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Aristotle and the Principle of Individuation

W. CHARLTON

Matter' says Zeller in his account of Aristotle's metaphysics 'is the source of individual existence, in all those things at least which are formed of the union of Matter and Form.... Between the Individuals into which the *infimae species* resolve themselves no difference of kind or Form any longer exists, and consequently they must be distinguished from one another by their Matter.'¹ Zeller is here only restating an interpretation which had always been orthodox and which still holds the field today. It was accepted without question by Łukasiewicz, G. E. M. Anscombe and K. R. Popper, in the symposium 'The principle of individuation', *Proceedings of the Aristotelian Society*, Supplementary Volume for 1953, and has recently been defended by A. C. Lloyd (*Mind* 1970). In this paper I shall try to cast doubt on it.

I

When people say that Aristotle makes matter the principle of individuation, what precisely do they mean? Presumably that he makes it the solution to some problem about the identity and differentiation of physical objects which are the same in kind or species, but there are several such problems. We may ask (i) how we tell that there are several individuals of the same kind, or (ii) how we tell one individual from another. These two questions are distinct: if a pair of identical twins come before me I can tell that there are two of them, but I may be unable to tell them apart or say which is which. Questions about how we tell that there are a number of individuals and how we distinguish them may be called epistemological; questions of a more metaphysical sort are (iii) what makes an individual identified at one time and place identical with an individual identified at another, and (iv) what makes one individual different from another at the same time. These two questions are sharply distinguished by Miss

¹ *Aristotle and the earlier Peripatetics*, trans. Costelloe & Muirhead, Vol. I pp. 368-9.

Anscombe² and P. T. Geach³ – whether rightly or wrongly I shall consider below. Meanwhile, to which of these questions if any is Aristotle supposed to have found an answer in matter?

Aristotle seems to touch on question (i) in *De An.* III 425 a 14-20, where he says that we perceive number by discontinuity, ὁ δ' ἀριθμὸς τῆ ἀποφάσει τοῦ συνεχοῦς. Since this passage is not mentioned in discussions of his views on individuation we may suppose that these are not meant to be views on question (i). I shall, however, say more about question (i) presently.

The second sentence I quoted from Zeller might suggest that Aristotle makes matter the answer to (ii). Since we cannot tell individuals of the same *infima species* apart by their form we must do so by their matter. But matter would not be a good answer to question (ii). For if two individuals of the same kind, e.g. two identical twins or two pennies, can be the same in form, they can also, in the same sense of 'same', be the same in matter. I shall suggest that Aristotle touches on question (ii) in a passage commonly taken to deal with (iv), and is prepared to say that where we can tell apart two individuals of the same species it is by qualities which qualify their matter rather than their form. This, however, is not to make matter by itself the answer to question (ii), and I am not sure that Aristotle thought there must always be an answer to it. Unless he maintained the identity of indiscernibles he must have allowed the possibility of two individuals which really are indiscernible, impossible to tell apart.

Despite his wording Zeller probably held that Aristotle makes matter the answer not to (ii) but to (iv), and this seems to be what most people mean when they say that for Aristotle matter is the principle of individuation. But now, can it be shown that Aristotle held any opinion on (iv) at all? Zeller concedes that he 'did not treat of the principle of individualisation with the universality and definiteness that we could have wished' and it is certainly hard to find him formulating question (iv) in such terms as his interpreters use.

Łukasiewicz asks whether matter or form 'is the source of individuality'.⁴ He uses 'individual' as a translation of τὸδε τι, but is unable to cite any passage where Aristotle enquires into the ἀρχὴ τοῦ τὸδε τι εἶναι or says that matter is that καθ' ὃ a substance is τὸδε τι. (Passages,

² Op. cit. on p. 239, pp. 93-6.

³ G. E. M. Anscombe & P.T. Geach: *Three philosophers* p. 72.

⁴ op. cit. on p. 239, p. 70.

as we shall see, can be found where Aristotle says this about form, but Łukasiewicz does not consider them.)

