and haruspices to aid them, as the *dominus* here directs the proceedings but has help.

John North, discussing Cato's prohibitions, points out that Cato wants to keep his *vilicus* away from divinatory experts not because divination is a worthless enterprise, but precisely because it is not.[438] There has been a wealth of literature on the seriousness with which Romans regarded divination, refuting older views that late Republican authors, in particular, were all privately skeptics; in any event, whatever people thought in private, divination remained an integral part of public business.[439] North points to the connection between prestige and the employment of diviners—*auspicium*, the right to take auspices, was part of the authority of magistrates, who also had access to the various specialists—augurs, haruspices, XViri, pontifices, and so on—recognized and retained by the state. These specialists aided the magistrates in their performance of ritual—they did not officiate at rituals, but provided their expertise to those who did. Thus, to be able to call upon the services of diviners was a sign of status; divination was, in North's words, a "marker for the location of power." Cato seems to feel that, on a humbler level, consultation of rural augurs and similar figures is a privilege of the *dominus*, who stands in a position of authority to his familia roughly analogous to that which a magistrate holds in relation to the populus. For the *vilicus* to consult what diviners were available in

[437] Hooper and Ash (1934) 120. Such generic names are used elsewhere in Cato, e.g. in his model contracts; see below, p. 280. Suggestions for who fills Manius' role include the herdsman (Dalby (1998) 197), the *vilicus* or a soothsayer (Hooper and Ash (1934) 120) and any slave or helper (Hooper and Ash (1934) 120; Brehaut (1933) 120).
[438] North (1990) .
[439] See Beard (1986) for an overview of the debate.

a rural community may have been considered by the elite to be pretension as much as foolishness, or as a worrisome encroachment on the their prerogatives. It is worth noting that two of the specialists Cato lists, the augur and haruspex, share their titles with high-status state specialists, although clearly people of humbler status, if they were available to be called upon by a mere farm overseer. The categorization together of these experts of different prestige was likely encouraged by both the rural diviners and their customers, reinforcing the parallel between the prerogatives of a head of household and a magistrate. Ennius and other aristocratic Romans who disparage low-class specialists as frauds are not asserting that *all* diviners are charlatans, but reserving the right to decide whether particular ones are true or false diviners. The state, as well, reserved the right to decide between usable and non-usable sources of expertise, a calculation which included not only the abilities of the specialists but whether they were appropriate for a Roman citizen to consult. Thus the Senate decided that Lutatius Cerco should not consult the oracle of Fortuna at Praeneste since it was a foreign (*alienigenis*) oracle.[440] In a very real sense, religious knowledge was only true once acknowledged by those in power.[441] Thus Cato can disparage augurs, haruspices, and chaldeans while likely consulting them himself—calling in a diviner is an illegitimate action when done by the *vilicus*, but valid when done or properly authorized by the owner, the one with the power to accept or reject the diviner as someone whose knowledge is to be brought to bear on the estate. While the plethora of Roman terms for religious specialists does reflect real differences in the skills

[440] See de Cazanove (2000) on this incident.
[441] See North (1990) 52 on this problem; he points to the case of Julius Caesar's laws of 59 BC, where the augurs' provisional answer on whether the laws were flawed (they answered yes) was never officially solicited by the senate, and thus the laws remained in force. See also Beard (1990) for more examples and the issue of how decisions on religious matters came to be recognized as valid; Beard discusses extensively who, if anyone, mediates between humans and the divine. Of course, there were alternative models championing religious forces outside of the control of, and sometimes opposed to, the Roman state.

they claimed, it also reveals shades of approbation and disapprobation. The same expert may well have been called either an augur or a hariolus[442] depending on who was consulting them and who was discussing the event.

Columella's comment that the *vilicus* should not consult ritual specialists *sua sponte*, on his own initiative (11.1.22), raises the possibility that the *vilicus* might in fact get permission to do so. Cato's reference to the *vilica* having others perform ritual for her may also refer, not to the slaves under her direction, but to experts from outside the farm. The evidence again is that ritual practices were not completely forbidden to the slaves, but had to be channeled through the *dominus*. If the *dominus*' power to approve or deny ritual action is acknowledged, it converts worrisome lateral social ties to people off the farm into a reaffirmation of the vertical social control of the *dominus* and his superior ability to judge what is best in the ritual sphere. In particular, if diviners were employed on farm business, the most likely occasion for the *dominus* to grant permission, then they would be temporarily incorporated into the hierarchy of workers on the farm, like other contractors, and thus under the *dominus*' authority, nominal though it may have been in his absence. Given the large number of diviners attested in Italy, even in rural communities, and the many personal and business reasons the *vilicus* and the other slaves might have to consult them, Cato's efforts to restrict independent ritual action are probably an acknowledgement of a social reality he could not control and an attempt to make the best of it.[443]

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[442] See Pauly-Wissowa s.v. hariolus on the negative connotations of the term.

[443] On diviners in rural communities, see Dickie (2001) 224-250. Columella's mention of the *saga*, a female ritual specialist of some sort, is particularly striking. While the augurs, haruspices, and chaldeans all have relatively high-class analogues, *sagae* usually appear in literature as witches, malicious figures like Horace's Canidia.

