

Cato, *On Farming* transl. by A. Dalby (1998)

NOTE: You ARE NOT required to read the entire work (you may if you want). Read the sections entitled “**Buying and Developing a Farm**” and “**Rituals and Forms of Contract**” in full; for the rest just be sure to read some from each section—let your interests guide you. You should read ca. 50 pp. total.

PART ONE

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PART TWO

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Supplies Through the Year

A Calendar for Fodder

54. Fodder for oxen can be prepared and given as follows.¹⁵⁸

When you have done the sowing, gather acorns, and prepare by soaking in water. You can give 1/2 peck per beast per day; but when they are not ploughing it is better to pasture them.

Or, one peck of marc stored in a vat.

Pasture by day; by night give 25 *lb.* hay per beast. If no hay, give holm-oak and ivy foliage.

Store wheat and barley chaff, bean pods and the pods of vetch, lupin and other legumes. When storing straw, keep the greenest indoors and sprinkle with salt: later on you can give this in place of hay.

When you begin to give feed in spring, give a peck of acorn or more, or a peck of soaked lupin¹⁵⁹ and 15 *lb.* hay.

When *ocinum*¹⁶⁰ is ready, give that for preference. Gather it by hand, so that it will grow again: what you cut with a sickle will not grow again. Give *ocinum* until it begins to dry, and that will be the proper quantity.

After that, give vetch.

After that, give foxtail millet.

After foxtail millet, give elm foliage. If you have poplar, add that to make the elm last. If you have no elm, give oak and fig.

There is nothing more profitable than to control your ox feed. They should not be pastured except in winter, when they are not ploughing. If they get green stuff to eat, they will always want it.

(158) This is a topic to which Cato often returns: see also 5, 27, 30, 53, 60.

(159) Lupin seed (*Lupinus alba*) is Cato's *lupinus*. In the eastern Mediterranean this legume has served as human food, though not a favourite one (Galen, *On the Properties of Foods* 1.25.2; Dalby, *Siren feasts*, pp. 24–5, 89–90). 'Stored in the granary it withstands age. Cooked and softened, it is good food for oxen in winter' (Columella 2.10.1: see also note at 10).

(160) Cato often mentions *ocinum* as fodder: so does Varro (1.31.4). Pliny (17.197–8, 18.143) did not know what they meant. No one now knows whether *ocinum* is a mixed crop or a single species, and, if the latter, which species.

They should have muzzles, so that they do not browse when ploughing.

Note on Firewood

55. Put firewood for the owner in the loft.

Chopped olive wood and roots in an outdoor woodpile; form them into ricks.

*Provisions for Household and Oxen*¹⁶¹

56. Food for the household.

For field workers, 4 pecks wheat in winter, 4 1/2 pecks in summer.

For the manager, manageress, supervisor, shepherd, 3 pecks.

For the chain gang,¹⁶² 4 lb. bread in winter; when they begin to dig the vineyard, 5 lb., until there begin to be figs; then revert to 4 lb.

57. Wine for the household.

When the vintage is over they can drink *lora* for three months.¹⁶³

In the fourth month, half a pint a day, i.e. 2 1/2 *congi* the month.

In the fifth, sixth, seventh, eighth months, a pint a day, i.e. 5 *congi* a month.

In the ninth, tenth, eleventh months, 1 1/2 pints a day, i.e. 1 *amphora* [a month].

(161) See Francesco De Martino, 'Sull' alimentazione degli schiavi' in *Parola del passato* vol. 48 (1993), pp. 401-427.

(162) To work in chains was the fate of recalcitrant slaves. 'It isn't long before you'll swell the ranks on the farm, Tranio, the ironclad people' (Plautus, *Mostellaria* 18-19). An owner who used them had to make sure they got their share of food and clothing, since they were less able to look after themselves (Columella 1.8.16-18). It is to be noted that Cato prescribes ready-made bread for them, while other slaves got a wheat ration; and see below on their extra allowance of wine.

'A vineyard worker must be not only strong, but also clever, which is why vineyards are often tended by a chain gang' (Columella 1.9.4). 'The estate is going to want slaves, and not the cheapest sort, because I never use chain gangs and nor do others in the district' (Pliny the Younger, *Letters* 3.19).

(163) On the making of *lora* see 25.

In addition, at Saturnalia and Compitalia,¹⁶⁴ 1 *congius* per person.
Total of wine per person per year ...¹⁶⁵

For the chain gang, increase depending on the type of work done. It is not excessive to give them 10 *quadrantalia* each a year.

58. Relish for the household. Conserve as many windfall olives as possible. Then conserve those of the ripe olives that are least productive for oil. Ration them, so that they last as long as possible. When the olives are finished, give *hallec*¹⁶⁶ and vinegar. Give a pint of oil each a month. A peck of salt each a year is enough.

59. Clothes for the household. A 3 1/2 foot tunic and a coat every two years. When you give out a tunic or coat, take back the old, to make patchwork cloaks.¹⁶⁷ You can give a good pair of boots once every two years.

60. Food per year for a pair of oxen. 120 pecks lupin or 240 pecks acorn, [7000] *lb.* hay,¹⁶⁸ *ocinum*, 20 pecks beans, 30 pecks vetch (beside this, be sure to sow enough vetch to harvest the seed). When you sow fodder, have several sowings.

(164) *Compitalia*: see note at 5.

Saturnalia fell about two weeks before *Compitalia* in the calendar, on 17 December. Not too much is known of the *Saturnalia* of Cato's time; but three litres of wine per person is serious drinking. 'Our custom is that slaves dine together with their masters', said Accius (*Annales* 3 Dangel) of the *Saturnalia*. This was to become the greatest Roman popular festival, extending over several days of carnival, in which, famously, slaves and owners exchanged roles.

(165) The twelfth month is not covered, and the overall total is not in the manuscripts. Either Cato never filled these details in, or copyists have omitted them. The annual total would be between 6 and 7 *amphorae* or *quadrantalia* of wine (say, 150 to 175 litres) per person, in addition to the mildly alcoholic *lora* of which Cato does not trouble to recommend a quantity. In Italy now the average annual consumption of wine per person is nearer 75 litres, but beer, vermouths and spirits increase the total alcohol intake – and people engaged in hard physical work are likely to drink more than the average.

(166) *Hallec* was the residue from the fermenting of fish sauce (*garum*). It was a solid fish paste probably not unlike the strong-smelling *blachan* of modern Malaysia.

(167) On clothes see also 2 and II. Cato advises on where to buy them at 135.

(168) The manuscript reading is '580 *lb.*', evidently far too small. See Hamblenne in *Revue belge de philologie et d'histoire: antiquité* vol. 61 (1983), pp. 125–8.

Memoranda on Ploughing and Planting

61. How to farm a field? Plough it. And after that ...? Plough it. After that ...? Manure it.¹⁶⁹

If you turn the soil of the olive plantation very frequently and very deeply, you will plough out the smallest roots. If you do not plough well enough, the roots will come up and will thicken, and the strength of the olives will go into the roots.

When you plough the wheat field, plough well and in good weather. Never plough a cloudy furrow.

Otherwise, husbandry is: planting liberally, digging seedlings carefully, at the proper time, digging up as much of the roots as possible with the soil. And when you have covered up the roots again carefully, mulch well in, so that the water will not damage them.

When to plant olives? In a dry field, at sowing time; in a fertile field, in spring.

Note on Carts and Ropes

62. You should have as many carts as you have teams of oxen, mules, and donkeys.

63. The press rope should be 55 feet end to end.

Leather cart rope, 60 feet; reins, 26 feet.

Yoke ropes for a cart, 18 feet; shaft rope, 15 feet.

Yoke ropes for a plough, 16 feet; shaft rope, 8 feet.¹⁷⁰

(169) 'Chief rules of farming: choose the right time, break up the soil, see to manuring and irrigation, hoe early, harvest early' (*Fan Shêng-chih shu*, fragment 1.1). 'Who ploughs, asks for a harvest; who manures, begs for it; who cuts [i.e. prunes], compels it' (Columella 5.9.15).

(170) The instructions on the length of ropes are given in more detail, from the purchasing point of view, at 135. See notes there.

The Olive Harvest

64. When olives are ripe,¹⁷¹ they should be gathered as early as possible, and stand as little as possible on the ground or in the loft. On the ground and in the loft they deteriorate. The gatherers want there to be as many windfalls as possible, so that they gather more. The press workers want them to be in the loft as long as possible, to soften, which makes their work easier.¹⁷² Do not accept that oil yield increases with storage. The more quickly you make it, the better the work will go, and the higher will be the quantity and quality of oil from the same amount harvested. Olives that stay on the ground or in the loft will make less and poorer oil.

If possible, draw off the oil twice a day, because oil will be poorest if it remains too long with the *amurca* and the residue.

65. Make green oil as follows: Collect windfall olives as quickly as possible. If dirty, wash them, clear them of leaves and manure. Make oil one day or two days after picking.¹⁷³

Pick olives when black. The more bitter the olives you make oil from, the better the oil will be. It is most profitable for the owner if oil is made from ripe olives.

If there are frosts when you are harvesting olives, make oil two or three days after: add salt to these olives, if you wish.

Keep the press room and store as warm as possible.

66. Instructions to the overseer and decanter. Guard the store and press room carefully, make sure that the press room and store are entered as little as possible, and that it is as tidy and clean as possible. The oil wants no bronze vessels, and no olive stones! In either case the oil will have a bad taste.

(171) The olive harvest took place in November and early December (Columella 11.2.83; Palladius 11.10).

(172) But they could also be softened by steeping in hot water (see 13 and note).

(173) **Green oil** was a speciality of Casinum (Lucilius 961 M), one of the market towns listed at 135. It was properly made by picking unripe berries (Pliny 12.130). Cato suggests economizing by using only windfalls for this product, thus leaving the whole remaining crop to mature.

A lead cauldron should be placed in the tank for the oil to flow into. When the press workers are using levers, the decanter must continually dip oil with a dipper as carefully as possible, and not stop, and be careful not to take up any *amurca*. Take oil first into one tub, then into a second, and keep removing residue and *amurca* from these tubs. When you have taken the oil from the cauldron, drain off the *amurca*.¹⁷⁴

67. Instructions to the overseer in the press room, II. 'Those in the press room should use clean vessels and take care that the olives are well prepared and well dried. They should not chop wood in the press room. They should decant oil regularly. Give a pint of oil to each worker per pressing, as well as what is needed for the lamp. Remove residue daily. Take off the *amurca* till it fills the last tank in the store. Wipe the straining bags with a sponge. Decant the oil daily till it reaches the vat. Take great care that no one steals from the press room and store.'

68. When the harvest and the oil-making is done, raise the press-beams. Hang the press ropes, straps and hoisting ropes on the 'meat-rack' or on a press-beam. Put away the platens, crossbars, levers, rollers, straining bags, carrying-baskets, picking-baskets, ladders, props, everything that will be wanted again, in its proper place.

(174) *Amurca* (French *margines*) is sometimes called 'lees' in English: I have not used this word, to avoid association with wine-lees, a very different substance.

'The olive has two products: oil, which everyone knows, and *amurca*, of whose uses many are clearly ignorant, since they let it run off from their oil presses into the fields, not only blackening the earth but, if in sufficient quantity, making it sterile. Yet this watery fluid, in moderate quantities, has many uses, most especially in agriculture ... Its preparation: as soon as it flows off from the press it is boiled down to one-third, cooled, and sealed in jars' (Varro 1.55, 61). Cato gives numerous uses for *amurca* at 36, 69, 91-103, 128-130.

Recipes

For Coating Oil Vats

69. Coat new oil vats as follows. Fill with *amurca* for 7 days; top up the *amurca* each day. Then empty out the *amurca* and let dry. When dry:

Dissolve gum in water one day, dilute it the next. Heat the vat, not as hot as if you were going to pitch it: warm is enough: use kindling wood for heating. When it is moderately warm, pour in the gum and then spread it. If you mixed the gum correctly, 4 *lb.* gum is enough for a 50-*urna* vat.