Miss Anscombe asks⁶ 'What is the difference between two individuals of the same kind?' but does not give us any reason to think that Aristotle would not reply 'There need be no difference'. Her formulation of (iv), in other words, does not distinguish it from (ii), and while she can cite a passage in which Aristotle speaks of difference between individuals of the same kind she fails to show that it bears on (iv) and not on (ii).

Popper asks:⁶ 'How is it that two or more individuals (even if qualitatively indistinguishable) can be counted – each counting exactly as one – and therefore be distinguished?' Popper rightly distinguishes this from the question 'How is it that any one individual, although "composite", i.e. consisting of many parts, is a unity rather than a plurality?' – a question rather about unity than about individuation – but he does not distinguish it from our question (i), and the answer which he gives to it looks very like the answer which Aristotle gives to question (i). He says among other things, taking *x* and *y* as points and *A* and *B* as physical bodies, that 'If *x* is in the region occupied by *A* and *y* is in the region occupied by *B*, and if no path connecting *x* and *y* lies entirely within the regions occupied by *A* or by *B*, then $A \neq B$ '. As Popper observes, his criterion is in effect a criterion of discontinuity: 'A and B are different bodies if they are separated by a complete gap, however small'. So he seems to be endorsing the *De Anima* answer to question (i): we perceive numbers by τῆ ἀποφάσει τοῦ συνεχοῦς.

Geach asks⁷ what makes two coexisting individuals of the same kind, e.g. two pennies, 'to be two'. Aristotle nowhere formulates such a question and might well have considered it improper. It seems to trade on a grammatical similarity to 'What makes two pennies to be cylindrical?' but pennies are not two in the way they are cylindrical: they are not each two. Further, Aristotle has a general objection to questions of the form 'What makes A A?' As they stand they are vacuous, τὸ μὲν οὖν διὰ τί αὐτό ἐστὶν αὐτό, οὐδὲν ἐστὶ ζητεῖν (*Met. Z*, 1041 a 14-15). Sometimes they can be recast into the acceptable form 'What makes A B?', e.g. 'What makes a house a house?' can be

⁶ op. cit. on p. 239, p. 93.

⁶ *ibid.* pp. 100-1.

⁷ *Three Philosophers*, p. 73.

reformulated 'What makes tiles and stones a house?' (ibid. a 26-7), but Geach's question seems to resist such reformulation. For if I wish to ask a question about several individuals, I must make clear their number; otherwise people will not know to which individuals I am referring. If I say 'These pennies' and there are two pennies and two only before us, you take me to mean these two pennies. If there is a great pile of pennies before us and I ask 'What makes these pennies two?' you are puzzled and may ask 'Which two pennies do you mean?'

The same objection applies still more strongly to Lloyd's formulation 'What makes this man this man rather than another man?'⁸ for we must speak of him as this man rather than another man if we are to raise any question about him at all. Lloyd does not distinguish question (iv) from the question what makes a thing identical with itself. I doubt if Aristotle considered the latter a genuine question (πλήν εἴ τις λέγοι ὅτι ἀδιάρετον πρὸς αὐτὸ ἕκαστον, τοῦτο δ' ἦν τὸ ἐνὶ εἶναι *Met. Z*, 1041 a 18-19).

While, therefore, it may be that (iv) is a genuine question, those who say that Aristotle gives matter as the answer to it fail to show that he asked it: either the formulations they offer are not found in him, or if they are, it is not shown that they are formulations of question (iv) rather than of some other question. And if they are formulations of (iv), we may add, Aristotle's answer is not matter: it is either discontinuity or τοῦτο ἦν τὸ ἐνὶ εἶναι.

II

Let me now turn to the passages which have been taken to show that Aristotle made matter the principle of individuation. These are hardly more than two in number, *Met. Δ*, 1016 b 31-2 and *Z*, 1034 a 5-8. Zeller⁹ adds *I*, 1058 a 37ff., but this, I shall argue, does not reinforce but weakens the support derivable from 1034 a 5-8. Ross¹⁰ mentions *Met. Z*, 1035 b 27-31, *I*, 1054 a 34, *Λ*, 1074 a 31-4 and *De Caelo* 278 a 7-b 3, but these add little to 1016 b 31-2 and 1034 a 5-8.