A farm owner might have had another, probably more conscious, reason to worry about ritual that was out of his control: a straightforward desire to ensure that ritual was done correctly. The consequences of improperly performed ritual could range from it not working to actively angering the gods. The *paterfamilias* had an obvious interest in making sure that it was not left to unqualified people. Cato's interest in ritual is closely tied to the productivity of the farm and does not include all ritual performed on the farm during the year, only rites intimately connected with the fertility of the land or the health of crops and livestock. He does not, for instance, give any directions regarding the performance of the Compitalia, despite mentioning (5) that the *vilicus* needs to officiate at it.

Given that Cato emphasizes the owner's possession of knowledge to the *vilicus*, we might wonder why he publicizes ritual directions, making such expertise widely available. Cato's inclusion of ritual instructions in this material would seem to hand over religious knowledge to the *vilicus*. However, it also specifies precisely what form ritual should take, circumscribing the *vilicus*' own judgement and knowledge, and subordinating them to the owner's. Cato uses writing elsewhere to constrain the *vilicus*: he must record all his expenditures of money and labor for the owner's later review, and the owner's written instructions hold him accountable for the work that needs to be done. Writing becomes a stand-in for the owner, so that the *vilicus* has to acknowledge his authority even when the *dominus* himself is absent. This is true of the other agronomists as well (see p. 63, for example, for discussion of Varro's calendar). The presence of an agricultural manual on the farm reinforces Cato's assertion that the *dominus* knows more than the *vilicus*. In Cato's own case, the text of the book he himself has written makes

this point amply; it is Cato's knowledge of agriculture in tangible form. For aristocrats more generally, possessing a farm manual shows their access to the knowledge of others as well as their personal expertise. While the manuals do give the *vilicus* information, they reemphasize that knowledge flows through the *dominus*, who is part of a larger world of knowledge which they are not.

To record a prayer implies that the words are important—a conclusion that accords well with the character of later Roman religion, the obsessions of which with the correct performance of *sacra* is well-known. Pliny (28.11) and Varro (*De Lingua Latina* 6.61) mention that priests had helpers to read out the words of rituals to them to prevent mistakes; and the Salian hymn, archaic to the point of incomprehensibility when it was recoded in the late Republic, testifies to Roman conservatism in ritual language.[444] The assumption has usually been that Cato was recording genuine Roman farm rituals to give landowners access to the correct versions, and his rituals have been seen as fixed texts, which he learned verbatim and expected others to use word-for-word. Fowler goes so far as to suggest that Cato copied them out word for word from an authoritative source, the records of the pontifs.[445] This conviction that there was a canonical text, and that Cato describes an archaic Italian religion which had remained largely unchanged for centuries, lies behind much of the scholarly focus on Cato's text.[446] This focus on the words and on recovering the original form of the text was one the Romans shared. Both in ritual

[444] See Klinghardt (1999) on prompters for the correct words of prayers. Gordon (1990) 188-89 discusses the use of such incomprehensible texts in mystifying religion and reinforcing the expertise of a religious elite supposedly in the know.
[445] Fowler (1899) 379.
[446] As Connolly (2004) has pointed out, modern scholars have mostly focused on the language of the known ritual texts at the expense of anthropological approaches which see ritual speech as another type of action; Rüpke (2004) gives an overview of scholarly attempts to identify fragments of priestly books and reconstruct them.

practice and in theory, in the works of scholars like Varro, who sought the origins of ritual in etymology, the Romans felt that the words of their rituals were important.

If Cato's prayers were fixed and unchanging, then they were either unusable in many situations or were used despite the fact that the wording was clearly inapplicable. All assume that the *dominus* himself is speaking; but the *dominus* would often have been unwilling or unable to perform the ritual. The owner might be absent from the farm; he might be a child; or she might be a woman.[447] Rituals might be delegated to the *vilicus* to perform in the *dominus*' place. The prayers assume a situation which conforms to the Roman norms which Cato's ideal farm embodies—an adult male landowner, with family, who takes a personal interest in the farm operations. Cato does not reveal whether the same words would have been used in non-normative situations, or whether the prayer would have been changed to reflect the speaker. However, there are indications that similar sample texts were meant to be altered; and so perhaps were these.

Cato's sample contracts, which are found interleaved with most of his ritual texts in the latter half of the *De agricultura*, provide a useful parallel for the rituals. Cato gives models of contracts which a farm owner could use for letting out work or for the sale of produce. The texts, as given, are meant to be altered, with the "blanks" for names, figures, and other details particular to the people making the agreement filled with generic examples.[448] The contract for hiring a work crew for the olive harvest on the farm of one Lucius Manlius (144) demonstrates the provisional nature of Cato's text, as there

[447] On women as landowners, see Cooper (2007) 112-14; Saller (1999) ; for this period particularly, Culham (2004) 147.