*Medicines for Oxen*¹⁷⁵

70. Medicine for oxen. If you expect sickness, administer while still healthy: 3 crystals salt, 3 bay leaves, 3 stems leek, 3 cloves Levant garlic, 3 cloves garlic,¹⁷⁶ 3 grains incense, 3 whole plants savin, 3 leaves rue, 3 shoots white bryony, 3 white beans,¹⁷⁷ 3 live coals, 3 pints wine, all to be gathered, chopped

(175) Further veterinary prescriptions are given at 102–3. See Joanne H. Phillips, 'Cato on the prevention and treatment of animal diseases' in *Historiae medicinae veterinariae* vol. 6 (1981), pp. 57–60.

(176) **Levant garlic** or elephant or giant garlic (*Allium ampeloprasum*), Latin *ulpicum*, is a large, mildly flavoured relative of leek and garlic. **Garlic**, a much more important food plant, is Latin *allium*. **Leek** is Latin *porrum*.

Cato's passing mention of these three is a reminder that many kitchen garden plants are absent from his book. At 48, however, he refers in passing to the way that garlic is planted: clearly, everyone knew how garlic is planted. Writing at a later period, when Rome's culture was more urban and everyone did not know, Columella fills in the detail: '*Ulpicum*, sometimes called "Punic garlic", grows much larger than garlic. About 1st October its head is to be divided into cloves before planting. Like garlic, it has a number of cloves in each head. So that they will not rot in the winter rains, the cloves should be planted in ridges, like the ridges that farmers make in fields to limit waterlogging. In kitchen gardens such ridges are made on a smaller scale, and along their tops – their spines – the cloves of *ulpicum* or of garlic (which is grown in just the same way) are to be planted one palm apart' (Columella 11.3.21, abridged).

For the date at which garlic is to be planted, see 132.

(177) **Savin** (*Juniperus sabina*) is Cato's *herba Sabina*. **Rue** (*Ruta graveolens*), Latin *ruta*, a bitter-sweet leaf, was one of the most important flavourings in the Roman kitchen, required in almost every recipe in *Apicius*. **White bryony** (*Bryonia dioica*) is Latin *Vitis alba*, literally 'white vine'. **White beans**: if Cato's *fabuli albi* are a specific kind of legume (as they probably are) it is unidentified.

together and administered while raised off the ground, and the person administering it should not yet have eaten. Administer this potion to each beast daily for three days, and apportion it so that, with the three doses to each beast, all is used. Ensure that the beast and the person administering are both standing up, raised off the ground. Use a wooden dish.

71. If oxen become ill, administer at once one raw hen's egg, to be eaten whole. Next day, chop a head of Levant garlic in a *hemina* of wine, to be drunk complete. Chop in the open air; administer in a wooden dish, while the beast and the person administering are both standing up, raised off the ground, and while neither has yet eaten.

72. So that oxen do not wear down their hooves, anoint the base of the hoof with liquid pitch before you drive them anywhere by road.

73. Each year at the time when the grapes begin to change colour give the oxen a medicine to keep them healthy. Wherever you see a snakeskin pick it up and keep it so that you will have one when you need it for this. Snakeskin, emmer, salt, mother-of-thyme:¹⁷⁸ chop these all together with wine, and give to all the oxen to drink.

In summer, always take care that the oxen drink good pure water. It is essential that they be healthy.

(178) **Mother-of-thyme** or creeping thyme (*Thymus* spp.) is Cato's *serpullum*.

Bread and Cakes

74. Make kneaded bread¹⁷⁹ as follows. Wash hands and mortar thoroughly. Place flour in a mixing bowl, add water gradually, work nicely. When well worked, shape and bake under a crock.

75. *Libum* to be made as follows:¹⁸⁰ 2 lb. cheese well crushed in a mixing bowl; when it is well crushed, add in a *libra* of bread-wheat flour or, if you want it to be lighter, just half a *libra* of durum wheat flour, to be mixed well with the cheese; add one egg and mix all together well; make a loaf of this, with bay leaves under it, and cook slowly in a hot fire under a crock.

76. *Placenta* to be made thus: 2 lb. bread-wheat flour to make the base; 4 lb. flour and 2 lb. prime emmer groats¹⁸¹ to make the

(179) **Kneaded bread**, *panis depsticius*. Technical terms of this structure also occurred in the works of Chrysippus of Tyana, who wrote on bread and baking in a Latinized Greek and possibly worked in Roman Italy in Cato's time. A few of his recipes survive (Athenaeus 113a, 647c; Dalby, *Siren feasts*, pp. 164–5). There are close correspondences between Cato and Chrysippus: see subsequent notes.

On baking *sub testu*, under a crock (a shallow earthenware dome to be placed on the hearth under hot embers) see A. Cubberley, 'Bread-baking in ancient Italy: *clibanus* and *sub-testu* in the Roman world' in *Food in antiquity* ed. J. Wilkins and others (Exeter, 1995), pp. 55–68. Leon in 'Cato's cakes' had misunderstood the *testum* as being a covered casserole – but Leon is still well worth reading for other comments on these recipes. For an interpretation of the 'kneaded bread' recipe see Leon, pp. 216–7: 'the word *farina* as used here must mean meal, not flour'.

(180) For interpretations of the recipes for *libum* and *placenta* see Dalby and Grainger, pp. 92–6; Leon, 'Cato's cakes', pp. 217–9. 'Dry bay leaves must have been used ... green leaves would shrivel up and cling to the cake' (Leon).

Libum is common in Roman texts, where there are hints of quite different recipes. 'A basket of millet shall follow cakes [*liba*] made of millet, for the country goddess Vesta is cheered by this food more than by any other' (Ovid, *Fasti* 4.743–4). 'Next came in a cake made of milk, biscuit and honey: what Romans call *libon*' (Athenaeus 125f). *Libum* gradually came to mean 'offertory cake' in general: compare note at 134. See also André, *Alimentation*, pp. 211–212.

(181) *Placenta* is a Greek word (*plakounta*, accusative form of *plakous* 'cake'). 'The streams of the tawny bee, mixed with the curdled river of bleating she-goats, placed upon a flat receptacle of the virgin daughter of Demeter [honey, cheese, flour], delighting in ten thousand delicate toppings – or shall I simply say *plakous*?' 'I'm for *plakous*' (Antiphanes quoted by Athenaeus 449c).

A cake called *placenta* is found in many later Latin sources. The medical use of the word *placenta* is a modern extension of meaning: it had no such implications in classical texts.

Emmer groats: see note at 10.

layers. Turn the emmer into water: when it is really soft put it in a clean mixing bowl and drain well; then knead it with your hands, and when it is well worked add the 4 *lb.* flour gradually, and make into sheets;¹⁸² arrange them in a basket to dry out. When they are dry rearrange them neatly. In making each sheet, when you have kneaded them, press them with a cloth soaked in oil, wipe them round and damp them. When they are made, heat up your cooking fire and your crock. Then moisten the 2 *lb.* flour and knead it; from this you make a thin base. Put in water 14 *lb.* sheep's cheese, not sour, quite fresh; let it steep, changing the water three times;¹⁸³ take it out and squeeze it gradually dry with the hands; when properly dry put it in a mixing bowl. When all the cheese is properly dried out, in a clean mixing bowl knead it with the hands, breaking it down as much as possible. Then take a clean flour sieve and press the cheese through the sieve into the mixing bowl. Then add 4 1/2 *lb.* good honey and mix it well with the cheese. Then put the base on a clean table which gives a foot of space, with oiled bay leaves under it, and make the *placenta*. First place a single sheet over the whole base, then, one by one, spread the sheets [with mixture] from the mortar and add them, spreading them in such a way that you eventually use all the cheese and honey, and on the top put one more sheet by itself. Then draw up [the edges of] the base, having previously stoked up the fire; then place the *placenta* to cook, cover it with the heated crock, and put hot coals around and above it. Be sure to cook it well and slowly. Open it to check on it two or three times.

(182) These sheets are Latin *tracta*. 'Kapyria, which Romans call *trakta*: in these, mixtures of ingredients are placed, just as in a bread wafer' (Chrysippus of Tyana, *Bread-making*, quoted by Athenaeus 113d).

Tracta appear to belong in the ancestry of pasta: note that the same substance used here for sheets is shaped into ropes and balls in other recipes. For the later history see Pliny 18.106, then *Apicius* 4.3 and elsewhere, and compare C. Perry, 'What was *tracta*?' in *Petits propos culinaires* no. 12 (1982), pp. 37-9 followed by a note in no. 14 (1983).

(183) A reminder that cheese was stored in brine, as in Greece it still normally is. Such cheese must be washed to remove unwanted saltiness. 'Cheese keeps white in brine. Harder and sharper-tasting if smoked' (Berytius quoted in the *Geoponica* 18.19).

When it is cooked, remove it and coat in honey.¹⁸⁴ This makes a one-gallon *placenta*.

77. Make *spira* as follows. Taking quantities as required, proceed as for *placenta*, but shape differently. Spread the *tracta* on the base liberally with honey. Then work as if you were drawing out a rope; place them thus over the whole base neatly. Then complete as for *placenta*, and bake.¹⁸⁵

78. Make *scriblita* as follows. For the belt, the *tracta* and the cheese, proceed in the same way as *placenta*, but without honey.¹⁸⁶

79. *Globi* to be made thus:¹⁸⁷ mix cheese and emmer as above; make as many balls as you want. Put fat in a hot bronze pan: cook one or two at a time, turning them frequently with two sticks. When cooked remove them, coat in honey, roll in poppy-seeds, serve.

80. Make *encytum* in the same way as *globi*, except that you use a deep pierced dish with which you stream into the hot fat; form neatly as with *spira*, turn with two sticks and use these to present. Coat likewise. Allow to colour, but do not overheat.¹⁸⁸ Serve with honey or with *mulsum*.¹⁸⁹

(184) Lucilius (fragment 585) joked of 'the boy who licked the *placenta*'; compare Martial 5.39.

(185) *Spira* is known only from Cato and (via Athenaeus) Chrysippus; *scriblita* (78) is probably the *skirbaitis* of the Athenaeus manuscript (so Casaubon) and also is found in later Latin texts. 'With cheese, he says, are made the following *plakous*-like products: *enkhytos*, *skirbaitis* ... *Spira*: this also is made with cheese' (Athenaeus 647d: the reference is to Chrysippus of Tyana).

(186) 'A pair of scales, with a *scriblita* in one tray and a *placenta* in the other' (Petronius, *Satiricon* 35.4). 'The next dish was a cold *scribilita* and first-rate Spanish honey poured over' (ib. 66.3).

(187) '*Globi*, so called as swollen globes of flour' (Varro, *On the Latin Language* 5.107). This, for a Roman equivalent of doughnuts, is the only cake recipe with a Latin name (Leon, 'Cato's cakes', pp. 219–221). 'As above' means 'as for *placenta*'. Varro gives oil, not fat, as the deep-frying medium. In Petronius, *Satiricon* 1.3 a character talks of *mellitot verborum globulos*, 'honey-soaked doughnuts of eloquence'.

(188) 'Nowadays it's the cook who makes *enkhytoi* [and not the confectioner]' (Menander fragment 451 Körte quoted by Athenaeus 644c). The 'deep pierced dish' is to produce a rope-like stream of mixture, hence the comparison with *spira*. This will cook quickly, which is why Cato warns against overcooking (so Leon, 'Cato's cakes', p. 219).

(189) *Mulsum*: a honeyed, spiced wine served *en apéritif*, later also known as *conditum*. 'Making *konditon*: Washed, dried, finely ground peppercorns, 8 scruples [1/3 ounce]. Attic honey, 1 pint. Old white wine, 4 or 5 pints' (Democritus quoted in the *Geoponica* 8.31).

