

held opinion which he consistently follows, but which Thucydides had characteristically scorned.<sup>60</sup>

Whatever its origin, it seems that nude exercising was generally practiced by the mid-sixth century at Athens and probably earlier in Sparta and at the Olympic games. The statement to the contrary of Plato was derived, probably directly, from that of Thucydides; both should be rejected as rationalizing attempts by their authors to fit the complex evolution of a social practice into a schema or argument. In considering the diffusion of athletic nudity among the Greeks, K. J. Dover's cautious words on homosexuality are worth repeating: 'regrettable though it may seem to those would like the shape of the past to be bold and simple, we are probably confronted with a phenomenon which varied not only from place to place but also from time to time'.<sup>61</sup> It is clear that in some places athletic nudity had been introduced a long time before Thucydides or Plato.

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<sup>60</sup> See Th. i 18.1 with Gomme's commentary (n.12) 128-31.

<sup>61</sup> Dover (n.48) 186.

### Aristotle on equality and market exchange<sup>1</sup>

Commercial buying and selling had replaced mutual gift giving long before Aristotle's time, and he gives fair exchange primacy over the other forms of justice in book five of the *Nicomachean Ethics* just because it provided *philia* for an activity which he knew to be more basic than any other in the life of the *polis*.<sup>2</sup> He calls it 'the salvation of states', and repeats the judgement in the *Politics*.<sup>3</sup>

Yet the account of fair exchange in *EN* v 5 has a reputation for obscurity which ought to seem surprising. There is no agreed meaning for the formula 'as builder to shoemaker, so many shoes to a house' (1133a23-5, 32-3), and chapter 5 has become the poor relation in book five partly for this reason.<sup>4</sup> The formula has a simple explanation, however, which has been overlooked because of a mistaken belief that inequality enters into it.

There has been almost unanimous agreement that the phrase 'as builder to shoemaker' registers some sort of inequality, and that the formula means

that the inequality sets the standard for reckoning how many shoes should be given for a house. (I shall call this the standard view.)

There the agreement ends, however, and for the rest, there is a wealth of conjecture about the inequality Aristotle is supposed to have in mind. Since he does not even hint what it might be, the conjectures are all unsupported and none has been found convincing. The confusion has so blighted the chapter that Finley drew a fairly representative conclusion: 'that this is not one of Aristotle's more transparent discussions is painfully apparent'.<sup>5</sup> Aristotle's claim to be considered the first to analyse issues in what is now called economics rests chiefly on this chapter, and if the chapter were as obscure as it is reputed to be, and as it would be if inequality had the part usually given to it, that claim would be more difficult to sustain.

### I

'As builder to shoemaker', on the standard view, measures some property in which the two are unequal. Williams thought the property to be 'the worth of the architect as compared with the worth of the cobbler', and Grant the 'quality of the labour'. Rackham considered that 'different kinds of producers have different social values and deserve different rates of reward'. Burnet, following Jackson, thought unequal friendship to be the key, and that 'the ὑπερέχων is apt to expect to get more services from his friend than he gives in proportion to his own superiority'. Meek suggests that a producer is measured for his status and skill, and Soudek that he is measured for his skill alone.<sup>6</sup>

None of these suggestions explains how the ratio 'as builder to shoemaker' might set the standard for a fair exchange. A qualitative comparison will not do. The ratio must be quantitative and precise enough for calculating the number of shoes for a house, because that is supposed to be its purpose. Some of the suggestions are qualitative, others quantifiable only arbitrarily, and others are not independent of the ratio in which the products are exchanged.

Ritchie, Ross, Hardie, Schumpeter and Gordon have suggested labour time.<sup>7</sup> This has the advanta-

<sup>5</sup> M. I. Finley, 'Aristotle and economic analysis', *P&P* xlvii (1970) 3-25; reprinted in M. I. Finley ed., *Studies in ancient society* (London 1974) 33. All references to Finley will be to this article in the latter publication.

<sup>6</sup> R. Williams, *The Nicomachean Ethics of Aristotle* (London 1869) 154. A. Grant, *The Ethics of Aristotle* (London 1874) ii 118. H. Rackham, *The Nicomachean Ethics* (London 1926) 283n. J. Burnet, *The Ethics of Aristotle* (London 1900) 225n. R. L. Meek, *Studies in the labour theory of value* (London 1956) 295n. J. Soudek, 'Aristotle's theory of exchange: an enquiry into the origin of economic analysis', *Proc. Am. Philos. Soc.* xcvi (1952) 46, 60.