1016 b 31-3 comes in a chapter in which Aristotle discusses grounds on which things may be called one. That which is educated and that which is honest are one 'by virtue of coincidence' if e.g. Coriscus is

⁸ op. cit. on p. 239, p. 519.

⁹ op. cit. on p. 239, p. 369 n. 5.

¹⁰ *Aristotle's Metaphysics* Vol. I pp. cxvi-ii.

both, and things may also be one 'of themselves' in various ways: if they are continuous, like a leg, a thigh, a line, or if they are the same in species, like quantities (presumably) of water, quantities of wine (1016 a 20-1), or if they are the same in genus like a horse and a man. This is clearly the burden of the chapter as a whole (see 1016 a 1, b 8-9, b 23-4). Lines 1016 b 31-3 run as follows: ἔτι δὲ τὰ μὲν κατ' ἀριθμὸν ἔστιν ἓν, τὰ δὲ κατ'εἶδος, τὰ δὲ κατὰ γένος, τὰ δὲ κατ'αναλογίαν, ἀριθμῶ μὲν ὧν ἡ ὕλη μία.

Aristotle's statement that things are one in number if their matter is one is interpreted as a clear statement that matter is the principle of individuation. But in the first place, why should we suppose he is talking about individuation at all? The topic of the chapter is unity rather than individuation. C. Kirwan¹¹ meets this difficulty by saying that our lines are 'intrusive', that is, I suppose, composed on a different occasion. This expedient is always open to the commentator on Aristotle, but he should not use it more often than he can help. But if Aristotle were thinking about individuation, would he have used the words in our text? I think a person might well get into the habit of calling different individuals of the same species numerically different without thinking it natural to enquire into the principle of individuation by asking what it is to be numerically one.

If anyone thinks that Aristotle must be enquiring into the principle of individuation whenever he enquires into the grounds for calling things one in number, he will have to explain away *Topics* I, 103 a 8-31. That is Aristotle's fullest discussion of numerical oneness, and seems to have nothing to do with individuation. Aristotle says that A and B are one in number if 'A' and 'B' are expressions for the same thing, ἀριθμῶ μὲν ὧν ὀνόματα πλείω τὸ δὲ πράγμα ἓν – and the πράγμα need not be an individual: it may be a species or type.

What, then, has Aristotle in mind in 1016 b 31-3 – for it is clearly not the Fregean point of the *Topics* passage? I suggest he is thinking of the same thing there as in other parts of the chapter, the unity of an individual continuous whole. Two thighs would be one in species, because their definition is one; a single thigh is one because the bone in it, its matter, is continuous. Or perhaps the point is rather that e.g. the North Sea and the Baltic are one in a different way from the Black Sea and the Caspian. The former are one individual sea because their water is continuous. The Black Sea and the Caspian

¹¹ Aristotle's *Metaphysics*, Books Γ, Δ, Ε, p. 139.

are one only in species: they are both water but not continuous. If we interpret our lines in this way, of course, they cease to be 'intrusive' but fit perfectly with what follows: φανερόν δὲ καὶ ὅτι τὰ πολλὰ ἀντικειμένως λεχθήσεται τῷ ἐνί· τὰ μὲν γὰρ τῷ μὴ συνεχῆ εἶναι (1017 a 3-4).

The second passage on which the traditional interpretation rests is *Met. Z*, 1034 a 5-8: τὸ δ' ἅπαν ἤδη τὸ τοιόνδε εἶδος ἐν ταῖσδε ταῖς σαρκὶ καὶ ὀστοῖς, Καλλίας καὶ Σωκράτης· καὶ ἕτερον μὲν διὰ τὴν ὕλην (ἐτέρα γάρ), ταῦτό δὲ τῷ εἶδει (ἄτομον γὰρ τὸ εἶδος). There is, I claim, nothing in this passage or its context to show that Aristotle is considering our question (iv) rather than question (ii), numerical rather than qualitative difference. His point might be this. Suppose Callias is pale and Socrates dark: though they are different they are not different in form or species. For pallor and darkness are qualities primarily of skin, which is part of the matter of a man, not of the form, of what the matter constitutes.¹²