81. *Erneum*: like *placenta*. Make the same mixture as *placenta*; mix in a trough, pour into an earthenware *irnea* and submerge this in a bronze cauldron full of hot water. Cook over the fire. When cooked, break the *irnea*; set out.¹⁹⁰

82. Make *sphaerita* as follows. Like *spira*, but form thus: make balls, fist-sized, of *tracta*, cheese and honey. Arrange on the base, densely spaced: arrange as with *spira*, and cook in the same way.

An Offering

83. Make a dedication for the health of the oxen as follows.

To Mars and Silvanus, in the forest, in daytime, dedicate the following per head of oxen: 3 lb. emmer, 4 1/2 lb. fat, 4 1/2 lb. lean meat, 3 pints wine. You may place it all together in one jug; the wine, also, may be placed all in one jug. They may be offered by a slave or a free person. When they have been offered, they should be consumed, at once, on the spot. No woman must be present or see the rite.¹⁹¹

You may make this dedication each year if you wish.

Puddings and porridges

84. Make *savillum* as follows. 1/2 lb. flour, 2 1/2 lb. cheese, mix together as for *libum*; 1/4 lb. honey, 1 egg. Rub an earthenware baking dish with oil. When all ingredients are well mixed, place in the dish and cover the dish with a crock. Be sure to cook through in the middle, where it rises highest. When cooked, remove from the dish, spread with honey, sprinkle with poppy. Place briefly under the crock, then remove. Set out with dish and spoon.¹⁹²

(190) *Erneum* is apparently a dialect variant on the name of the narrow-necked vessel, *irnea*, which is used for this *bain-marie* method of baking.

(191) Mars was the great god of war; Silvanus was a god of the forest pastures. 'Under the authority of Silvanus no woman shall go down into the men's bath' (*Corpus inscriptionum latinarum* 6.570), the kind of rule that Romans later forgot (Plutarch, *Cato* 20.8).

(192) For an interpretation of this 'soufflé' recipe see Leon, 'Cato's cakes', p.220. *Savillum* apparently means 'little kiss'.

85. Cook Punic *puls* as follows.¹⁹³ Place 1 *lb.* emmer groats in water. Allow to soak well. Pour into a clean trough. Add 3 *lb.* fresh cheese, 1/2 *lb.* honey, 1 egg. Mix all together well and turn into a new cooking pot.

86. Make durum wheat *granea* as follows. You place 1/2 *lb.* clean durum wheat in a clean mixing bowl, wash well, thresh well and rinse well; then you place in a cooking pot with clean water and cook. When cooked you add milk gradually until the liquor thickens.

87. Make starch as follows. Clean bread wheat thoroughly, then place in a trough and add water twice a day. On the tenth day, drain and dry thoroughly and mix well in a clean trough and allow the product to form. Place this in a new linen cloth, and strain the liquor into a new baking-dish or a mixing bowl. Repeat the whole process and make more starch. Place the baking-dish in the sun and allow to dry. When dry, place in a new cooking pot. Cook with milk.¹⁹⁴

Salt

88. Make white salt as follows. Fill a broken-necked amphora with clean water, place in the sun. Suspend in it a strainer of ordinary salt. Agitate and refill repeatedly: do this several times a day until salt remains two days undissolved. A test: drop in a dried anchovy or an egg. If it floats, the brine is suitable for steeping meat, cheese or fish for salting. Put out this brine in pans or baking dishes in the sun, and leave in the sun until crystallized. This gives you 'flower of salt'. When the sky is cloudy, and at night, put indoors; put in the sun daily when the sun shines.

(193) Punic *puls* was a rich variant on *puls*, the old Roman staple, emmer porridge, so well known that no surviving author felt the need to write down a recipe.

(194) No other Roman authors describe a dish of this kind, but starch was important as a thickening agent: *Apicius* 2.2.7-9 and elsewhere; André, *Alimentation*, p. 57.

Force-Feeding Poultry

89. Force-feed chickens and geese as follows.

One shuts in young chickens that have just begun to lay. One makes cakes of moistened fine wheat flour or barley flour, dips them in water, and puts them in the mouth, increasing gradually day by day, judging from the gullet what is a sufficient amount. One force-feeds twice a day and gives water at midday. Water should not be allowed for more than an hour.¹⁹⁵

Feed geese in the same way, but give water first, twice daily, before food.

90. After catching a young wood-pigeon, first feed roasted cooked beans, puffing them from one's mouth into the bird's mouth, and give water similarly. Do this for seven days. After that, husk split beans and emmer: let the beans, a third of the whole, boil, then turn the emmer in. Do it cleanly and cook well. When removing, knead well, rubbing the hand with oil. Knead a little bit first, then more. Sprinkle on and knead in oil till you can make pellets. Give these, dipped in water, and regulate the dose.

Uses for *Amurca*¹⁹⁶

91. Make a threshing floor as follows.¹⁹⁷ Dig over the site, then drench with *amurca* and allow to soak in, then break up the ground thoroughly. Then level, and pound with a rammer. Finally drench again with *amurca* and allow to dry. If you make it in this way, ants will not damage it and weeds will not grow.

92. So that weevils will not damage the grain and mice will not attack it: Make a mixture with *amurca*: add a little chaff, allow to soak thoroughly and turn over. Coat the whole granary thickly with this mixture. Then sprinkle *amurca* on the whole area

(195) 'Force-fed from new moon -- a date that is to be carefully observed -- they are good and fat by the twentieth ... The period of fattening should never exceed the 25th day of the lunar month. It is a venerable rule that the fattest chickens go to the fanciest dinners, and so labour and expense earn their due reward' (Columella 8.7.5, with further details).

(196) See note at 66. Additional uses are given at 36, 69, 128-130.

(197) Repeated, with variations, at 129.

thus covered. When it has dried, cool grain may be stored here and weevils will not damage it.¹⁹⁸

93. If an olive tree does not fruit. Trench round it and lay straw around. Then mix *amurca* with water in equal parts and pour around the tree. One *urna* of mixture is enough for the biggest tree: take in proportion for smaller trees. If you give the same treatment to trees that do fruit, they too will improve;¹⁹⁹ but do not give them straw.

94. So that figs will keep their early fruit. Do the same as with olives, and also, as spring approaches, build up the earth well around the tree. If you do this, the fruit will not fall while unripe, the figs will not be scabby and the trees will be much heavier bearing.

95. So that vines will not have caterpillars. Store *amurca*. Make it thoroughly clean. Put 2 *congi* in a bronze vessel. Boil over a slow fire, stirring frequently with a small stick, until it reaches the consistency of honey. Then take 1/3 pint bitumen and 1/4 pint sulphur and grind each separately in a mortar. Then crumble as finely as possible into the hot *amurca*, while stirring with the stick, and boil again in the open air (because, if you boil indoors, when bitumen and sulphur are added it will catch fire). When it is as thick as birdlime, allow to cool. Coat the vine with this around the 'head' and under the 'arms', and no caterpillars will come.

96. So that sheep will not be scabby. Store *amurca*. Make it thoroughly clean. Mix together with equal parts of water in which lupins²⁰⁰ have boiled and of the lees of good wine. Then, after shearing, coat them all over in the mixture; leave them in sweat two or three days, and then wash in the sea, or, if you have no sea

(198) Columella (1.6.12-14) recommends mixing *amurca* in the composition floor (*Signinum opus*) of the granary and in a coating on the walls. He suggests dried oleaster or olive leaves rather than chaff.

(199) A similar prescription at 36. Columella (5.9.14) recommends 1 *congius* of unsalted *amurca* per tree.

(200) See 10, 54 and notes.

water, make up salt water and wash in this. If you do this they will not be scabby and will have more and better wool, and ticks will not attack them.

Use the same mixture for all quadrupeds if they are scabby.

97. Coat axles, leather straps, footwear and all leather goods with boiled-down *amurca* to improve them.

98. So that moths will not attack clothes. Boil *amurca* down to half, and with it coat the bottom, the outside, the legs and the edges of the chest. Clothes may be stored in it once it has dried.

If you treat all wooden furniture in this way, it will not rot. Rubbed with this, it will be shinier.

Coat all bronze items similarly, but clean them thoroughly first, then apply; and clean them when you come to use them. They will be shinier, and will not be attacked by verdigris.

99. If you want dried figs to keep whole, conserve them in an earthenware vessel and coat it with boiled-down *amurca*.

100. If you are to put oil in a new jar,²⁰¹ rinse it first with *amurca* just as it comes, raw; shake very thoroughly so that it soaks in. If you do this, the jar will not soak up oil, the oil will be better and the jar itself stronger.

101. If you wish to keep myrtle twigs with their berries, and similarly any other species, and if you want fig branches with their leaves. Tie together into bundles, and submerge in *amurca*, ensuring that they are completely covered. What you are to conserve in this way should be picked a little unripe. The vessel you use must be fully sealed.

More Medicines for Oxen

102. If a snake has bitten an ox or any other quadruped, grind an *acetabulum* of love-in-a-mist (the one that physicians call *zmurnaeum*)²⁰² into a *hemina* of old wine. Administer through the

(201) The jar here is Latin *metreta*. When used as a measure of quantity this equalled 1 *amphora*.

(202) This is *nigella* seed (*Nigella sativa*), an Oriental relative of love-in-a-mist (*Nigella damascena*): see Dalby, *Siren feasts*, p. 139.

nostrils, and apply pig dung to the actual bite. If need arises, use the same remedy for a human victim.

103. So that oxen will be healthy and well-kept and so that any that are refusing food will be more inclined to feed. Sprinkle the fodder you give them with *amurca*, a little at first, so that they become used to it, then more. On occasion give it to them to drink, mixed half-and-half with water: do this every fourth or fifth day.²⁰³ The oxen will be better-kept physically and will be free of disease.

Wine and Wine Products

104. Wine for the household to drink during the winter.²⁰⁴ Put 10 *quadrantals* must in a vat and add 2 *quadrantals* sharp vinegar, 2 *quadrantals* grape syrup, 50 *quadrantals* pure water. Mix with a stick three times a day for 5 consecutive days. Add 64 pints old sea water, put the lid on the vat and seal after 10 days. This wine will last you till the solstice. If any remains unused after the solstice, it will make very sharp and very good vinegar.

105. At a farm that is very distant from the sea, make Greek Wine as follows.²⁰⁵ Pour 20 *quadrantals* must into a bronze or lead vessel and light a fire underneath. When the wine boils remove the fire, and when the wine is cool pour it into a forty-*urna* vat. Into another vessel pour 1 *quadrantal* pure water with 1 peck salt, and allow to form brine. When dissolved, add to the vat. Grind together in a mortar camel's-hay and sweet reed to make up 1 pint. Add this to the vat to give aroma. After 30 days, seal the vat. In spring decant into amphoras. Leave in the sun for two years, then bring indoors. This wine will be no worse than Coan.

106. Manufacture of sea water. Take 1 *quadrantal* sea water from deep sea where fresh water does not reach. Roast 1 1/2 *lb.* salt, add, stir with a stick till a boiled hen's egg will float in it:

(203) Columella (6.17) recommends a different selection of herbs.

(204) An alternative to *lora*, for which brief instructions are given at 25.

(205) Compare the briefer instructions for Greek Wine at 24.

then stop stirring. Pour in 2 *congi* of old wine of *aminia* or white *miscella* varieties. Stir vigorously. Then pour the whole into a pitched vessel and seal. If more sea water is wanted, make in the same proportions.

107. For coating the lips of vats so that they will be sweet-smelling and so that the wine does not spoil. Pour 6 *congi* of the finest grape syrup into a bronze or lead vessel. Grind as finely as possible 1 pound dried iris and 5 *lb.* melilot together with the iris, sieve, boil with the grape syrup over a light fire of canes. Keep stirring: do not allow to burn. Boil until reduced to half. When cool, pour into a sweet-smelling pitched vessel, seal, and use for the mouths of vats.