[448] That the contracts are samples is pointed out by Brehaut (1933) 123, who also suggests that they are not complete, and that only the trickier clauses are listed for an audience already familiar with such agreements.

are several parts of this contract which were likely to be altered if it was used as a model by a reader of Cato's handbook:

> Oleam cogito recte omnem arbitratu domini, aut quem custodem fecerit, aut cui olea venierit. Oleam ne stringito neve verberato iniussu domini aut custodis. Si adversus ea quis fecerit, quod ipse eo die delegerit, pro eo nemo solvet neque debebitur. Qui oleam legerint, omnes iuranto ad dominum aut ad custodem sese oleam non subripuisse neque quemquam suo dolo malo ea oletate ex fundo L. Manli. Qui eorum non ita iuraverit, quod is legerit omne, pro eo argentum nemo dabit neque debebitur. Oleam cogi recte satis dato arbitratu L. Manli… Legulos, quot opus erunt, praebeto et strictores… Adsiduos homines L praebeto, duas partes strictorum praebeto. Nequis concedat, quo olea legunda et faciunda carius locetur… Accessiones: in M° ∞CC accedit oleae salsae M° V, olei puri P. VIIII, in tota oletate aceti Q. V. quod oleae salsae non acceperint, dum oleam legent, in modios singulos SS. V dabuntur.
>
> He [the contractor] will gather the whole olive harvest carefully, according to the wishes of the owner or whoever he appoints, or the person who has bought the olives. No one will comb or beat down olives without the orders of the master or his subordinate. If anyone disregards this, no one will pay or owe money for what the man has picked that day. All the olive pickers will swear to the master or his representative that they have not stolen olives from the farm of Lucius Manlius, nor has anyone else with their knowledge. No one will pay or will owe money for what someone who will not swear has gathered… He will furnish pickers and gatherers according to the need… He will furnish 50 active men, two parts of them pickers. No one may leave to go where olive picking and milling are better paid… Benefits: For each 1200 modii harvested, 5 modii salted olives, 9 lbs pure oil, and for the whole harvest 5 quadrantals vinegar. If they do not get the salted olives while picking, they will be given 5 sestertii per modius.

Lucius Manlius is clearly an Everyman who stands in for the real farm owner. Less obviously, many other details would be altered according to the situation; for example, Cato lists the number of workers required and their pay and benefits, which would have been negotiable. (The contract itself suggests that owners had to offer competitive wages to attract labor, since it inserts a clause trying to prevent workers from leaving if they found better pay elsewhere.) The degree of detail varies; at one point the contractor must furnish workers "according to the need", while later, the precise number of workers and the proportion of pickers to gatherers is specified. In places, the text suggests possible

alternatives: the workers may get their bonuses during or after the harvest, either the owner or the *custos* might order the work to begin or receive the oath that the workers have not stolen olives; the work is to be done to the satisfaction of either of these people or to that of the person who has bought the harvest while it was still on the trees.[449] This last choice sets up potentially incompatible alternatives, since the interests of the farm owner and the buyer were not the same, and could come into conflict over the degree of care spent harvesting the crop versus the cost of maintaining workers longer. One of these alternatives must have been selected for the final document. Other of Cato's contracts show similar alternative phrasings and placeholder details: *Si uiride oleum opus siet, facito*, "If green oil is required, it is to be made"; *olea pendens in fundo Venafro uenibit*, "He will sell olives on the tree at the Venafrum farm"; *Locus uinis ad K. Octob. primas dabitur*; "Storage for wine is available until the Calends of October on the next year"; *Kal. Iun. emptor fructu decedat, si interkalatum erit, K. Mais*, "The buyer surrenders his rights on the Calends of June (Calends of May if an intercalated year)".[450] Such texts invite the reader to think about how to alter them; these are not static models, but ones which are meant to be changed, amended, abridged and added to at the convenience of the farm owner. Despite the prescriptive tone of the *De agricultura*, this is true of the work as a whole. Cato offers fewer rules for owners than he does rules of thumb.[451]

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[449] It was common for a harvest to be sold while still in the field, or the projected offspring of a flock to be sold before it was born. In *Epistle* 8.2, Pliny the Younger discusses such a situation; since the price on grapes turned out to be much lower than had been projected for that year, he has offered rebates to the people who bought his vintage on speculation.

[450] Cato 145; 146; 147; 150. A variety of contracts are found in 144-150; all of them show signs of their provisional nature.

[451] Readers certainly took Cato as a guide, as Varro's complaints (1.18) that Cato's recommendations on numbers of workers are difficult to scale up or down show. Varro often takes issue with Cato's advice.

The parallels between the contracts and Cato's ritual texts are striking. Like the contracts, the rituals appear to be sample texts which provide a framework within which some variation is anticipated. At least one, the suovetaurilia prayer, has a "blank" filled with a generic name (Manius; see above p. 271). The suovetaurilia also mentions minor procedural variations—*circumagi sive circumferenda*, "driving or carrying"—and leaves the choice to the discretion of Manius (although it was probably dictated by the age of the sacrificial animals). Other rituals suggest options in the procedure. In the prayer for the health of the oxen (83), Cato mentions that all the food offerings can be put together in one container, and all the wine in one: *id in unum uas liceto coicere et uinum item in unum uas liceto coicere*, "it is allowable to put it all in one jug; the wine, also, may be placed all in one jug." While these directions specify the amounts of *far*, fat, meat and wine to offer per head of oxen, the instructions for the feast for the oxen (132) leaves the amount of the wine offering up to the *dominus*: *Ioui dapali culignam uini quantam uis polluceto*, "offer a cup of wine, as much as you wish, to Festive Jove." The same feast makes an entire offering optional: *Vesta, si uoles, dato*, "offer to Vesta if you wish." The prayer for the health of the oxen ends by leaving the choice of how often to perform it up to the owner: *Hoc uotum in annos singulos, si uoles, licebit uouere*, "you may make this dedication each year if you wish." Like what container to put the offering in, these decisions are a matter of personal preference.