It may be said that while there is nothing in the *Met. Z* passage to rule out this interpretation, there is nothing to confirm it either. I think, however, that it gets some support from *Met. I* 9. Aristotle there asks why one ἐναντίωσις makes things τῷ εἶδει ἕτερα and another does not, e.g. footed and winged do and pallor and darkness do not, and replies by distinguishing λόγος and ὕλη: ὅσαι μὲν ἐν τῷ λόγῳ εἰσὶν ἐναντιότητες εἶδει ποιοῦσι διαφορὰν, ὅσαι δ' ἐν τῷ συνειλημμένῳ τῇ ὕλῃ οὐ ποιοῦσιν. διὸ ἀνθρώπου λευκότης οὐ ποιεῖ οὐδὲ μελανία... ὡς ὕλη γὰρ ὁ ἀνθρώπος, οὐ ποιεῖ δὲ διαφορὰν ἢ ὕλη· οὐδ' ἀνθρώπου γὰρ εἶδη εἰσὶν οἱ ἀνθρώποι διὰ τοῦτο, καίτοι ἕτεροι αἱ σάρκες καὶ τὰ ὀστᾶ ἐξ ὧν ὄδε καὶ ὄδε· ἀλλὰ τὸ σύνολον ἕτερον μὲν, εἶδει δ' οὐχ ἕτερον, ὅτι ἐν τῷ λόγῳ οὐκ ἔστιν ἐναντίωσις. τοῦτο δ' ἔστι τὸ ἔσχατον ἄτομον· ὁ δὲ Καλλίας ἔστιν ὁ λόγος μετὰ τῆς ὕλης. (1058 b 1-11). The language and examples here (ἄτομον, λευκότης, σάρκες, Καλλίας) echo the *Met. Z* passage to such an extent that it is reasonable to suppose Aristotle has the same things in mind in both. His main point here is certainly that qualities like colour cannot make things different in form because what they qualify is primarily matter. If when he says that the flesh and bones of which one man is composed and those of which another are composed

¹² I have argued in my *Aristotle's Physics Books I and II* pp. 70-3 that Aristotle conceives the matter-form relationship primarily as that of constituent to thing constituted, and that is my answer to Zeller's claim (op. cit. on p. 239, pp. 370-1) that Aristotle's 'system leaves no room for individual forms of sensible things', which if correct would be fatal to my suggestion below that Aristotle makes form the principle of individuation.

are ἕτεροι he means by ἕτεροι 'numerically' rather than qualitatively different, the consideration is 'intrusive'. But there is no need to take ἕτεροι in this way. And even if we do, Aristotle will still not be saying that this man is different from that because his flesh and bones are different: he could think that this quantity of flesh and bone is different from that because it composes this man and not that – that bodies, though numerically different, are differentiated by the persons whose bodies they are. But the general tenor of the *Met. I* passage suggests that the *Met. Z* passage does not bear on our question (iv) but at most on question (ii).

The further passages to which Ross refers may be dealt with more briefly. *Met. Z*, 1035 b 27-31 bears, as its context confirms, not on any question about individuation but on whether our notions of products of nature are like our notions of geometrical shapes or more like our notion of snubnosedness (cf. *Met. E*, 1025 b 30-1026 a 6): Aristotle is claiming that common nouns like 'man' and proper names like 'Socrates' stand not for forms alone but for things which have both a formal and a material aspect. Ross' translation of the phrase τῆς ἐσχάτης ὕλης (b 30) as 'ultimate *individual* matter' (my italics) is gratuitous.

Met. I, 1054 a 32-b 2 occurs in a discussion of ways in which things can be one as against many (a 20). Things may be called one, says Aristotle, if they are the same in any of a variety of ways, and they will be the same in number, κατ' ἀριθμόν, apparently, if they are one in matter. It is natural to connect this passage with 1016 b 31-3. If there things are one in number because they are continuous the same idea is probably being expressed here: the matter of you is continuous with that of yourself, and discontinuous with that of the man next to you, ὁ πλησίον (1054 b 17). On this interpretation Aristotle overlooks the case of Siamese twins, but that is as likely as that he should imagine that you are one with yourself in body in a way in which you are not one with yourself in soul.