108. If you want to tell whether a wine will keep or not, put a half-*acetabulum* of large pearl barley²⁰⁶ in a new cup, pour a pint of the wine you want to test on to this, and heat over charcoal. Allow to come to the boil two or three times. Then filter; discard the barley, and leave the wine in the open air. Taste on the following morning. If it tastes the same as what is still in the vat, you know that it will keep. If it is rather sour, it will not keep.

109. If you want to make a harsh wine mild and pleasant, do as follows. Make 4 *lb.* flour of bitter vetch and add 4 *cyathi* wine and a dash of grape syrup. Form lozenges. Leave them to harden for a night and a day, then mix with the wine in its vat. Seal after 60 days. The wine will be mild and pleasant, with good colour and good bouquet.

110. To remove a bad aroma from wine. Heat thoroughly in the fire a clean, thick roof tile. When hot, pitch it and tie it to a string. Lower the tile slowly to the bottom of the vat and leave two days, with the vat sealed. If the bad aroma is removed, good. If not, repeat frequently until you have removed the unwanted aroma.

(206) Pearl barley, and a porridge made from it, are Latin *polenta*. The word retained the same meanings in early Italian (and in early English) until maize came to replace barley in this role in modern times.

III. If you want to know whether water has been added to wine or not, make a small cup of ivy wood. Pour into it the wine that you think contains water. If it does, the wine will soak away and the water will remain, because an ivy cup will not hold wine.

Coan Wine

II2. If you want to make Coan Wine.²⁰⁷

Take sea water from deep sea, where fresh water does not reach, 70 days before the vintage at a time when the sea is calm and there is no wind. When you have taken it from the sea, put it in a vat; do not fill it: it must be 5 *quadrantals* short of full. Cover with a lid, but allow to breathe. After 30 days, decant cleanly and smoothly into another vat, leaving behind any deposit. After 20 days, decant again into another vat, and leave until the vintage.

Leave on the vine the grapes from which you are to make Coan Wine: allow them to ripen fully. After rain, and after they have dried off, gather, and place in the sun so long as there is no rain. If there is rain, place on drying mats indoors. Pick off any spoilt berries.

Then take the above sea water. Pour 10 *quadrantals* sea water into a 50-*urna* vat. Pick from their stems the berries of *miscella* grapes into this vat till it is full. Press the berries by hand, so that they will soak up the sea water. When you have filled the vat, cover with a lid but allow to breathe. After 3 days remove from the vat, tread in the press-room,²⁰⁸ and store the wine in fine, clean, dry vats.

II3. So that it will have a good bouquet, do as follows. Take a pitched tile, and put on it a little hot charcoal, scenting with melilot, camel's-hay and ben-nut. Put in the vat and close, so that the aroma does not escape before you put the wine in. Do this on the day before you are to fill with wine.

(207) 'The Coans add sea water rather generously to their wine' (Pliny 14.78). The wine of Cos was popular in late Hellenistic and Roman times and was widely imitated: the counterfeiting no doubt ran parallel to the production of 'Coan amphorae', a considerable industry under the early Empire.

(208) See note at II.

Take wine from the tank into the vats as promptly as possible. Leave covered 15 days before sealing: allow to breathe; then seal. After 40 days, decant into amphoras and add 1 pint grape syrup to each amphora. Do not fill the amphoras too full, just to the base of the neck. Place the amphoras in the sun, where there is no vegetation, and cover the amphoras so that water does not get in.

Do not leave them in the sun more than four years. After four years, bottle and seal with wax.

*Purges with Hellebore*²⁰⁹

114. If you want to make up a wine to do the bowels good. After harvest, when the vines are trenched, judge how many will be enough to make the following wine, trench round them, and mark them. Cut round their roots and weed them. Grind hellebore roots in a mortar: put this around the vine, and add one part old dung and old ash and two parts earth. Cover with earth. Harvest this wine separately, and, if you want to keep this wine to do the bowels good in long term storage, keep it separate from other wine. Take a *cyathus* of this wine, mix it with water and drink before dinner: it will move the bowels and have no ill effect.

115. Put a bundle of black hellebore into wine must in an amphora. After sufficient fermentation, take out the bundle. Use this wine to move the bowels.

To make up a wine to move the bowels. When the vines have been trenched round, mark with dye, so as not to mix with ordinary wine. Place three bunches of black hellebore around the roots and cover with earth. At vintage, keep aside what you gather from these vines. Add 1 *cyathus* to other drink: it will move the bowels, purging you thoroughly on the day after, with no ill effect.

(209) The first and third recipes are very similar. For further medical prescriptions, herbal and magical, see 122-3, 125-7, 156-160. See Boscherini, 'Medicina'. On the reason for Cato's inclusion of medical prescriptions, see the introduction, p. 20.

Conserving Lentils and Olives

116. How you should preserve lentils. Dissolve silphium in vinegar, soak the lentils in the silphium-vinegar,²¹⁰ and stand them in the sun. Then rub the lentils with oil, let them dry, and they will keep quite sound.

117. How green olives are conserved.²¹¹ Before they turn black, they are to be broken and put into water. The water is to be changed frequently. When they have soaked sufficiently they are drained, put into vinegar, and oil is added. 1/2 lb. salt to 1 peck olives. Fennel and lentisk are put up separately in vinegar. When you decide to mix them in, use quickly. Pack in preserving-jars. When you wish to use, take with dry hands.²¹²

118. Conserve green olives that you wish to use after the vintage thus: add equal parts must and vinegar; otherwise, conserve as described.²¹³

(210) *Silphium* is Cato's *lasericum*. This was the extinct spice once exported by the Greek-Libyan city of Cyrene. Its nearest modern relative is asafoetida or hing (*Ferula asafoetida*), native to Afghanistan. See papers by A. Arndt, A. Dalby and H. Saberi in *Spicing up the palate: proceedings of the Oxford Food Symposium 1992* (Totnes, 1993). (211) Unripe olives conserved in this way remain a Mediterranean delicacy. It is necessary to break the olives and to rinse them assiduously to remove the bitter principle now known as oleocypsin. See also 7.

(212) Similar recipes are given by Columella 12.49.4, 12.50.4; but it is odd to instruct, as Cato does, that the flavourings should initially be conserved separately. *Fennel* (*Foeniculum vulgare*) is Latin *feniculum*. The lentisk tree (*Pistacia lentiscus*) is Latin *lentiscus*. According to Columella, it was the seed of these two species that was used in preserving olives (one might have expected *mastic*, the resin of the lentisk tree). For a use of fennel root compare 127.

'Taking large perfect olives, picked by hand, cut them round with a sharp reed and put them in a new jar, not yet pitched, sprinkling on top a very little salt, and when it has dissolved have ready another jar, with honey if available, if not, grape syrup and a lemon leaf, and put the olives into this marinade so that it covers them. Some add fennel seed, caraway, parsley seed and dill to this marinade, and make a quite remarkable olive conserve, which is unfamiliar to many' (Florentinus quoted in the *Geoponica* 9.28).

(213) 'Picking green olives they soak them in sea water for 6 days. Then they put them in a jar and pour fresh must in, but they do not completely fill it or the must would overflow in fermenting; after fermentation they seal it. Others put in a handful of salt before the must, and then the olives, and seal when it has fermented' (Florentinus quoted in the *Geoponica* 9.30).

119. Green, black or mixed olive relish to be made thus. Remove stones from green, black or mixed olives, then prepare as follows: chop them and add oil, vinegar, coriander, cumin, fennel, rue, mint.²¹⁴ Put in a preserving-jar: the oil should cover them. Ready to use.

Must and Must Cakes

120. If you want to have grape juice all year, put must in an amphora and seal the cork with pitch. Submerge in the fish-pond. Take out after 30 days. It will remain unfermented all year.

121. Must cakes to be made thus: two gallons of bread-wheat flour to be moistened with must; add to this anise, cumin, 2 lb. lard, 1 lb. cheese, and grate in the bark of a bay twig; when you have shaped them, put bay leaves under them while you cook them.²¹⁵

Two Medicines, and a Note on Dogs

122. To make up a wine for if urine is difficult to pass. Grind *capreida*²¹⁶ or juniper berries in a mortar. Add 1 lb. to 2 *congi* old wine. Bring to the boil in a bronze or lead vessel. When it has cooled, bottle. Take 1 *cyathus* in the morning before eating. This will work.

123. Make a wine for gout sufferers as follows. Break up finely juniper wood 6 fingers thick. Bring to the boil in 1 *congius* old wine. When it has cooled, bottle the whole. Afterwards take 1 *cyathus* of this wine in the morning before eating. This will work.

124. Dogs should be shut in during the day to make them fiercer and better guards at night.

(214) *Coriander*, Latin *coriandrum*; *cumin*, Latin *cuminum*; *mint*, Latin *menta* – three important Mediterranean aromatics. *Anise*, Latin *anesum* (121) was less common: it was native to western Anatolia.

Olive relish, Latin *epityrum*, was a speciality of Sicilian origin according to Varro, *On the Latin Language* 7.86.

(215) Centuries later, *Apicius* (7.9.3) would recommend the serving of must cakes, *mustea*, to soak up some of the sauce in a recipe for shoulder of pork (Dalby and Grainger, pp. 109–111).

(216) It has been suggested that *capreida* is capers (*Capparis spinosa*). The word is similar to two of the alternative names given by Dioscorides (2.173) for this herb.

More Medicines

125. You make myrtle wine as follows. Dry black myrtle berries in the sun. When dried, keep till the vintage. Grind 1/2 peck myrtle into 1 *urna* must. When the must has stopped fermenting, remove the myrtle and seal. This serves for indigestion and for pain in the side and in the stomach.

126. For colic and if the bowels are loose, and in case of an attack of tapeworms or *lumbrici*.²¹⁷ Take 30 sour pomegranates, mash, put in a pitcher with 3 *congi* dry red wine. Seal the container. After 30 days open and use. Drink 1 *hemina* before breakfast.

127. To cure indigestion and retention of urine.²¹⁸ When the pomegranate is in flower, gather and put 3 pounds in an amphora. Add 1 *quadrantal* old wine and 1 pound cleaned mashed fennel root. Seal the amphora. After 30 days, open and use. When you want to digest your food properly and to pass water, you can drink as much as you like of this without ill effect.

The same wine purges tapeworms and *lumbrici* if you make it up as follows. The patient is to avoid dinner. On the following day, grind 1 dram incense, 1 dram boiled honey, 1 pint oregano wine. Administer before breakfast. For a child take 1/2 dram of each and 1 *hemina* wine; adjust to age. The patient to climb on to a post, to jump off, ten times, and to take a walk.

More Uses for Amurca

128. To make a clean floor for living quarters. On to soil as alike as possible to chalk or red earth, pour *amurca* and then spread straw. Leave to soften 4 days. When quite soft, break up with a shovel. As you break up, form your floor. Spillages will not damage it, mice will not make holes, weeds will not grow and the floor will not crack.

(217) *Lumbrici* are apparently a second kind of intestinal worm, not precisely identified.

(218) For these symptoms Cato uses the Greek medical terms *dyspepsia* and *stranguria*. Aiming at a similar formality I use Latinate terms in the translation.

129. Make a threshing floor as follows.²¹⁹ Dig the earth thoroughly, drench well with *amurca* and allow it to soak in as much as possible. Break up the earth and level with a roller or a tamper. After levelling, ants will not attack it and, when it rains, mud will not form.

130. Drench chopped olive wood and other firewood with raw *amurca* and place in the sun. Let it soak in well. After this they will not be smoky and will burn well.

Rituals and forms of contract

The Feast for the Oxen

131. When the pear blossoms, make the Feast for the Oxen. After that, begin the spring ploughing. First plough the fields that are gritty and sandy; thus plough last those that are heaviest and wettest.²²⁰

132. The Feast may be performed as follows.

Present a *culigna* of wine, as much as you wish, to Festive Jove.²²¹ The day is holiday for the oxen, the oxherds, and those who perform the Feast. When you are to present, you do so thus:

‘Festive Jove, my household brings a *culigna* of wine to the Feast, as is proper in your domestic worship. Therefore accept the presentation of this Feast of ours.’ Wash your hands, and take the wine. ‘Festive Jove, accept the presentation of our Feast, accept our offertory wine.’