<sup>7</sup> D. G. Ritchie, *op. cit.* 186. W. D. Ross, *Ethics Nicomachea* (Oxford 1925) 1133a5n. W. F. R. Hardie, *Aristotle's ethical theory* (Oxford 1968) 191-201. J. Schumpeter, *History of economic analysis* (Oxford 1954) 60-62. Barry J. Gordon, 'Aristotle and the development of value theory', *Quarterly journal of economics* lxxvii (1964) 115-128.

<sup>1</sup> I am grateful to Malcolm Schofield, C. J. F. Martin, Pat Shaw and Gianfranco Lotito for their criticism.

<sup>2</sup> D. G. Ritchie took this view, and concluded that fair exchange was wrongly considered to be merely another subdivision of particular justice; see his 'Aristotle's subdivisions of particular justice', *CR* vii (1894) 185-92. It seems to have been a commonplace in Plato's time that cities were formed in the first place in order to acquire a greater abundance of necessities by dividing labours; see *Rep.* ii 369b-371e.

<sup>3</sup> 1132b33, Jowett. 'Wherefore the principle of reciprocity, as I have already remarked in the *Ethics*, is the salvation of states', *Politics*, 1261a30-31.

<sup>4</sup> There are two reasons. The second is that Aristotle's discussion of *summetria* which is the heart of the chapter, has not generally been understood. See n.16 below.

ges of being independent and quantifiable in principle, but it is a conjecture which attributes to Aristotle an idea he did not have. In our own era, political economy developed the notion of labour as an undifferentiated category under which the different natural labours, weaving, building and farming, fall as identical instances differing from each other only as quantities. This abstraction is not to be attributed lightly to any author of the ancient world, and particularly not to Aristotle. Most of chapter 5 is devoted to seeking a property which all products have in common, in order to explain how they are commensurable (σύμμετρα), as they must be if they are to stand in equations like '5 beds = 1 house' as Aristotle says they do. He tries two properties: that of 'being expressible in money', and that of 'being an object of need'. But he rejects them both and concludes that 'in truth' there can be no such property, 1133b18-20. The property of 'being a product of labour' does not occur to him, in spite of the fact that all the things in question are artifacts.<sup>8</sup>

Joachim, too, takes the ratio to be one of unequal 'values', but does not care to add to the speculation about its meaning: 'How exactly the values of producers are to be determined, and what the ratio between them can mean, is . . . in the end unintelligible to me'; Finley concurs.<sup>9</sup> A century of speculation has produced little, and in avoiding it Joachim and Finley produce the least indefensible version of the standard view, but the chapter is left in confusion.

Heath and Gauthier-Jolif depart from the standard view in suggesting that builder and shoemaker are equals. But Heath is inconsistent in holding also that the ratio compares unequal 'worths'. Gauthier-Jolif offer no argument, and their view is rejected by Finley as an 'ingenious effort'.<sup>10</sup>

## II

It would be rash to dismiss chapter 5 without examining the assumption that builder and shoemaker are unequal, yet the assumption has never been examined properly in spite of being implausible in obvious ways.

Honours and public property were distributed unequally; 'if the people involved are not equal, they will not [justly] receive equal shares; indeed, whenever equals receive unequal shares, or unequals equal shares, in a distribution, that is a source of quarrels and accusations', 1131a23ff (Irwin). Private property could not conceivably be exchanged in anything like this way. If, because of hierarchy, one man could command in the market more for his goods than another, who would choose, without compulsion, to exchange with

<sup>8</sup> Marx sought to explain why Aristotle, and the Greeks generally, lacked such a notion of labour: *Capital* i (ed. London 1970) 65-6; Finley accepts the case, Finley 38.

<sup>9</sup> H. H. Joachim, *The Nicomachean Ethics* (Oxford 1951) 150. Finley 38.

<sup>10</sup> T. L. Heath, *Mathematics in Aristotle* (Oxford 1949) 274-5. R. A. Gauthier and J. Y. Jolif, *L'Éthique à Nicomaque*, ii (Louvain and Paris, 2nd ed. 1970) 377. Finley 34.

him, except someone of his own status on whom he could not pull rank? Even this person would try to avoid his equal because exchange with an inferior would be more advantageous. The idea is absurd, and Aristotle understood exchange far too well, as we can see in *Pol.* i 8-10, ever to have entertained it.