Ross himself concedes that in *Met. Λ*, 1074 a 33-5 'Aristotle expresses himself rather obscurely': the obscurity of this passage should deter us, I think, from attributing any doctrine to Aristotle on the basis of it. *De caelo I*, 278 a 7-b 3, which Ross seems to think parallel, is considerably clearer, and there Aristotle certainly makes matter the principle of numerical multiplicity in a way: the number of gold rings of specific dimensions we can have depends on the amount of gold there is. On this showing, however, matter is a principle of multi-

plicity only in that it is the material cause of the individuals in a multitude. It will not be responsible for the number of individuals that exist, for that depends not on the amount of matter available but on what individuals it forms. With the present quantity of flesh and bone there could have been only one giant (a 33-5).

I conclude that the passages which are held to show that Aristotle makes matter the answer to question (iv) fail to show even that he considered it. It remains to see whether any other passages bear on (iv) or entitle us to attribute to him any opinion about the principle of individuation.

III

Lukasiewicz was right, I think, to direct attention to Aristotle's use of the expression τόδε τι. In general Aristotle holds that a substance is a τόδε τι. An expression for a substance such as 'a horse' is an expression for a τόδε τι (cf. *Met. Z*, 1028 a 11-12), it belongs to a substance above all to be a τόδε τι (1029 a 28), only a substance is just what is a τόδε τι (1030 a 4-6). Aristotle means, apparently, that a substance is just what is an individual, and does not have to be related to anything else to be identified or individuated. There is nothing, so to speak, πρὸς ᾧ this horse is called this, but other things are rather called this on the basis of a relation to it. Such a suggestion would be parallel to, unless it were an elucidation of, the well-known doctrine that substances are what are primarily ὄντα.

A substance, however, has a formal and a material aspect. A bronze sphere is a sphere and bronze. In which aspect is it just what is an individual? No doubt this bronze sphere is this sphere and this bronze (cf. *Met. A*, 1071 a 27-9); but is this bronze the bronze in this sphere, or is this sphere rather the sphere composed of this bronze? Although I do not find in Aristotle any formulation of which this is a literal rendering, this would perhaps have been the most natural way for him to approach our question (iv).

If so much is agreed, the following passages strongly suggest that Aristotle considered form rather than matter the principle of individuation: ἔστι δ' οὐσία τὸ ὑποκείμενον, ἄλλως μὲν ἢ ὕλη (ὕλην δὲ λέγω ἢ μὴ τόδε τι οὐσα ἐνεργείᾳ δυνάμει ἐστὶ τόδε τι), ἄλλως δ' ὁ λόγος καὶ ἡ μορφή, ὁ τόδε τι ὄν τῷ λόγῳ χωριστόν ἐστι, τρίτον δὲ τὸ ἐκ τούτων (*Met. H*, 1042 a 26-30). λέγομεν δὴ γένος ἓν τι τῶν ὄντων τὴν οὐσίαν, ταύτης δὲ τὸ μὲν ὡς ὕλην, ὃ καθ' αὐτὸ οὐκ ἐστὶ τόδε τι, ἕτερον δὲ μορφήν καὶ εἶδος, καθ'

ἦν ἤδη λέγεται τόδε τι, καὶ τρίτον τὸ ἐκ τούτων. (*De An.* II, 412 a 6-9).¹³

It might perhaps be said that in these passages Aristotle's point is that expressions for the matter of a thing, such as 'bronze', 'flesh' are not expressions for individuals, while expressions for the form like 'a sphere' are. Even 'this bronze' would normally be an expression for a *kind* of material, e.g. bronze containing a specially high proportion of tin. If this is all Aristotle has in mind, his rejection of the view that matter is the principle of individuation is incomplete. For a sophisticated upholder of that view would claim, not that this sphere is the sphere composed of this bronze, but that this sphere is the sphere composed of this quantity¹⁴ of bronze, this cubic foot or hundredweight of bronze.