Offer to Vesta if you wish. The Feast to Jove: a roast from herd or flock;²²² one *urna* of wine. You should share with Jove with proper purity and with the touch of your own hand.

(219) A repetition, with variations, of 91.

(220) A repetition of part of 50; but chapter 132 is new.

(221) Jove (Jupiter), greatest of the gods, personified sky and weather: Juno (134), Jove’s wife and sister, was a goddess of childbirth. Vesta was goddess of the hearth. *Culigna* ‘kind of cup’ is a Greek word in origin, evidently naturalized in Cato’s Campania, unfamiliar to later Romans.

(222) A possible meaning for the phrase *assaria pecuina*. The manuscripts have *pecunia*, which might be translated ‘monetary value of one as’.

Then, once the Feast is performed, sow broomcorn millet, foxtail millet, garlic, lentil.²²³

Note on Layering

133. Layering of fruit trees and other trees.²²⁴

Tree suckers that grow from the ground should be layered to the ground and turned up at the extremity so that they can take root. Then, when the time comes, dig them up and plant them out. Fig, olive, pomegranate, *strutea* quince, *cotonea* quince and all other apples, Cyprian bay, Delphic bay, plum, *coniuolum* myrtle²²⁵ and white and black myrtle, filbert, hazelnut, plane: all these kinds can be layered from the root and dug up in this way.

Those that you wish to plant more carefully can be planted in pots. So that they take root on the tree, take a pierced pot or a planting basket and thread a small branch through it. Fill the basket with earth and press it down. Leave it on the tree. After two years, sever the young branch below and plant it out with its basket. You can do this with any kind of tree to ensure good rooting.

Also layer a vine in a basket, covering well with earth: sever the next year; plant with its basket.

Sacrifice of the Harvest Sow

134. Before you harvest, you may do sacrifice of the Harvest Sow, in the following way.

A female piglet, the Harvest Sow is offered to Ceres before the following crops are put up: emmer, wheat, barley, broad bean, rapeseed. With incense and wine address Janus,²²⁶ Jove and Juno before you slaughter the female pig. Offer a *strues* to Janus thus:

(223) Millet: note at 6. Garlic: note at 70. Lentils: note at 116.

(224) A repetition with minor variants of 51-2.

(225) See note at 8.

(226) "Then I said, "Why, whatever the god to whom I may be praying, do I offer the incense and the pure wine to you, Janus, first of all?" "So that through me, the guardian of thresholds, you may have access to the presence of any god you please"" (Ovid, *Fasti* 1.171-4). Ovid also tells a story to explain why Ceres, goddess of the harvest, demands the sacrifice of a *porca* (ib. 349-354); see J. G. Frazer's note on this passage (*The Fasti of Ovid*, vol. 2 [Macmillan, 1929], pp. 151-2).

'Father Janus, as I offer you this *strues*, I pray with good prayers that you be ready and favourable to me and my children, to my house and household.'

Offer and present a *fertum* to Jove thus:

'Jove, as I offer you this *fertum*, I pray with good prayers that you be ready and favourable to me and my children, to my house and household, accepting this *fertum*.'

Then give wine to Janus thus:

'Father Janus, since in offering you a *strues* I prayed well with good prayers, therefore accept this offertory wine.'

Then to Jove thus:

'Jove, accept this *fertum*, accept this offertory wine.'

Then slaughter the Harvest Sow. When the organs are cut out, offer and present a *strues* to Janus as you did before; offer and present a *fertum* to Jove as you did before; give Janus wine and give Jove wine as you gave it before on account of the offering of the *strues* and the slicing of the *fertum*.²²⁷

Then give the organs and the wine to Ceres.

Where to Buy Equipment

135. At Rome: tunics, togas, coats, patchwork cloaks, boots.

At Cales and Minturnae: hoods, iron tools: knives,²²⁸ spades, mattocks,²²⁹ axes, harness, *murices*,²³⁰ chains.

(227) "'An altar was placed for me, attached to a little shrine. In its flames are consumed the grains of emmer and the *strues*'" (Ovid, *Fasti* 1.275–6: the speaker is Janus).

'*Strues* are kinds of offertory cakes [*libum*], with a resemblance to joined fingers: inside them are bread-sticks crossed over' (Festus, *On the Meaning of Words*, p. 310 M). *Strues* also meant simply 'a heap' in classical Latin. '*Fertum* is the name of a kind of cake frequently offered in rituals, always alongside *strues*, which is another kind' (Paulus, *Excerpts from Festus*, p. 85 M).

(228) *Falces*, 'knives' covers scythes, sickles and several other specific types listed at 10–11.

(229) *Ligones*, 'mattocks' covers various hoes and drag-hoes listed at 10–11, 155.

(230) Goujard takes these to be 'bits'; 'traps' (for predators) also seems possible. In other texts the word means 'shellfish'; also, in military use, 'caltrops'.

Minturnae: see Arthur, *Romans*, pp. 37–9, 44–5, 48–52; Frayn, *Markets*, pp. 39–40, 46–9.

At Venafrum: spades.²³¹

At Suessa and in Lucania: carts.

At Trebla Alba and Rome: vats, tubs.²³²

Tiles from Venafrum.

Roman ploughs will be good for vigorous soil, Campanian ones for grey earth.²³³ Roman yokes will be the best. A detachable ploughshare will be the best.

Olive crushing mills at Pompeii, Nola and at the wall of Rufrium.²³⁴

Locks, keys and bolts at Rome.

Buckets, oil urns, water pitchers, wine urns and other bronze vessels at Capua and Nola.

Campanian straining bags are useful ...²³⁵

(231) **Venafrum** occurs several times in *On Farming* and may well be the place where Cato himself had a farm. It lay close to a highway that ran from Rome to Capua and on into Lucania, serving inland Latium and Campania. The towns named in this chapter either are within a day's walk of Venafrum or are on this road (though Pompeii and Nola are on different branches of it). Cato did not, apparently, send his people shopping in Samnium (no places north of Venafrum are named) nor to the fleshpots of Naples and Puteoli.

(232) There were two places near Venafrum called Trebla: Cato distinguishes one of them as 'White Trebla', and it is probably the hill village in the Monte Maggiore, north of Capua, now called Treglia, well known for its wine in Roman times (Pliny, *Natural History* 14.69). The other was further south, near Suessula. But the passage has been punctuated and interpreted quite differently by some: '... carts, drags. At Alba and Rome: vats ...' As a general term for 'drag', *trebla* (classical Latin *tribulum*, Italian *trebbia*, Spanish *trilla*) would cover the harrow and hurdles of 10 and elsewhere. See E. Vetter, 'Zu *De re rustica* 135.1' in *Wiener Studien*, vol. 55 (1937), pp. 190–193.

Suessa (its official name was Suessa Aurunca): see Arthur, *Romans*, pp. 37–8, 50–53.

(233) **Grey earth**: see 34 and note. 'The second type of **ploughshare** is the ordinary one, a bar sharpened to a point like a beak. A third type, for use in light soils, does not extend along the whole length of the share-beam, but has only a small spike at the extremity' (Pliny 18.171). This, I suggest, is the difference between Cato's Rome-bought and Campania-bought ploughs. White's view (*Implements*, p. 132) that the Campanian kind had no iron share at all does not go well with the rest of this paragraph or with the specification of 'ploughs with ploughshares' at 10. But 10 does certainly show that ploughs without ploughshares, relying simply on the wooden sole or share-beam, were in current use.

(234) Details of this purchase at 22: on the wall of **Rufrium** see note there.

Pompeii as a market centre: see Jean Andreau, 'Pompéi: enchères, foires et marchés' in *Bulletin de la Société Nationale des Antiquaires de France*, vol. 9 (1976), pp. 104–126. **Nola**: Frayn, *Markets*, pp. 41, 87–9.

(235) The thought is completed, apparently, at 153.

Hoisting ropes and all goods made of esparto at Capua.²³⁶

Roman straining bags at Suessa and Casinum – but the best will be at Rome.

Who makes press ropes? L. Tunnius at Casinum; C. Mennius, son of Lucius, at Venafrum.

The press rope requires 8 good fresh local skins, well curried, with as little salt as possible. They must be curried and rubbed with fat, then dried. The rope should start out 72 feet long, and should have three knots, 9 straps to each knot 2 inches wide. Length when twisted, 49 feet. 3 feet will go in the joins: remainder, 46 feet. When stretched, 5 feet added: length 51 feet.

A press rope should be 55 feet long, stretched, for the largest equipment, 51 feet for smaller.

Normal leather cart rope, 60 feet; half-rope, 45 feet.

Reins for a cart, 36 feet, for a plough, 26 feet.

Traces, 27 1/2 feet.

Yoke ropes for a cart, 19 feet; shaft rope, 15 feet.

Yoke ropes for a plough, 12 feet; shaft rope, 8 feet.²³⁷

Specifications for Olive Crushing Mills

Largest crushing mills, 4 1/2 feet wide. Millstones 3 1/2 feet high. When the millstones come from the quarryman they should be 1 foot 1 palm thick in the middle. Between the pivot and the lip, 1 foot 2 fingers. Lips 5 fingers thick.

A second olive crushing mill, 4 feet 1 palm wide. Between the pivot and the lip, 1 foot 1 finger. Lips 5 fingers thick. Millstones 3 feet 5 fingers high, 1 foot 3 fingers thick.

The axle slots in the millstones 1/2 foot square.

(236) **Esparto**: see note at 3. Such goods included ropes (3), protective covers for wine jars and possibly strainers for wine-lees (II) and shoes (Columella 6.12.2).

Capua as a market centre: see Frayn, *Markets*, pp. 39–46, 79–87.

(237) These instructions on the length of ropes, from the purchasing point of view, expand slightly on what is said at 63, with minor variations. Although horses are listed there as possible draught animals, the assumption elsewhere in Cato's book is that this work is done by oxen. Harness for horses was at a primitive stage: if there was too great a weight to pull, the ropes pressed on the horse's windpipe.

A third olive crushing mill 4 feet wide. Between pivot and lip, 1 foot. Lip 5 fingers thick. Millstones 3 feet 3 fingers high, 1 foot 2 fingers thick.

When the mill is carted in, set up and adjust at the spot where you will locate it.

Payment in Kind for Harvesting

136. Calculation of harvesting work in Casina and Venafrum country.²³⁸ In good land, give an eighth by the basket;²³⁹ fairly good, a seventh; third-rate, a sixth; if [threshed] grain is shared, a fifth by the peck. In Venafrum country the best land gives a ninth by the basket. If there is a communal mill, then, whatever proportion is allowed to the jobber, the jobber allows the same proportion to the mill. Barley a fifth by the peck; beans a fifth by the peck. **137.** 'To avoid damage to the vineyard; carefully to avoid damage to the farm, the orchard, the grain field. Share-harvester is to be allowed hay and fodder sufficient for actually working oxen. Other produce, equal use.'²⁴⁰

Note on Ritual Holidays

138. Oxen may be yoked on holidays. They can do the following: cart wood, beanpods and grain that is not for sowing.

No holidays for mules, horses or asses, except those special to the household.²⁴¹

(238) On the work of the *politor* 'jobbing harvester' see R. Goujard, 'Politio'.

(239) *Corbis* (here) is a 'measured basket of wheat'. Cato's term for the big carrying-baskets used for bringing in the harvest is *corbula*.

(240) **137** is usually understood (and is presented in the manuscripts) as a separate contract for share-cropping of grapes. Had Cato envisaged this procedure, he would have had to treat it at greater length. I read **137** as a regulation appended to **136**, intended to protect the farm against incidental damage by the contractor who harvests its grain or legumes.