The suovetaurilia and the prayer to use when cutting a grove envision several possible scenarios which the ritual may have to be modified to fit. The suovetaurilia instructions explain what to do if the sacrifices are unpromising, either all or some:

> [After the sacrifice:] Si minus in omnis litabit, sic uerba concipito: "Mars pater, si quid tibi in illisce suovitaurilibus lactentibus neque satisfactum est, te hisce

> suovitaurilibus piaculo"; si uno duobusue dubitabit, sic uerba concipito: "Mars pater, quod tibi illoc porco neque satisfactum est, te hoc porco piaculo."
>
> If you do not get favorable signs in any of them, use these words: "Father Mars, if anything in that suckling pig, lamb, and calf does not please you, I offer you this pig, lamb, and calf in expiation"; if only one or two are unclear, use these words: "Father mars, since that pig does not please you, I offer you this pig in expiation."

Cato is at pains to cover all possible outcomes of the sacrifice and explain the proper response; what form the ritual would take could not be known in advance. The grove-cutting prayer considers different situations to which the prayer might be applied, rather than problems arising during the ritual; Cato gives an alternate clause to use if the ground is being worked, plus the procedure to follow if work is interrupted by a holiday. Finally, there is the issue of who takes part. The prayer for the health of the oxen, Cato mentions, can be performed by either a slave or a free person, while women cannot be present or learn how the ritual is performed (83).

The prayers, while modifiable, contain much traditional language, including archaisms, repetition, alliteration, and other features characteristic of early Latin ritual language.[452] They clearly do not spring fully-formed from the head of Cato. But whose traditions? Cato's rituals are usually taken to be those used by Italian peasant farmers. Italian farmers had gotten by previously without a written manual to refer to, and were not likely to be consulting Cato's text in any case. The idea of a canonical prayer is surely illusory; in the absence of accessible written ritual texts there must have been regional and individual variation. Even if Cato's prayers are an accurate recording of ones he had heard used, each must be one possible form out of many prayers that were current. Cato cannot be recording *the* correct form so much as choosing *a* form to hold up as correct.

[452] Calvert Watkins analyzes the formulaic language of the suovetaurilia prayer; Watkins (2001) 197-213. See also Phillips (1997) .

The idea that there was one correct version of a ritual was specifically Roman, aristocratic, and new to this period.

Cato was on the leading edge of a change in how Roman aristocrats dealt with religious expertise and challenges to their control of technical aspects of religion. Tradition held that in the early Republic, the strategy had been secrecy—specialized religious knowledge had been guarded by patricians, to whom the high priesthoods were limited.[453] Over the course of the Republic, priesthoods had gradually been opened up to plebeians and ritual knowledge, such as the calendar, made public.[454] This development was paralleled by the opening up of magistracies to plebeians and the dissemination of other restricted knowledge, like the laws of the Twelve Tables.[455] Moreover, as Rome expanded, its territory came to include Italian communities with independent and competing religious traditions. Cato's text is an example of the process by which the Roman aristocracy's claims to superior ritual knowledge came to rest not on closely guarding knowledge but on widely disseminating and popularizing their version of it.

Rüpke argues that the second and third century expansion of Rome and the accompanying social changes and influx of foreign, especially Greek, culture touched off a reactionary urge to codify ritual traditions. Greek modes of thought offered a "universalization of rules and values" which was simultaneously attractive and frightening to Roman aristocrats. Rüpke comments that:

> The pressure of rationality produced by Greek philosophy also applied to the practice of Roman religion—i.e. ritual practices of a society that already was under great internal pressure because of the political and social development of an exploding city state. Social change made traditions "liquid". The most important

[453] Murphey discusses this point in regards to the story of the secret name of Rome, which Valerius Soranus is said to have been executed for revealing. Murphey (2004)
[454] On the history of the calendar and debates over its publication, see Michels (1967) 108-11.
[455] See Eder (2005) , with bibliography, for debates over this event.

> form of reaction to this "liquidation", this "de-solidifying" of one's own traditions, was the development of an "antiquarian literature".[456]

Rüpke places the beginning of this trend in the mid-second century B.C. and sees it continuing through the end of the Republic. Although he is discussing scholarly antiquarianism of the Varronian type, his point is more broadly applicable; the Roman elite showed a new interest in codifying their religious traditions in this period.[457]

It was in this context that Cato wrote the *De agricultura*. Compared to later tradition, he is comfortable with the idea of variations on his instructions; and yet, the codification is there. By recording Roman rituals, he is staking a claim to religious knowledge; the implication of the text is that there is a right way to go about ritual, and that Cato is privy to it. Cato offers alternatives within the rituals, but not *to* the rituals; it is Roman forms which he champions against foreign and non-aristocratic competition. But while demonstrating his own knowledge, Cato makes that expertise public and invites others to adopt it. Cato (a *novus homo* himself) allies himself with the Roman elite and Roman custom, and one of the attractions of his text is that it allows others to join this circle. Written records of technical legal and religious knowledge had always been desirable to the plebeians, and the publication of the Twelve Tables and the calendar were remembered (or at least construed later) as victories.[458] By opening up—now in the face of increasing competition from other religious specialists— the sort of specialized knowledge that Romans had desired in the past, Roman aristocrats gave an attractive reason to still look to them as sources of ritual authority.