Even if we grant, however, that such a sophisticated formulation did not occur to Aristotle, there is no reason to suppose that if it had been put to him he would have accepted it. It would not fit with his general policy of giving form the metaphysical edge over matter, and neither is it very satisfying in itself. For as Popper¹⁵ asks, what are we to say about this quantity of bronze? Is it the quantity composed of these atoms of copper etc., and are these atoms the atoms composed of these subatomic particles? If we take this line we shall never be able to identify anything. For there will always be some particle or kind of stuff which is the most primitive known, the components of which, that is, are unknown. Its identity will then be unascertainable, and the identity of everything else will depend on it. Or should we say that this quantity of bronze is 'just what is' an individual, that its identity does not depend on the identity of the atoms which compose it? In that case our notion of it is a kind of form-concept, and we are in effect making form and not matter the principle of individuation.

It this last point seems doubtful we may reflect that the distinction between matter and form remains even when the latter is conceived in what might be called a materialistic way. Our concept of a pound weight, for instance, i.e. of something with which we can measure weight, is a form-concept, and we may ask 'Is this pound of bronze

¹³ Zeller takes τόδε τι here to mean 'specific peculiarity' (op. cit. on p. 239, p. 370), but, it seems, gratuitously.

¹⁴ cf. H. Cartwright, 'Quantities' in *Philosophical Review* 1970, V.C. Chappell 'Stuff and Things' in *Aristotelian Society Proceedings* 1970-71.

¹⁵ op. cit. on p. 239, p. 99.

the pound in this pound weight, or is this weight the weight composed of this pound of bronze?' Similarly from Popper's discussion we might derive the notion of a thing such that any proper part of it is continuous with some other part, and no part is continuous with anything which is not a part. Let us call such a thing an isolated continuum or IC. The notion of an IC is a form concept and we may ask 'Is this pound of bronze the pound composing this IC, or is this IC the one composed of this pound of bronze?' Now (as Popper himself may have wished to suggest) it seems that anyone who wants to hold that a pound of bronze is of itself an individual must conceive it as an IC, or a weight, or some other thing constituted.

We do indeed make use of a notion of a quantity of matter which is not a form concept, but it is in dealing rather with our question (iii) than with question (iv). It may seem at first that if (iv) is formulated as I have just been suggesting, the distinction between it and (iii) is eroded. If this penny is the copper in this cylinder and different from that penny because the cylinder is different, presumably it is the same penny as you gave me yesterday because the cylinder is the same. And conversely if, as Miss Anscombe might wish to say, you are the same as the man I saw last year because you are the same person or $\psi\upsilon\chi\acute{\eta}$,¹⁶ you ought to be different from the man beside you now because you are a different person or $\psi\upsilon\chi\acute{\eta}$. But something of the distinction can be saved.

It has been plausibly argued¹⁷ that a claim that an individual identified at one time is one and the same with an individual identified at another needs a covering concept. To save it from vacuity we must be able to answer the question 'One and the same what?' – specify some concept it satisfies throughout the interval. This concept can, but need not, be a form-concept. We can say, for instance 'The hundredweight of bronze in the statue at time t_1 is the same hundred-weight of bronze as the hundred-weight of bronze in the cannon at time t_2 , and there need be no one thing that the bronze constituted throughout the interval, not even an IC. Hence we might say that a matter-concept will cover an identity claim over a period of time (question iii), though a form concept is needed to identify an individual

¹⁶ For the suggestion that Aristotle's notion of a human $\psi\upsilon\chi\acute{\eta}$ is the same as our notion of a person, see D. Wiggins, *Identity and spatio-temporal continuity*, pp. 46-8.

¹⁷ D. Wiggins, *op. cit.* pp. 27-40.

at any particular time (question iv) – in the example just given the bronze was identified at t_1 as the bronze in the statue, and at t_2 as the bronze in the cannon.

In saying this we should, of course, be going far beyond Aristotle's remarks. But if we wish to develop his thought beyond the text, this and not the traditional direction is, I suggest, the one in which we should proceed.

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