(241) 'I have read in the priests' books that mules may not be harnessed at the *Denicales*, but on other holidays they may' (Columella 2.21.5, *Denicales* being the days required to purify a household in which a death has occurred).

*Expiation for Clearing and Ploughing a New Field*²⁴²

139. To open up a clearing, you must use the Roman rite, as follows. Do sacrifice of an expiation piglet, and say it thus:

‘Whatever god, whatever goddess you may be to whom this place is sacred, since it is proper to sacrifice the expiation swine for the taking of this sacred place, therefore, may what I do or what another by my order does be rightly done. Therefore in slaughtering for you this expiation swine I pray with good prayers that you be willing and favourable to me, to my house and household and to my children; wherefore, accept the slaughter of this expiatory piglet.’

140. If you want to dig there, do another Expiation. Say explicitly ‘for the purpose of working the land’. Then do some of the work on each consecutive day till all is done. If you interrupt it, or public or household holidays intervene, you must do another Expiation.

141. You must consecrate the field as follows. Instruct Pig, Sheep and Ox²⁴³ to be driven all around:

‘So that under the favour of the spirits all may turn out well I entrust to you, (Manius),²⁴⁴ to consecrate by your care my farm, field and land; driving or drawing Pig, Sheep and Ox thereupon, wherever you may determine.’

First invoke Janus and Jove with wine, and say:

‘Father Mars, I ask and pray that you be ready and favourable to me, our house and household. Wherefore I have ordered Pig, Sheep and Ox to be driven all around my field, land and farm, so that you will prevent, ward off and avert sicknesses seen and unseen, childlessness and fruitlessness, disaster and storm; so that you will permit fruits, grains, vines and saplings to flourish and come to fruition; so that you will keep safe shepherds and flocks

(242) Cato will certainly have done this himself (see his speech quoted on p. 8).

(243) A special word is used for this ritual trio, hence the upper-case letters in the translation. *Suovetaurilia* is a compound of *sus* ‘pig’, *ovis* ‘sheep’, *taurus* ‘bull’. On this ritual see p.21, note 26.

(244) *Manius* stands for the herdsman’s name.

and give good heart and health to me, our house and household. Therefore, for the consecration and making sacred of my farm, field and land as aforesaid, accept the slaughter of this suckling Pig, Sheep and Ox.'

Repeat:

'... therefore, Father Mars, accept the slaughter of this suckling Pig, Sheep and Ox.'

Do it with a knife. Have *strues* and *fertum* at hand.²⁴⁵ Offer immediately. As you slaughter the piglet, lamb and calf, then:

'... therefore accept the slaughter of Pig, Sheep and Ox.'

Mars must not be named, nor must one say 'lamb' or 'calf'. If all the offerings are unpromising, say it thus:

'... Father Mars, if anything dissatisfies you in that suckling Pig, Sheep and Ox, I offer you this Pig, Sheep and Ox in expiation.'

If only one or two are doubtful, say it thus:

'... Father Mars, since you were dissatisfied with that piglet, I offer you this piglet in expiation.'

Instructions for the Manager: the Manageress

142. What are the responsibilities of the manager?²⁴⁶ I advise him thus: to attend, on the owner's authority, to everything at the farm that needs to be done, or bought, or made, and to the allocating of foodstuffs and clothing to the household; and to pay attention to the owner's words; and, specifically, so to deal with the manageress, and so to instruct her, that, when the owner visits, all that is needed has been prepared and attended to with care:

143. 'Take care that the manageress carries out her functions. If your owner gave her to you as your wife, be satisfied with her. Make her afraid of you. She must not be too free-spending. She must not visit women neighbours, or any other women, more than absolutely necessary, or invite them to the house or to her own

(245) See **134** and note.

(246) Compare **5**.

quarters. She must not go out to meals or be a wanderer. She must not perform rites, or cause others to perform them for her, unless at her master's or mistress's²⁴⁷ orders: it must be understood that the master performs rites for all the household. She must be clean, and keep the farmhouse sweet and clean.

'She must have the hearth ready swept all round each day before she goes to bed. On the Calends, the Ides, the Nones, and on a feast day, she must place a wreath at the hearth, and on those days she must make offering to the Lar of the Household according to her means.'²⁴⁸

'She must have cooked food ready for yourself and the household. She must have plenty of hens and eggs. She must have dried pears, sorbs, figs, raisins: sorbs in *sapa*, pears, grapes and *struthea* quinces in vats, raisins in marc and in pots buried in the ground, *scantia* apples in vats, and other varieties that are conserved, and also crab-apples – all these she must be careful to have ready, conserved, every year.²⁴⁹ She must be able to make good flour and emmer groats.'²⁵⁰

(247) The only mention of such a person in the whole book. Ordinary and religious relationships between the owner's wife (or a woman of his family) and the farm manageress would evidently exist, but were not Cato's business.

(248) Slaves, especially the more trusted ones, were customarily allowed a *peculium*, a few animals or a garden allotment or, in general, some property or money of their own (compare Varro 1.17.5, 1.19.3, 2.10.5). It was from her *peculium* that the manageress would make her own sacrifice to the Lar of the Household.

(249) Compare 7–8 and notes. Crab-apples are Cato's *mala silvatica*, the fruit of wild, or at any rate unimproved, apple trees.

(250) A couple of the *vilica*'s functions reappear in a poetic Roman 'dinner invitation' of the 1st century AD: 'Now listen to the menu ... mountain asparagus gathered by the manageress after her spinning; then big warm eggs wrapped in straw; and their mothers ...' (Juvenal 11.56–76). A less romantic perspective: 'Our housekeeper has practically nothing to do, only weaving, making flour, chopping wood, spinning, sweeping up, getting her face slapped, and, of course, having all the household meals ready every day' (Plautus, *The Merchant*, 396–9; compare Lucilius 27.29 Charpin, 736 Marx).

Contract for Olive Harvesting

144. The olive harvest is to be contracted out on these terms.²⁵¹

Complete the work to the satisfaction of the owner (or the person appointed as overseer, or the eventual buyer). Olives are not to be picked or knocked down without orders from the owner or overseer.²⁵² If the order is contravened, that day's harvesting will not be paid for or billed. All who harvest olives are to swear to the owner or overseer that neither they, nor any others with their connivance, have stolen olives of that picking from the farm of (Lucius Manlius).²⁵³ If any will not swear on those terms, for all that they have harvested no one will pay or be billed. A sum is to be deposited as guarantee that the work will be performed in accordance with the decisions of (Lucius Manlius).

All ladders provided are to be returned, except any broken owing to age: if not returned, they will be deducted as determined by an impartial arbitrator. If the owner suffers loss in any way due to the work of the contractor, compensation will be deducted as determined by an impartial arbitrator.

Sufficient gatherers and pickers must be provided: if they are not, any supplied or hired by the owner will be deducted. Neither wood nor olives are to be taken off the farm. If any harvester removes olives, for any such act 2 *sestertii* will be charged or deducted. The whole harvest is to be measured, clean,²⁵⁴ in an olive *modius*.

(251) A traditional and standardized agreement. For a sum negotiated in advance, plus benefits in kind, the contractor undertook to provide labour sufficient to get a fixed quantity of olives in. The farm provided equipment. After the harvest, adjustments to the sum were made in both directions. The contractor had to judge in advance what harvest the trees would bear and what rate he would have to pay to keep his crew.

(252) 'Olives which can be reached from the ground or from ladders should be picked, not knocked down, because the beating dries them up and they give less oil ... Those that cannot be reached must be knocked down, by striking with a reed ...' (Varro 1.55.2).

(253) As at 141, a name is inserted to stand for the owner's name.

(254) On the stalking, sifting and cleaning of the olive crop see Columella 12.52.9.

He is to provide fifty hard workers, two-thirds of them pickers.²⁵⁵ None is to leave to go where olive harvesting and oil-making are better paid, unless naming a new crew member to take the place. If any contravenes this, the whole remaining crew must, if the owner or overseer wishes, swear not to follow; if they will not swear, no one will pay or be billed for the harvesting and oil-making of any who will not swear.

Benefits. For each 1200 pecks harvested they get 5 pecks salted olives and 9 *lb.* pure oil (5 *ss*), and, for the whole harvest, 5 *quadrantals* vinegar. If they do not get the salted olives while harvesting, they will be allowed 5 *ss* the peck.²⁵⁶

Contract for Oil-Making

145. Oil-making is to be contracted out on these terms.

Complete the work to the satisfaction of the owner or deputy. If six sets of equipment are needed they are to be used. Workers are to be provided to the approval of the owner or overseer or buyer of the oil. Crushing mills are to be used.²⁵⁷ If additional workers are supplied or some work has to be contracted elsewhere, this is to be compensated or will be deducted. Oil is not to be touched, whether for private use or for removal from the farm, unless given by the owner or overseer. If any is taken, for each such act 40 *ss* will be charged or deducted. The press-workers who make the oil must all swear to the owner or representative that neither they, nor anyone by their connivance, has stolen oil or olives. If any will not swear, their whole share of the work will be

(255) This provision is to discourage knocking-down of the crop (which would then be collected from the ground by the 'gatherers'). Knocking down reduces the following year's harvest.

(256) The contractor or crew must see to their own bread: this is their relish, a traditional benefit or 'perk' provided by the farm. Monetary equivalents are given in *ss* (apparently *sestertii*: see note on p. 31). Goujard is worried that 5 *sestertii* is too much for a peck of olives (see his references). He forgets that salted olives are worth more than fresh-picked olives, and if the crew are not given their relish they will have to buy or steal it.

(257) Because this is the only good way to remove the stones from the pulp. If the stones are not removed, they will be smashed in the course of pressing, and spoil the flavour of the oil.

deducted. No new crew member may be taken on except by the owner's or overseer's order. If the owner suffers loss in any way due to the work of the contractor, it is to be compensated as determined by an impartial arbitrator. If green oil is required, it is to be made.²⁵⁸

The contractor gets sufficient oil and salt for daily use, and 2 *victoriat* as pot-money.²⁵⁹

Speculative Sale of Oil and Wine

146. Olives on the tree should be offered on these terms.

'Tenders for olives on the tree at the (Venafrum) farm. The buyer will add to the basic sum proposed: one hundredth of the total cash price; 50 ss as cost of the present announcement; oil, Roman, 1500 lb., green, 200 lb.; windfall olives, 50 pecks, picked olives, 10 pecks, to be measured with an olive *modius*; 10 lb. grease; and for the owner's weights and measures the buyer will give two *cotulae iri pri primae*.²⁶⁰ Payment due: within 10 months from the Calends of November. Any hiring by the buyer for the harvesting and oil-making, and anything hired out by the buyer, to be settled on the Ides.

'The buyer is to promise to the owner or agent to carry out appropriate actions, payments and guarantees, and is to give guarantees as determined by the owner. Pending payment or such guarantees, equipment brought to the farm may be forfeit. No such equipment will be removed from the farm: any removed will become the owner's. Presses, ropes, ladders, crushing mills and anything else supplied will be returned sound, unless broken

(258) Green oil: see 65 and note.

(259) By contrast with the previous contract, in which cash extras are inserted as alternatives to benefits in kind, here the cash is in addition. The traditional nature of this extra benefit is shown by the naming of a particular silver coin, old-fashioned when Cato was writing: see also note on p. 31.

(260) The phrase is corrupt in the manuscripts and cannot be translated. Two *cotulae* is one pint, but in view of the much larger quantities reserved already it hardly seems worth the owner's while to demand one more pint of oil for the use of his weights and measures.

owing to age: if not returned, the buyer will pay fair compensation. If the buyer fails to pay the gatherers and press-workers who have carried out the harvest, the owner may choose to pay what is owed.²⁶¹ In this case the buyer will owe the amount to the owner, and will give a guarantee, failing which, as above, the equipment may be forfeit.'