'As builder to shoemaker' cannot set the standard of fairness in the way the standard view supposes, because even if we knew that a builder was worth twice a shoemaker, the number of shoes to be given for a house would still be unknown. We would know that the number should be twice some other number, but we would not know whether it should be twice half a shoe, twice one shoe, or twice a hundred shoes. Thus, we also need to know  $x$  in ' $x$  shoes = house' so that, multiplying it by 2, we could arrive at the supposed inequality. But Aristotle thinks that fairness consists in exchanging according to the equation ' $x$  shoes = house', 1133a10-12. So multiplying the number of shoes by the inferiority index of the shoemaker would actually be a shift away from the proportions required for fairness.

The argument in chapter 5 has four steps: (i) fair exchange is a form of reciprocity, 1132b31-2; (ii) not reciprocity of equality but of proportion, 1132b33; (iii) this is achieved by equalizing proportions of products, 1133a8-12; (iv) if proportions of products can be equal, products must be commensurable, and this needs explaining. The enquiry deals only with the ratio in which products are exchanged; persons are irrelevant.<sup>11</sup>

There is a suggestion that before the exchange is transacted builder and shoemaker are 'unequal and different', 1133a18. There is another suggestion that before the exchange, when they have 'their own', they are equals, 1133b3. These statements cannot cancel each other out, but the difficulty they pose is slight. Aristotle thinks it is necessary to establish 'equality of proportion' because 'one product may be too much (κρείττον) for the other, so they must be equalized', 1133a12-14. He means that a house is too much to give for a shoe (we can't expect a builder to hand over two houses if he wants a pair of shoes), so they must be exchanged in proportions, and the proportions should be equal.<sup>12</sup>

<sup>11</sup> Cf. 1133a10, 14, 17, 21, 25; 1133b4, 10, 25, 27. Concern with products rather than producers is evident in the textual detail too. What have to be equalised (ἰσασθῆναι at 1133a13-14 are referred to by a neuter plural pronoun (ταῦτα). At 1133b5 it is the ἔργα of shoemaker and farmer that have to be equalized. What have to be 'comparable in some way' (συμβλητὰ πῶς) if they are to be equalized are πάντα, 1133a19. What money equalises are πάντα, 1133a20. The τὴν ὑπεροχὴν καὶ τὴν ἔλλειψιν in 1133a21 are the members of πάντα again, and Aristotle instances shoes and houses.

<sup>12</sup> Ross and others translate κρείττον at 1133a13 as 'better than' or 'superior to', possibly suggesting that Aristotle might have the quality of products in mind. There is no justification for such a suggestion either in the immediate context or elsewhere in the chapter. Aristotle deals only with quantities, and simply assumes products to be of exchangeable quality. It is better to translate κρείττον εἶναι as 'to be too much' or 'to be worth more', because the context is the unfairness of exchanging one house for one shoe. Rackham has 'worth more than', and Dirlmeier 'hochwertiger . . . als'.

The difficulty is typical of exchange, he says, because it is not two doctors who exchange, or two farmers, but a doctor and a farmer, and in general people who are different (ἐτέρων), 1133a16-18. So Aristotle does have in mind an inequality between persons, but persons considered simply as creators of products of different value, so that the inequality of persons collapses into one of products. He goes on to say that the 'unequal' producers are made equal by establishing proportionate equality between the products, which could not be true if the inequality were social, 1133b2-6.

### III

There are some remarks scattered about in chapters 1, 2 and 3 about the nature of δικαιοσύνη common to all its forms. These remarks reveal assumptions Aristotle makes about fair exchange which do not appear in chapter 5, and they prove that inequality has no part in the chapter.

Justice is a sort of equality (ισότης). The unjust man (ἄδικος) is 'grasping and unfair', and he is 'unequal' (ἄνισον) and his action is unequal. The just man is an equal man (ἴσος), 1129a32-33, 1131a1-2. We are speaking of actions which admit of a more or too much (τὸ πλεόν) and a less or too little (τὸ ἔλαττον), so that there is a mean between too much and too little, and the mean is the equal, 1131a2-3. In general, τὸ δίκαιον implies at least four terms, because the persons for whom a distribution is δίκαιον are two, and the things distributed are two, 1131a18-20. The just consists in proper proportion (ἀνάλογια) between these four, and ἀνάλογια means 'equality of ratios', that is, equality between the ratio of persons A and B and the ratio of what they get C and D, 1131a29-32.