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[456] Rüpke (2004) .

[457] Wallace-Hadrill makes a case for a similar trend in the Augustan age, when there was a shift away from senators and towards intellectuals, who might or might not be of senatorial rank, as sources of religious authority. Wallace-Hadrill (1997) ; see also discussion in Murphey (2004) .

[458] Eder (2005) argues that the publication of the Twelve Tables also increased aristocratic prestige. See also Harris (1989) 153 for an argument about what affect low levels of public literacy had on most people's reaction to such a text.

It is not just to other Romans that Cato is offering his expertise, but to other Italians who might use his book, and to Roman landowners who, like himself, had land outside of Latium and could carry their customs there. As Rome's territory expanded, Roman senators had an interest in promoting themselves as a more authoritative source of tradition than local customs. Cato emphasizes that his grove-cutting prayer (139) tells how to perform the ritual in the Roman way, *romano more*.

The question may be not how much ritual variation was allowable, but to whom. Cato's audience is twofold: on the one hand, the aristocratic reader and farm owner, and on the other the slaves at whom many of the instructions are aimed. This double audience is the crux of the ambivalence about variation in rituals. Cato can phrase his instructions proscriptively, but he cannot actually dictate to his upper-class audience. They can choose the religious regime for their estates, and it is at them that the phrases qualified by *si voles*, *licebit*, and similar phrases are aimed. Instead, Cato invites them to take part in his specialized knowledge. By using Cato's ritual instructions, they acknowledge his access to correct ritual knowledge, and themselves gain the authority of knowing the correct forms to use. They retain the license to make decisions for their household within the ritual framework that is offered. The idea that there was a correct form for rituals proved attractive, and a sense of superior knowledge remained important to the aristocracy.[459] Tradition, even a newly-assembled tradition, was appealing. The slaves, meanwhile, are referred to the *dominus*' authority to make decisions.

Whatever Cato's conscious or unconscious goals were, by the time of the next surviving manual, ritual is considered extraneous to the topic. Of course, Varro had

[459] Cf. the literature on weather signs, where a dual audience is also assumed: the aristocratic reader who understands weather signs with the benefit of natural philosophy, and poor farmers and sailors who use weather signs but who are said to not fully understand them.

plenty to say on the subject of religion; his *Antiquities* makes Columella's proposed addendum pale by comparison. But neither of them put these matters into their farming books themselves. Roman state religion, encouraged by the work of people like Varro, had become much more fixed than in Cato's day; and later agronomists do not feel that their audiences need its inclusion. Varro's condemnation of Cato's digressiveness seems to have been damning. More importantly, perhaps, although the later agronomists lived in eras with their own social upheavals, they were not the same ones faced by Cato and his contemporaries; the pressures impelling Cato to include rituals in the *De agricultura* no longer seemed so urgent.

The Evil Eye and the Fertilizing Gaze of the *Paterfamilias*

The agronomists do not explain the owner's position of authority merely by his social position and access to outside knowledge; they also marshal natural-historical justifications attributing beneficial effects to the *paterfamilias* himself and to his body. His presence on the estate is said to make plants grow better, with his eyes being particularly potent. Pliny (18.43) quotes a popular saying that the eye of the master is the best fertilizer (*Profecto opera inpensa cultura constat et ideo maiores fertilissimum in agro oculum domini esse dixerunt*). This is clearly meant figuratively in many cases; the agronomists emphasize the importance of the owner's personal attention to his farm, and some variation on this saying is found in most of their farming manuals.[460] For one thing, they say, only the owner will care enough to make sure the work is done thoroughly and well. Columella complains about the difficulty of getting slaves to work, or to do work well, and emphasizes the need for the owner's supervision. However, sometimes a more

[460] Cato 4; Columella 1.1.18; Palladius 1.6. Variations on this saying are found throughout Europe from antiquity into the modern period.

direct benefit is suggested. Pliny, commenting on the productivity of very small landholdings in the early days of Rome (18.19), says:

> Quaenam ergo tantae ubertatis causa erat? Ipsorum tunc manibus imperatorum colebantur agri, ut fas est credere, gaudente terra vomere laureato et triumphali aratore, sive illi eadem cura semina tractabant, qua bella, eademque diligentia arva disponebant, qua castra, sive honestis manibus omnia laetius proveniunt, quoniam et curiosius fiunt… At nunc eadem illa vincti pedes, damnatae manus inscriptique vultus exercent, non tam surda tellure, quae parens appellatur colique dicitur et ipso opere ab his adsumpto, ut non invita ea et indignante credatur id fieri. Et nos miramur ergastulorum non eadem emolumenta esse, quae fuerint imperatorum!
>
> What therefore was the reason for such great fertility? Then the fields were cultivated by the hands of generals themselves, and it is perfectly believable that the earth rejoiced in a laurel-decked plow and a plowman with a triumph, whether they treated the seed with the same care they spent on war, or arranged their fields with the same diligence as their camps, or whether everything turns out better for honorable hands, since it is also done with more care… But now that the same work is done by people with chained feet, and by the hands of criminals with branded faces, the earth—which is called a parent said to be cherished—is not so unaware that with her cultivation taken over by these people, it can be believed that she is unwilling and indignant. And we are amazed that the profits of chain-gangs are not what they were for generals!