147. Wine on the vine should be offered on these terms.

'The purchaser will leave the marc, unwatered, and the lees.²⁶² Storage for wine is available until the Calends of October of the next year. If not removed by that date, the owner may deal with the wine as wished.' Other conditions as for olives on the tree.

148. Wine in the vats should be offered on these terms.

'For each *culleus* of wine bought, 41 *urnae* will be supplied.²⁶³ Wine supplied will not be vinegary or musty. It will be available for tasting by an impartial arbitrator for three days, after which it will be deemed to have been tasted.²⁶⁴ If on any of these days the wine is not available to be tasted through delay caused by the owner, an equal number of added days will be accorded to the buyer. The wine may be taken from the vats at any time before the next Calends of January. If it is not so taken, the owner will measure out the wine and the buyer will pay for it as measured. On

(261) Because the workers will greatly outnumber the 'household' and may pose a threat unless their claim for pay is somehow satisfied.

(262) Because a wine substitute for household use can be made from these by-products by adding water (25, 153), and they have additional uses (7, 96, 143).

(263) This is the equivalent of a 'baker's dozen', since 1 *culleus* actually equals 40 *urnae*.

(264) 'Some taste wines when the wind is northerly, because wines are then unstirred and uncloudy. But experts prefer to taste when the wind is southerly, because that does stir up the wine and demonstrates its qualities. One should not taste on an empty stomach, which dulls the taste; nor after a drinking session, nor after heavy eating. One should not taste after eating bitter or very salty food or food that will affect the taste, but after eating as little as possible of some digestible food. Buyers, of course, should be encouraged to taste when the wind is in the north. Some, wishing to deceive buyers, keep an empty tasting-cup which they have soaked in the finest old aromatic wine; its qualities linger, and seem to belong to the wine that is served afterwards, and so those tasting are tricked. Other dealers, more dishonest still, put out cheese and nuts in their wineries, so that visitors are tempted to eat, and the accuracy of their sense of taste is ruined' (Florentinus quoted in the *Geoponica*, 7.7).

the buyer's demand the owner will swear an oath that the measuring was done fairly. Storage for wine is available until the next Calends of October. If not removed by that date, the owner may deal with the wine as wished.'

*Sale of Winter Pasture Rights*²⁶⁵

149. Winter pasture should be offered on these terms. State the boundaries of the pasture you sell.

'Pasture may be occupied for use from the Calends of September onwards. Dry meadow must be given up when the pear begins to blossom; irrigated meadow when neighbours, above and below, begin to irrigate. (Or fix a date agreed on both sides.) Other pasture must be vacated on the Calends of March.²⁶⁶ While the buyer is in occupation, pasture for two draught oxen and one gelding²⁶⁷ is reserved to the owner. Greens, asparagus shoots,²⁶⁸ firewood, water, rights of passage and cartage are reserved to the owner.

'If in any way the buyer, or the buyer's shepherds or beasts, cause loss to the owner, the buyer will compensate as determined by an impartial arbitrator, and, pending payment or guarantee or bail, the buyer's beasts and slaves may be forfeit.

(265) Sheep farming, touched on in **149-50**, was often considered extraneous to the property-based agriculture that is Cato's subject (Varro 1.1.13-14). However, a lowland olive farm could significantly increase its income by leasing winter pasture. On the ownership of summer mountain pastures (compare **1** and footnote) see Frayn, *Subsistence farming*, p. 36.

It has been argued that seasonal transhumance was a new practice in the newly empty Italian countryside of the aftermath of the war with Hannibal (Toynbee, *Hannibal's legacy*, vol. 2, pp. 155-8); but see Frayn, *Sheep-rearing*, pp. 49-50.

(266) In fifteenth-century Apulia the tax authority assumed transhumant shepherds to be in occupation from 29 September to 8 May, and the owner as having use of the land from May to September (Dora Musto, *La regia dogana della mena delle pecore di Puglia* [Rome, 1964], p. 18, cited by Frayn, *Subsistence farming*, p. 45).

(267) See also note at **12**. The term for 'gelding' is *cantherius*, which conveyed the meaning 'poor old nag' to most Latin authors. 'Marcus Cato the Censor, who did as much for Rome as Scipio did (the latter took on our enemies, the former our immorality) - our Cato used to ride a poor old gelding, and, what's more, he put a pack-saddle on it to carry his luggage' (Seneca, *Letters* 87.9).

(268) On these **greens** - wild or semi-wild food plants gathered from pastures - see Frayn, *Subsistence farming*, pp. 59, 64. On **asparagus** see note at **6**.

'If any dispute arises over these terms, judgment is to take place at Rome.'

*Speculative Sale of Produce of Sheep*²⁶⁹

150. Produce of sheep should be offered on these terms.

From each ewe, [reserve] 1 1/2 *lb.* cheese (half of it dry),²⁷⁰ half the milk she produces on holidays and one *urna* of milk in addition. 'Under these terms a lamb is counted as produce if it lives a day and a night. The buyer surrenders his rights on the Calends of June' (Calends of May if an intercalated year).²⁷¹ Do not engage for more than 30 lambs. 'Sheep which have not lambed [this season] count two for one.' Recover payment from the agent 10 months from the day on which wool and lambs are sold.²⁷² 'They may nurse 1 sucking pig for every 10 lambs. The buyer will

(269) The reader is given advice on sub-contracting the care of a flock of sheep, and allowing them to be driven off the farm for two months in the lambing season. Why? So that contractor and owner can share in profiting from the demand among rich city-dwellers for spring lamb and soft cheese. There is independent evidence that sheep were temporarily driven close to a city for this very reason (Plautus, *Captives*, 818-20; Vergil, *Eclogues*, 1). Cato tells us, too, that it was possible for the shepherd to take along a certain number of piglets, suckle them alongside the lambs, and so supply the city market with sucking-pig as well.

This highly-abridged section of Cato's text has not up to now been correctly understood, but the 2 months and the sucking-pig are the essential clues that he is dealing with a seasonal market for costly luxury produce. Frayn (*Sheep-rearing*, p. 3) demonstrated from other sources the existence of the trade in spring lambs, but she did not recognize that this passage by Cato relates to it.

Towards the end of the same season, sheep were sheared: in the *Menologium Colotianum* 'sheep are sheared; wool is washed' are two activities for the month of May. Since they would be near a city at this time, it would be all the easier to sell the wool. Frayn observes the importance of wool-processing at Pompeii, although the city was at some distance from the obvious sheep-rearing districts of Campania (ib., p. 20; compare W.O. Moeller, *The wool trade of ancient Pompeii*. Leiden, 1976).

(270) On the making of hard cheese, see Palladius 6.9 (an activity of the month of May). This could be stored, but cottage cheese was best made in the evening and marketed by the shepherd the next morning to whatever market was within reach (Vergil, *Eclogues*, 1.33-5). On cheese see further Frayn, *Sheep-rearing*, pp. 129-139.

(271) Before Julius Caesar's reform the standard Roman year had 355 days. Every second year a short 'second February' was intercalated to keep the calendar year more or less in step with the farming calendar (Suetonius, *Julius*, 40).

(272) I.e. from the day on which this speculative sale is made. As with other similar contracts (146-8) the actual price is not stated: it is for negotiation.

provide a shepherd for 2 months; failing guarantee or payment to the owner, the shepherd may be forfeit.'

Addenda

Cypress Planting

151. How cypress seed may be gathered, sown and cuttings made and how cypress plantations may be made.²⁷³ Minius Percennius Nolanus has explained the business as follows.

Tarentine cypress seed can be collected in spring; the wood, when the barley turns yellow. When gathered, place in the sun and shell the seed. Store dry so that it may be displayed dry. Sow in spring in ground where the earth is very tender, grey earth as it is called, where there is water nearby.

First manure the ground thoroughly with goat or sheep dung, then turn with a spade, mixing the earth with the manure thoroughly. Clear of weeds and grass and break down the earth thoroughly. Make beds each 4 feet wide. Make them slightly concave, so that they will retain water. Make ditches between them, into which you can clear weeds from the beds. When the beds are made, sow the seed, as densely as flax is sown. Then sieve earth over to a thickness of half an inch, and flatten well with a board or with hands or feet.

Whenever there is no rain and the ground dries out, water the beds lightly. If you have no water at hand, carry it in, and use it sparingly. Be sure to water as often as necessary. If weeds grow, be sure to clear them, as young as possible, and as often as necessary. In summer continue as described, covering with straw where seed was sown. Remove when seedlings begin to grow.

(273) Compare 48 and note.

Three Notes on Wine

152. As the Manlii have explained,²⁷⁴ in the thirty days after the vintage, more than once you should make bundles of dry elm sticks and tie them on to a small handle. With these, brush thoroughly the insides of the vats, all the way in, so that lees do not stick to the sides.

153. Wine from lees is made as follows. For this purpose, have at hand two Campanian olive straining bags. Fill these with lees, put under the press and squeeze out the liquid.

154. How to measure out wine to buyers neatly. Make a one-culleus tub for this purpose. It should have four handles at the top, so that it can be carried. Make a hole at the base and insert a pipe in it which can be easily stopped. Make another hole at the one-culleus level. Have this tub placed on a raised spot, among the vats, so that wine can flow from it into a wineskin.²⁷⁵ Fill the latter, then stop the pipe.

Irrigation²⁷⁶

155. During winter water must be cleared from the fields. On hillsides, drainage ditches must be kept clear. It is in early autumn, when it is dusty, that there is most danger from water. When it begins to rain, the household can go out with forks and hoes to open up drains, divert water into channels and make sure it runs off from the crops.

In the farmhouse, when it rains, you can go round and mark with charcoal where it drips. Then, when it stops raining, the tiles can be adjusted.

(274) There have been many guesses at who these are: see Goujard, p. 294 n. 6 and, p. 305 n. 1.

(275) The wineskin (the word is *culleus* again) is the skin of a whole ox, loaded on to a cart. This huge bulging skin was the usual container for overland transport of wine.

The upper hole 'at the one-culleus level' is necessary because the top of the tub will be above head height, so a mark made inside it could not be seen. The vineyard worker will know to stop filling the tub when wine begins to flow out of the upper hole.

(276) See White, *Farming*, pp. 149-150 for comments on this chapter.

In grain fields, in other crops and in ditches, wherever water stands or anything obstructs it, you should shift the obstruction, open the channel and get the water flowing.

Medicinal Uses of Cabbage

156. On cabbage as an aid to digestion.

Cabbage surpasses all vegetables. Eat it either cooked or raw: if you eat it raw, dress it with vinegar. It aids digestion remarkably and does the bowels good, and the urine will be beneficial for all purposes.

If you want to drink a lot and eat copiously at a party, eat as much cabbage as you want, raw, dressed with vinegar, before dining. Then, when about to dine, eat about 5 leaves. You will feel as if you had eaten nothing, and you can drink as much as you want.

If you want to purge by vomiting, take 4 *lb.* of the tenderest cabbage, divide into three equal bunches and tie. Then put a pot of water on the fire, and when it begins to boil plunge one bunch into it briefly. It will stop boiling. Then, as it boils, plunge the bunch again while you count five, and take it out. Do the same with the second bunch, and then the third. Then put all together and pound. Remove into a linen bag, and express about 1 pint of juice into an earthenware mug. Add a salt crystal about the size of a bitter vetch seed, and roasted cumin seed enough to give a flavour. Then put the mug outdoors, in good weather, overnight. The person who is to take the medicine should have a hot bath, drink honey water, and go to bed without dinner, then in the morning drink the juice and walk for four hours, and do any business required. When the urge comes and nausea is felt, recline and vomit. So much bile and phlegm will be thrown up that the patient will wonder where it all came from. Later, after moving the bowels, drink half a pint or a little more. If the motions are too frequent, take two spoonfuls of fine flour, crumble into water and drink a little, and they will stop.