There are only two sorts of cases: 'If the persons are ἴσοι, then the things will be ἴσα, since as one person is to the other, so is the one thing to the other thing, and if the persons are not ἴσοι they will not have ἴσα . . .', 1131a20-24. So in general the formula 'as A is to B' ('as builder to shoemaker') in Aristotle's mind is as consistent with their being equals as it is with their being unequals, and carries no suggestion of inequality. Aristotle's contrast between corrective and distributive justice turns precisely on this difference between their respective A:B ratios. Corrective justice is for cases where A and B are to be considered equals; it makes no difference who defrauds whom, 'for the law looks only at the distinctive character of the injury, and treats the parties as equals', 1132a21.<sup>13</sup> The formula involves the usual two ratios, but in this case the ratio of persons A:B is formal and equal to one. Distributive justice is for the sort of case where it is going to make a difference who the parties are; where it is not fitting to treat them as equals, and where getting your own is not equal, but too much or too little. In this case the ratio A:B is substantial

<sup>13</sup> In this passage it is, admittedly, the goodness or badness of a man that the law is said to ignore. But if the law had recognized some sort of inequality as pertinent, we should not expect Aristotle to say that the law 'treats the parties as equals' without mentioning it.

and not equal to 1. If an officer strikes a man he ought not to be struck back, but if a man strikes an officer, it is not enough that he be struck back, but he ought to be punished *as well*, 1132b28ff.<sup>14</sup>

Fair exchange falls under the general prescription for δικαιοσύνη, just as corrective and distributive justice do, because, like them, it has to do with unfairness, having your own, and not making gains or losses at the expense of others in things that are desirable or harmful. Aristotle treats it as a distinct sort of justice, rather than as a species of either corrective or distributive justice, and it is clear why it is not a species of corrective justice. Corrective justice corrects bad exchanges (among other things), and its ability to do that depends on there being a procedure for reckoning what a good exchange of shoes and houses should be. This procedure will not itself be part of corrective justice, and it is what chapter 5 is meant to supply.

But if, as the standard view assumes, the parties are not to be regarded as ἴσοι can there be as good an explanation of why fair exchange is not treated as a species of distributive justice? No such explanation is possible, because if the parties were to be considered unequal in fair exchange, Aristotle would have had to treat it as a species of distributive justice, because, according to his general prescription for δικαιοσύνη, that is what it would have been. The fact that it is a distinct sort of justice based on an entirely different principle (1132b23f) is sufficient to prove that Aristotle does not mean it to satisfy the condition of distributive justice, namely, that the parties are unequal. Consequently the parties are ἴσοι, and the ratio between them is formal and equal to 1, just as it is in corrective justice.<sup>15</sup>

The same conclusion has to be drawn from his remarks about the use of the terms 'loss' and 'gain', which he uses to define the equality common to all justice. He says that the terms are applied in all cases, but that they may not in every case be applied in their strict senses; he instances assault, where the assailant is not strictly speaking a 'gainer' or the victim strictly speaking a 'loser', 1132a10-14. He explains that these terms are drawn from buying and selling, where they apply in their strict senses; where to have more than one's own is called gaining, and to have less than one's own is called losing; and where, if the exchange results neither in a gain nor a loss, 'they say they have their own', 1132b11-18. This means that an exchange is fair when what A gets back is equal to what he gave, and the same for B; in other words, when the things are ἴσα. But according to his own general

<sup>14</sup> The case is one of corrective justice, but the offence being corrected is one against distributive justice. Aristotle's point is that where an offence under corrective justice (hitting someone) is committed by an inferior on a superior, the simple reciprocity of Rhadamanthys (getting back what you did) is unfitting, though it might be fitting between equals.

<sup>15</sup> Aristotle considers buying and selling under corrective justice (1131a2), because it corrects transactions in which parties end up with less or more than 'their own'. Similarly, if he thought fair buying and selling should involve inequality, we should expect them to be considered in the chapter on distributive justice and they are not.

prescription (1131a20-4), a distribution of things that are ἴσα is fair, only if it is fitting to regard the parties as ἴσοι. So again the conclusion is that in exchange the parties are equal.

## IV

Clarifying Aristotle's theory of fair exchange is worthwhile for its own sake, and for another reason too. The substantial analysis in chapter 5 is not devoted to fairness itself, but to explaining the logical possibility of a condition upon which Aristotle believes it to rest, *viz.*, the equation 'x shoes = 1 house'. All things (πάντα) can and do stand in these equations, but it is difficult to see how they can when they are so different by nature that they seem not to be commensurable (σύμμετρα). Aristotle's analysis of this problem is one of his great achievements.<sup>16</sup> It is the first conceptual enquiry into the nature of exchange-value, and in the days when classical education was commoner than it is now its importance was appreciated by economists. Marx's analysis of exchange-value is explicitly based on it, and Böhm-Bawerk, the economist of the Austrian School and Marx's earliest serious critic, scorned the fact that 'Marx had found in old Aristotle the idea that "exchange cannot exist without equality, and equality cannot exist without commensurability"'.<sup>17</sup> Yet, Aristotle's discussion of these matters has gone largely unnoticed in the classical and philosophical literature on chapter 5, particularly in the anglophone world. The reasons for this can only be guessed at, but it is perhaps not unduly credulous to suppose that among them has been the belief that an inexplicable inequality between builder and shoemaker lies at the centre of the chapter.