This is typical of how Pliny treats nature as something responsive to human morals (in another instance, he says that the earth produced snakes and other poisonous animals out of self-defense after humans began digging into her with mines in search of gold and jewels; 2.156-7).[461] Although Pliny does not abandon the link between large yields and the owner's greater diligence, he attributes a preference for cultivation by elites to the earth itself. The idea that the earth responds more readily to *honestae manus* is found also in Columella (3.21), who hyperbolically quotes Virgil's lines on Bacchus[462] to describe the Roman *paterfamilias*' effect on his vineyards:

> Sed haec quamvis plurimum delectent, utilitas tamen vincit voluptatem. Nam et pater familias libentius ad spectandum rei suae, quanto est ea luculentior,

[461] See French (1994) 196-255 on Pliny and nature.
[462] *Georgics* 2.392.

> descendit; et, quod de sacro numine poeta dicit, "et quocumque deus circum caput egit honestum," verum quocumque domini praesentia et oculi frequenter accessere, in ea parte maiorem in modum fructus exuberat.
>
> But although all these are very delightful, utility however prevails over pleasure. For the *paterfamilias* visits more willingly to view his land the more splendid it is; and as the poet says of the sacred deity, "wherever the god has turned his goodly head", in truth, wherever the person and eyes of the master frequently come, there the fruit abounds in greater measure.

Columella describes the eyes of the owner as something almost separate from the man himself. The master's gaze, as it sweeps across the plants, impels them to flourish and grow more vigorously. Like Pliny's earth, the plants respond better to an aristocrat. Later, Columella also mentions that arranging the vines correctly allows easier access for the owner's eyes and feet, as though his gaze has physical substance and needs a passage to reach the plants (4.18):

> Sed quoquo vineta placuerit ordinare, centenae stirpes per singulos hortos semitis distinguantur; vel, ut quibusdam placet, in semiiugera omnis modus dirimatur. Quae distinctio praeter illud commodum, quod plus solis et venti vitibus praebet, tum etiam oculos et vestigia domini, res agro saluberrimas, facilius admittit, certamque aestimationem in exigendis operibus praebet.
>
> But whatever way you choose to arrange the vines, let each hundred vines be separated by paths into a separate plot; or, as some like to do, have the entire vineyard divided into half-iugera plots. This, aside from the advantage that it allows sun and wind into the vines better, also admits the eyes and footsteps of the master, the healthiest things for the land, more easily, and offers a fixed way of estimating the work expected.

This treatment of the gaze as something with physical substance is more familiar from complaints about the evil eye. Unlike the beneficial gaze of the *paterfamilias*, which the agricultural writers do not explicitly describe the mechanics of, we have ancient attempts to explain how the evil eye works. Plutarch discusses the phenomenon extensively; he explains it as an emanation which streams primarily from the eyes, and which can harm the people it touches (*Moralia* 680c-683b). This emanation has enough

substance that it can be bounced back by reflective surfaces, leading some people to even curse themselves by looking into mirrors or pools of water. Plutarch compares sight to odor, the voice, and breath as things which produce sensations because they are made up of particles and thus physically strike and affect the bodies of people nearby. Emanations from the eyes are the most potent type because they are carried by a breath, a *pneuma*, which elsewhere in Plutarch is something which acts as an interface between the mind and bodily emanations; for example, it is what allows the octopus to change color when startled.[463] This is why people feeling certain emotions are more likely to produce harmful effects in the things they look at; the thoughts charge the quality of the gaze. Plutarch believes that any protracted, strong emotion can eventually manifest itself as a harmful gaze; but the feeling in question is almost always envy. The evil eye may also be said to have a physical cause, just as it has a physical presence and effect. People with unusual pupils are often said to be prone to the evil eye. Pliny (7.16-18) catalogues some of these: Triballians and Illyrians with double pupils; Scythian women with the same shape eyes; Thibians with a double pupil in one eye and a horse shape in the other; and, closer to home, Roman women with double pupils. Pliny also says that the evil eye has arisen from cannibalism, because nature produced poisons in the body and especially in the eyes of some people so that "there should not be some evil somewhere that was not in man". Although the so-called evil eye is usually associated with the physical eyes, it can also be thought to come from some other part of the body, as Pliny suggests by implicating it in a more general bodily corruption. Plutarch says that the Thibians can harm people with their breath or a utterance as well as with their gaze. Pliny associates the evil eye with people whose bodies are strange in other ways—the Thibians who

[463] *Natural Questions* 19.

possess it cannot be drowned, while "not unlike" these, he says, are the Pharmakes of Ethiopia, who do not posses the evil eye but whose sweat helps cure people who are harmed by it.