For those who are troubled by colic,²⁷⁷ cabbage should be steeped in water. When steeped, put it into hot water. Boil until thoroughly soft. Pour off the water. Then add salt and a little cumin; also add fine barley meal and olive oil. The boil, pour into a dish and allow to cool. This is to be included in the patient's next meal, or, preferably, to be eaten on its own. Unless there is fever, give also harsh red wine mixed with as little water as possible; if there is fever, give water. Do this daily, early in the morning. Do not give too much, or the patient will become sick of it instead of continuing to take it freely. Treat a man, a woman or a child in the same way.

Now as to patients for whom urination is painful or dribbling. Take cabbage, put in boiling water, boil briefly till half cooked. Then pour out some of the water, add plenty of oil and salt and a little cumin. Bring to the boil briefly. Then take the juice, cold, and eat the cabbage itself, digesting it as quickly as possible. Do this each day.²⁷⁸

158. Move the bowels as follows. If you want a good motion, take a pot and put in it 6 pints of water and a cooked pig's trotter. If you have no trotter, substitute 1/2 lb. ham as lean as possible. When nearly cooked add two young cabbage heads, two heads of beet with the root, a shoot of polypody, a little herb mercury,²⁷⁹ 2 lb. mussels, 1 *capito* fish, 1 scorpion,²⁸⁰ 6 snails and a handful of lentils. Boil all this down till it reduces to 3 pints of liquid. Do not add oil. Take 1 pint of this mixture, warm, adding 1 *cyathus* Coan Wine. Drink it, rest, then drink another pint as before, then the third. You will purge yourself thoroughly. If you wish in addition to drink Coan Wine mixed with water, you may. Any single one of these ingredients has the power to move the bowels! This

(277) This cure for colic reappears at 157.

(278) For 157, a long insert on the wonders of cabbage, see pp. 226–233.

(279) Or French mercury (*Mercurialis annua*), Latin *herba mercurialis*.

(280) The *capito* fish is unknown: it might be a grey mullet called *kephalos* in Greek (*Mugil cephalus*). By *scorpion* Cato may intend another fish, a rascasse (*Scorpaena* spp.), which is called *skorpios* in Greek and *scorpio marinus*, 'sea scorpion', in other Latin sources.

mixture of all of them is prescribed so as to move thoroughly, and because it tastes good.

Two Charms

159. Cure for chafing. When you go walking, hold a stem of *absinthium ponticum* under your finger-ring.

160. In case of dislocation this spell will cure it. Take a green reed 4 or 5 feet long, split it down the middle, and have two persons hold the split pieces to their hips. Begin to chant, MOTAS VAETA DARIES DARDARES ASTATARIES DISSUNAPITER (another text has MOTAS VAETA DARIES DARDARIES ASIADARIDES UNA PETES), while the two pieces are brought together. Brandish iron above. When they are together and touching, take the reed in your hand and cut it at left and right. Tie it to the dislocation or fracture and it will heal. Meanwhile chant every day, HUAT HAUT HAUT ISTASIS TARSIS ARDANNABOU DANNAUSTRA (another text has HUAT HAUAT HUAT ISTA PISTA SISTA DANNABOU DANNAUSTRA).²⁸¹

Growing Asparagus

161. How to plant asparagus.²⁸²

Turn over thoroughly a ground that is moist or fat. When turned over, make beds, in such a way that you can hoe and pull up weeds on either side without treading on them. In forming the beds make a 1/2 foot wide gap separating the beds on all sides. Then sow in a straight line, using a stake, sowing two or three seeds per hole, and fill in the hole with the same stake. Then spread manure thoroughly over the beds. Sow after the spring equinox.

When shoots appear, clear weeds frequently and be careful not (281) The alternatives headed by 'another text has ...' are given in exactly this way in the manuscripts. They are the record either of Cato's copying of formulae out of two different magic books, or, much more likely, of some early medieval scribe's putting together of a text from two different Cato manuscripts. Why does the evidence of this conflation occur only in the present chapter? Clearly because, in the view of the scribe, it was crucial to get magical formulae right.

(282) Columella (11.3.43-46) explains in fuller detail the propagation of asparagus. See also 6 and note; there is an additional reference there to the burning-over of ground in which asparagus is growing.

to pull up the asparagus with the weeds. In that first year cover with straw in winter so that it is not scorched. At the beginning of spring open up, hoe, and pull up weeds. Three years after sowing, burn at the beginning of spring. After this, do not hoe before the shoots appear, or you may damage the roots as you hoe.

After 3 or 4 years, pick the asparagus from the root. If you break it off higher, more shoots will appear and some will die. You can go on picking until you see that it is going to seed.

The seed is ripe in autumn. At that time, after harvesting the seed, burn, and, when asparagus begins to grow, hoe and manure.

After 7 to 9 years, when it is getting old, split up, and turn over and manure the soil thoroughly where you intend to plant; then make channels in which to plant the asparagus roots. There should be a gap of no less than 1 foot between the roots. Pull up; dig round so that you can pull the roots easily without breaking them.

Give as much sheep dung as possible, as this is best for asparagus. Other dung produces weeds.

Salting Hams

162. Hams can be salted as follows in a vat or a jar.

After buying legs of pork cut off the trotters. 1/2 peck ground Roman salt per ham. Spread the salt in the base of the vat or jar, then place a ham with the skin facing downwards. Cover completely with salt. Then place another above it and cover in the same way. Be careful not to let meat touch meat. Cover them all in the same way. When all are arranged, cover the top with salt so that no meat is seen, and level it off.

After standing in salt for five days, take all hams out with the salt. Put those that were above below, and so rearrange and replace. After a total of 12 days take out the hams, clean off all the salt and hang in the fresh air 2 days. On the third day clean off with a sponge, rub all over with oil, hang in smoke for 2 days. On the third day take down, rub all over with a mixture of oil and vinegar and hang in the meat store. Neither moths nor worms will attack it.

Supplement on Cabbage²⁸³

157. On the Pythagorean Cabbage and its good and health-giving properties.

First you must know the different kinds of cabbage and their nature.

It blends all healthy influences and ever adapts itself with the application of heat, being at once dry and wet, at once sweet and sour and bitter. Cabbage, in its mixed nature, has all of the so-called Seven Good Things.

Garden Cabbage and its Uses

First, then, to explain this nature. The first kind is called *levis*, delicate. It is large, broad-leaved, long-stemmed, and has a powerful nature and great force. The second is crinkled, called *apiaca*: good in nature and appearance, it is more powerful in medicine than the first. So is the third, called *mild*: thin-stemmed, it is tender and the bitterest of all, with a very active thin juice, and you must know first of all that of all the kinds of cabbage none is as effective a medicine as this.

Put it, ground fine, to all wounds and swellings. It will clean up and heal all sores painlessly. It brings boils to a head and makes them burst.

It will clean up and heal septic wounds and cancers, as medicines cannot. Before you apply it, wash with plenty of hot water, then apply ground cabbage twice a day. It will remove all decay. Black cancer gives off a smell and a foul slime; the white is purulent but fistulous and suppurates under the flesh. Grind cabbage for illnesses of this kind. It will cure them, and is the best thing for illnesses of this kind.

(283) I have removed this section to the end because I do not believe that Cato himself wrote it or added it to his book. Its mode of expression, vague, repetitious, lacking rhythm, differs radically from his. Some editor or copyist came across this unintelligent memorandum by an anonymous enthusiast and inserted it in *On Farming*. In manuscripts and editions it comes after the shorter section of cabbage remedies at 156.

In case of dislocation, foment with hot water twice a day and apply ground cabbage: it will soon cure it. Apply twice a day: it will remove the pain. If there is any bruising, it will break it up; apply ground cabbage: it will cure it.

If any sore or cancer develops in the breasts, apply ground cabbage: it will cure it. If the sore cannot bear the bitterness of the cabbage, mix with barley flour and apply the mixture: it will cure all sores of this kind, while other medicines cannot cure them or clean them up. If a boy or girl has a sore of this kind, again, add barley flour.

If you want your cabbage chopped, washed, dried, sprinkled with salt or vinegar, there is nothing healthier. To enjoy it more, sprinkle with honey vinegar. Washed and dried, with chopped rue and coriander and sprinkled with salt you will enjoy it a little better. It does you good, permits no disease to remain in the body, and does the bowels good. If there was any disease present internally, cabbage will cure all, remove all sicknesses from the head and the eyes and cure them. Take it in the morning before eating.

If there is black bile, if the spleen swells, if the heart or liver or lungs or diaphragm are painful, in a word, it will cure whatever organ is painful.

Grate *silpium* over it: that is good.²⁸⁴

When all the veins are blown up with food they cannot breathe through the body, and that gives rise to illness. When from overeating the bowels will not move, if you take (as I advise) an appropriate amount of cabbage, you will develop no illness from overeating.

Now nothing clears illness of the joints as well as raw cabbage, whether you eat it chopped, with rue and coriander chopped in, dry, with grated *sirpicium*, or as cabbage in honey vinegar sprinkled with salt. If you take this, you will have the use of all your joints. It costs nothing, and even if it did you should try it for the sake of health. Take it in the morning before eating.

(284) *Silpium* here, and *sirpicium* below, are two alternative names for Cato's *laserpicium*, usually known as 'silphium' in English: see note at 116.

One who suffers from insomnia or senility will find the same cure effective. Give this patient, before eating, cabbage fried in fat, hot, and a little salt. The more that is eaten, the quicker will be the recovery from this illness.

Those who are troubled by colic are to be treated as follows.²⁸⁵ Soak cabbage thoroughly, then place in a cooking pot and boil thoroughly. When well cooked, pour off the water and add plenty of oil and a little salt, cumin and fine barley meal. Then boil thoroughly. When it has boiled put in a dish. Give this to the patient to eat, without bread if possible; if not, allow bread, with this dish as relish, but nothing else. If there is no fever, give red wine to drink. The cure will be rapid.

Whenever necessary this will cure anyone who is weak: take cabbage as just described.

Cabbage Eaters' Urine

In addition, store the urine of anyone who habitually eats cabbage; warm it, bathe the patient in it. With this treatment you will soon restore health; it has been tested. If you wash feeble children in this urine they will be weak no longer. Those who cannot see clearly should bathe their eyes in this urine and they will see more. If the head or neck is painful, wash in this urine, heated: they will cease to be painful.

Also, if a woman foment her parts with this urine, they will never irritate. Foment as follows: boil in a basin and place under a commode; the woman is then to sit on the commode, covering the basin with her clothing.

Wild Cabbage and its Uses

Wild cabbage has the greatest strength. It should be heated and ground thoroughly fine.

If you intend to purge someone, the patient should not take dinner on the preceding day. In the morning, before eating, give

(285) The cure for colic is similar to one given at 156.

ground cabbage and 4 *cyathi* of water. Nothing will purge so well, not even hellebore or scammony, and safely too: you must know that it is healthy for the body. Use it on those you despair of curing. When giving this purge, administer as follows: give this for seven days as a liquid food. When there is appetite, give donkey meat. If the patient will not eat that, give boiled cabbage and bread, and a mild wine mixed with water to drink. The patient should wash only occasionally, using oil instead. One thus treated will long remain healthy and suffer no sickness unless self-induced.

If there is a suppurating or fresh sore, sprinkle this ground wild cabbage with water and apply: you will cure it.

In the case of a fistula, insert it as a pack. If the pack will not stay in, dilute the ground cabbage, put in a bladder, attach a reed, squeeze into the fistula. This will soon effect a cure.

Also apply, ground, with honey, to any wounds old or recent. This will cure them.

If there is a nasal polyp, put dried ground wild cabbage in a tuft of wool; put to the patient's nose to aspire as much as possible. Within three days the polyp will fall out. When it has done so continue the treatment for an equal number of days to heal up the roots of the polyp completely.

If you are hard of hearing grind cabbage with wine, press out the juice, drop into the ear warm. You will soon be aware of hearing more.

Apply cabbage to a suppurating scab. It will cure it without causing a sore.