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<sup>16</sup> The discussion is analysed in my 'Aristotle and the political economy of the polis', *JHS* xcix (1979) 57-73, substantially revised in D. Keyt and Fred D. Miller, Jr., eds., *A companion to Aristotle's Politics* (Oxford 1991) 156-81, reprinted in Mark Blaug, ed., *Aristotle* (London 1991) 195-220.

<sup>17</sup> E. von Böhm-Bawerk, *Karl Marx and the close of his system*, ed. Paul M. Sweezy (London 1975) 68.

### The Greek ships at Salamis and the *Dieklous*

In his notice in *JHS* cviii (1988) 250 of *The Athenian trireme (AT)* by Dr J. F. Coates and myself J. F. Lazenby makes two criticisms.

#### 1 *The Greek ships at Salamis*

L. claims that the reconstruction of the trieres proposed in *AT*, being based on late 5th century and 4th century evidence, is misleading for the earlier ships, and that the Greek ships of 480, unlike the later ones, were not built for speed and manoeuvrability, and carried more than ten hoplites. He goes on to say that the Greeks won at Salamis

'because their ships stood up to ramming better' than those of their opponents. For this last view he cites no text in evidence, and as far as I know there is none. There is the statement in Herodotus (viii 60a) that the Greek ships were heavier; but L. attributes this greater heaviness not to thicker planking but to the greater number of armed men they carried, which would entail a broader hull and bulwarks but not thicker planking. Admittedly, if they were not built for speed and manoeuvrability, like the later ships, they *could* have had thicker planking but there is no evidence that they did. There is however some evidence that they were built, and manned, for lightness and speed.

L. argues that they carried more than ten hoplites on board on two grounds. In the first place there were the 40 hoplites carried by the Chian ships at Lade in 499 and the thirty armed men (in addition to the normal 10) carried by the ships of the Persian fleet in 480 (for the probable reason see *AT* 41). Forty is the regular number of hoplites carried by trieres acting as troop carriers (*hoplitagōgoi*, *stratiôtides*) in the later fifth century; yet L. is presumably arguing that the Greek ships in 480, to be appreciably heavier than the Persian (with 40), must have had a good many (10-20) more. I do not find this likely, and it is certainly unrecorded. It is plain from Plutarch (*Cimon* 12.2) supported by Thucydides (i 14.3) that Themistocles's trieres, 'built for speed and manoeuvrability' with narrow decks (and hence few hoplites on them), are to be contrasted with later troop carriers with wider decks (and hence more hoplites). This manning is further supported by the Troezen decree which assigns ten hoplites and four archers to each ship in the Salamis campaign.

L.'s further reason for heavier manning is no more convincing. He asks: 'if there were only 1,800 hoplites "on the Athenian ships" at Artemisium, why were there none at Thermopylae?' and leaves us to conclude presumably that there must have been 180 x 50 = 9000 to 180 x 60 = 10,800 Athenian deck soldiers on the Athenian ships at Artemisium. But Herodotus says (vii 144.3) that (in Sept. 481) 'the Athenians decided to meet the barbarian with their ships *pandēmei*', i.e. putting on board all their able bodied citizens 'and inviting other Greeks who were willing to join them'. Similarly Thucydides (i 18.2) (*cf.* Plutarch *Themistocles* 7.1): 'the Athenians, when the Persians came, . . . went on board their ships and became seamen'. These texts, taken together with the story in Plutarch *Cimon* 4.2 of the young Cimon and his fellow knights dedicating their bridles on the Acropolis before going on board the ships, make it clear that knights, hoplites, and everyone else went on board to do whatever tasks were allotted to them if the 180 ships were to be manned with the 36,000 men needed. Not all the hoplites were employed as deck soldiers, but all were needed on board the ships and there were none to send to Thermopylae. Herodotus's figure for the citizen population of Athens at the beginning of the century is 30,000 (vi 97.4). Arguments based on population numbers are usually fragile, but since Athens had to use her allies to man twenty ships, it seems that her manpower