The evil eye is part of a larger category of potent bodily emanations in Pliny. The Psylli, Marsi and Ophiogenes (all of whom are marginal Italian peoples or foreigners who already had reputations as sorcerers) can cure people who have been poisoned just by being nearby, through what Pliny calls the "natural antipathy" of their bodies to venom (28.30-31). The Marsi are frequently said to be immune to poison, and are able to burst snakes with their eyes or their spit.[464] Pliny also believes that anyone once bitten by a snake or dog makes wounds worse and cattle miscarry, because of the poison remaining in their bodies. He attributes a variety of powers, both good and bad, to menstrual blood (28.77). Among other things, it can nullify sorcery, repel storms, and make animals barren; although it also has medicinal uses. Like poison from venomous animals, menstrual blood makes the body in which it sits extraordinarily potent, so that women who are menstruating can kill garden insects and plants with a touch, or, like the Marsi and others, simply by her arrival. This power is often expressed through the eyes. A mirror tarnishes if a menstruating woman looks at it; it recovers its shine if she looks at the back. If it is her first menstruation, a mere glance from her is enough to kill plants. Interestingly, while the evil eye always has deleterious effects on those it touches, many of the powers which Pliny lists in this passage are useful, or are at least destructive in ways that can be put to good use, as women can be employed to destroy garden pests or the Marsi to kill snakes.

[464] On the Marsi, see Dickie (2001) 134-5.

In these cases, the emotions of the person do not seem to be at issue; their bodies are inherently potent or have absorbed a potent substance, which allows them to affect people and objects around them. In the case of the *paterfamilias*, however, Columella seems to suggest that the *paterfamilias*' emotions make his gaze more powerful. He emphasizes that the master's pleasure in viewing his produce is important. Like Pliny's maxim, this can be taken in both a practical and a more magical way. Columella points out that an owner who takes pleasure in his farm will visit more often, and thus it is worth trying to make the place attractive. (He also notes, pragmatically, that the master's wife will be more willing to stay at the villa if it is enjoyable.) This is something the other agronomists agree on; Varro in particular says that an attractive farm is more productive, partly because the owner enjoys it and pays more attention to it for that reason, and partly because plants which are properly placed grow better, and it is this order which adds to their attractiveness. But in the context of Columella's comments on the master's eyes, this attention to the pleasure of the master may also suggest that the *paterfamilias*' gaze is more effective if he is feeling strongly pleased by what he sees, so that nature responds to the master's emotions as well as to his moral qualities. The owner's pleasure, like the envy of an curser, becomes a physical force communicated through the eyes.

Instead of a harmful effect produced by the envious and foreign peoples with strange bodies, or more the more ambiguous effects of foreigners, women, sorcerers, or those who have been poisoned—all of whom are suspect individuals for one reason or another—the *paterfamilias* has a wholly positive influence on nature, which is pleased with him simply by virtue of his being the *paterfamilias*. While Pliny and Plutarch both try to come up with physical explanations for the evil eye—poison or other dangerous

substances in the body, strong emotions made substantial—the social position of Roman heads of households is sufficient reason for them to have the effect on their estates which they do. And of course, this effect is in return used as a rationale for their position. Only the *paterfamilias* can make the farm prosper the way it ought to; and Pliny links the decline of agriculture to the absence of the *paterfamilias* and his replacement with slaves. The *paterfamilias*' gaze, while surely influenced by ideas about other bodily emanations, is never explicitly juxtaposed with them. Columella and Pliny's aristocratic readers would surely not have been pleased by their bodies being likened to those of snake-bursting foreign sorcerers or menstruating women, Columella's picture of them as Bacchus was much more flattering. Instead, the agronomists place this phenomenon in opposition to sorcery. Pliny makes his remarks on the master's eye as the best fertilizer in reference to the case of C. Furius Chresimus, who was accused of enchanting his neighbors' crops. After explaining that Chresimus established his innocence by demonstrating that his greater yields were due to how hard-working a farmer he was, Pliny concludes with the comment: "Truly, cultivation relies on the labor expended on it, which is why our ancestors said that the most fertile thing on the farm was the master's eye." Sorcery, it seems, is redundant when the farm has the master's personal attention. If his eye is on it, no other magic is needed to increase the crops; Chresimus himself is a better charm than any magic he might employ.[465]

[465] See p. 40-2 on the case of Chresimus and crop-charming. We might have expected Chresimus, a foreigner and a freedman, not to qualify as a good Roman paterfamilias, but as one of the slaves by whom the earth is reluctant to be cultivated. The more figurative sense of the saying is probably uppermost in Pliny's mind here. Chresimus may also be, as it were, grandfathered in by virtue of the story taking place well before Pliny's own day (probably in the second century BC; see Forsythe (1994) 377-8 for the likely dates of this anecdote); rustic antique virtue trumps foreignness or freedman status for the sake of the story. And Pliny may also be thinking of his comments on the decline of agriculture. Making Chresimus the representative of ancient Roman virtue, while his lazier neighbors with their large estates stand in for degenerate modern Romans, harks back to the comments in the agronomists that the slaves should *not*

Conclusion

How does all of this affect our reading of the farm manuals? Cato's interests vis a vis ritual in the *De Agricultura* are not divorceable from his larger concerns as a landowner. That the rituals have a dual use, as practical information and as a matter of asserting prestige, is true of the entire book. On the one hand, much of the *De agricultura* has practical value as a work of reference. On the other, much of the information is redundant or unnecessary; someone entrusted with the management of a farm probably did not need to be told when to plow or plant. But people like to be seen giving good advice, or possessing such manifestly useful things as farming handbooks; if Cato advertises his religious knowledge by writing it, *ownership* of his ritual texts was also potentially an advertisement of a Roman aristocrat's access to and interest in his knowledge. More broadly, the whole book stakes a claim to the most stereotypical *romanitas*, with Cato's preface, in which he defines a good Roman as a good farmer, as a programmatic statement of the uses of the text: it will teach one not only how to be a good farmer, but a true aristocrat. We might compare here the collection of *sententiae* which came to be known as the *Catonis distycha*; as one-sentence ruminations on common sense and virtue, their pithy moralizing is not out of keeping with Cato's style, and that they were attributed to Cato gives us some idea of the flavor readers derived from his works. None of the advice in them is surprising: don't gossip; don't find fault; work hard. The entirety of the *De agricultura* could be seen as a similar reminder of good

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know more than the master, and it is a poor state of affairs when that is the case. Chresimus has surpassed his neighbors in *romanitas*, even though he is the least Roman of them originally; in some ways he represents the point when Roman morals and agriculture began to go downhill.

practice, or as an advertisement of the owner's own virtue (or at least a theoretical interest in virtue). Considering the *De agricultura* and its successors as part of a public discourse on tradition and morality, and thus a useful tool in the creation of a public persona, goes some way towards explaining the popularity (and continued transmission) of a genre as dry, to much modern taste, as farming manuals.

Columella and Pliny, while they urge the farmer to study the craft, also imply that the farm owner has natural advantages. Their suggestion that nature itself responds better to the *paterfamilias* reflects their more natural-historical interests, but also challenges the farmer to be active in his own affairs. While one can be a good practical farmer without theoretical knowledge, and the owner should always know more than his slaves even without study, the ideal farmer is one in whom practical experience and theoretical knowledge are merely aids to his natural superiority as a cultivator.

CONCLUSION

Why did the agronomists include magic in their books? Despite the discomfort they often show with the topic, they clearly still feel that magic is useful, that it works; it is embarrassing when too obvious but is indispensible. They cope with the disconnect by turning overt magic into types of knowledge that are more palatable to the educated portion of their audience—by presenting it as a type of unremarkable technical activity, or as ordinary cult. Rarely, they simply describe it as magic, with uncomfortable disclaimers about people who use it.

What they expected their audience to get out of it was twofold: for the educated audience, they make reference to philosophy, science—intellectual frames of reference which allow readers to understand the tricks and remedies which they offer as driven by natural causality. Whether this part of their audience had a practical interest in agronomy or a more scholarly or literary interest in it as a natural-historical, or even moral, topic, the agronomists' occasional references to natural philosophy reassured them that this was knowledge that was suitable for the upper classes. At the same time, everyone would have been aware of the possibility that many of these practices could be interpreted as magic. The result is a slightly odd persona for the authors—they are educated, stereotypically Roman landowners who encourage their peers to give the farm their personal attention, but they also offer the sort of hidden knowledge of the natural world which can make them either practical scientists or wonder-workers, depending on the predilection of the observer.

At the same time, these were not books of secret knowledge; they were a popular genre, and show every sign that they were intended at least partly for the use of actual farm staff. They in no way resemble the surviving papyrus books of magic with their exhortations to secrecy. The actual spells and cures were simple and mostly very easy to deploy, and did not require the immersion in learned magical traditions which many other types of magic often did. To reconcile the idea of natural magic—which one must study natural philosophy to understand—with the magic of slaves and country folk, they suggest that there are two levels of knowledge at work. Anyone can use the techniques they record, but the true master of the subject must also be highly educated in the theoretical realm. The knowledge is freely disseminated, but is only fully accessible to the elite.

The agronomists very likely obscure some ritual elements which would have accompanied their remedies in actual practice; since they prefer to downplay the more dramatic or startling elements when possible, they do not necessarily always accurately reflect what magic looked like on an Italian farm. However, although they prefer to avoid more overtly magical rites when possible, they are not divorced from real magical practices; the internal logic of their spells is consistent within their texts, and with what we know from other sources. They draw on a common stock of ritual elements, images, and metaphors which they share with self-proclaimed magicians, with public and private religious cult, and with natural philosophers and other scientific and technical writers, and these types of activity clearly influenced and borrowed from each other constantly, whatever their practitioners claimed to be doing. We should neither take their disparaging comments about magic too seriously—as Columella shows, genre played a large role in

how ancient authors were willing to discuss magic—nor should we assume too readily that they are always accurate in what they *do* describe.

Ultimately, although the agronomists imply that they understand the surprising ways to manipulate nature better than most of its users, their treatment of the magical traditions of Italian agriculture constitutes, like much ancient science, an attempt to launder unfashionable beliefs through natural philosophy and so make them tenable for the educated elite. Magic offered greater control over nature to a risky profession; and so, whatever their intended stance on magic, the agronomists sought to justify what most people believed, because they, too, hoped or believed that it did.

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