KNOWLEDGE OF SUBSTANCE IN ARISTOTLE

THERE is a fundamental problem in Aristotle's metaphysics which has received a good deal of attention ever since Eduard Zeller emphasized it in his book on Aristotle in the nineteenth century.[1] The difficulty has often been expressed as an inconsistency between three propositions to each of which Aristotle is committed:

(1) No universal is substance.
(2) Knowledge is of what is most real.
(3) Knowledge is of universals.

Since substance is what is most real, these three propositions are inconsistent. Hence, it is said, there is an unacceptable 'discrepancy between the real and the intelligible'[2] and 'the ultimately real is unknowable'.[3] Only individuals are substances but only universals can be known.

Aristotle recognizes the difficulty (*Metaph.* 1003a13–17) and offers a solution in *Metaph. M* 10 based on a distinction between actual and potential knowledge. But Aristotle's solution has often been dismissed as clearly inconsistent with his own epistemological views,[4] while more sympathetic commentators have not, I feel, correctly understood how Aristotle's proposal is supposed to work.[5] Now, it is the distinction between actual and potential knowledge which Aristotle claims leads to the solution of the problem. In this paper I want to take Aristotle's suggestion seriously and determine to what extent it is defensible. And I hope to show that the situation with regard to the epistemological problem is more complicated than has previously been thought.

I

In the *Metaphysics* Aristotle repeatedly says, and believes, that no universal can be substance (*Z* 13, 1003a7–9, 1035b27–30, 1041a4, 1042a21–2, 1053b16–18, 1060b21–2, 1087a2, 12). When the epistemological problem is discussed, this is taken to imply that the primary substances are perceptible individuals, and the problem is then to determine whether Aristotle allows the possibility of their being known. Now, the question of whether perceptible individuals can be known is certainly not irrelevant to the problem under examination, but I believe it is clear that in the *Metaphysics* the primary substances are the individual substantial forms of perceptible

[1] *Aristoteles und die alten Peripatetiker* (Hildesheim 1963) 309–13.

[2] H. F. Cherniss, *Aristotle's Criticism of Plato and the Academy* (New York 1962) 340.

[3] W. Oates, *Aristotle and the Problem of Value* (Princeton 1967) 74.

[4] Zeller (n. 1) 309–10; H. Bonitz, *Aristotelis Metaphysica* (Hildesheim 1960) 569 n. 1; P. Natorp, *Platons Ideenlehre* (Leipzig 1903) 421; C. Werner, *Aristote et l'idéalisme platonicien* (Paris 1910) 70 n. 1; T. Gomperz, *Greek Thinkers* (London 1912) 77–8; W. D. Ross, *Aristotle* (Oxford 1966) 170–2; *Aristotle's Metaphysics* (Oxford 1970) i cix, ii 466; L. Robin, *La pensée hellénique des origines à Epicure* (Paris 1942) 520; D. J. Allan, *The Philosophy of Aristotle* (Oxford 1970) 120–1; Cherniss (n. 2) 339–51; Oates (n. 3) 73–4, 180–3, 365; J. Tricot, *La Métaphysique* (Paris 1962) i 439–42; R. Albritton, *JPhilos* liv (1957) 708; A. R. Lacey, *Phronesis* x (1965) 60–2.

[5] Ps.-Alexander *in Metaph.* 792–3; A. Schwegler, *Die Metaphysik des Aristoteles* (Tübingen 1847–8) ii 338; L. Robin, *La théorie platonicienne des Idées et des Nombres* (Paris 1908) 531–3; J. Chevalier, *La notion du nécessaire chez Aristote* (Paris 1915) 142; P. Gohlke, *Die Lehre von der Abstraktion bei Plato und Aristoteles* (Halle n.d.) 95–6; M. de Corte, *La Doctrine de l'Intelligence chez Aristote* (Paris 1934) 224 n. 2; L.-M. Regis, *L'opinion selon Aristote* (Paris 1935) 124 n. 2; A. Antweiler, *Der Begriff der Wissenschaft bei Aristoteles* (Bonn 1936) 42–3; J. Owens, *The Doctrine of Being in the Aristotelian Metaphysics* (Toronto 1962) 428; *APhilosQ* iii (1966) 166; M. Wundt, *Untersuchungen zur Metaphysik des Aristoteles* (Stuttgart 1953) 69; W. Wieland, *Die aristotelische Physik* (Göttingen 1970) 96 n. 12; M. Grene, *A Portrait of Aristotle* (Chicago 1967) 208; E. Tugendhat, *TI KATA TINOΣ* (Freiburg 1968) 108; I. Düring, *Aristoteles* (Heidelberg 1966) 256; W. Sellars, *Philosophical Perspectives* (Springfield 1967) 100–7; H. Seidl, *Der Begriff des Intellekts bei Aristoteles* (Meisenheim am Glan 1971) 53; W. Leszl, *RMetaphys.* xxvi (1972) 278–313; S. Mansion, *Le jugement d'existence chez Aristote* (Louvain 1976) 320–1.

individuals rather than perceptible individuals themselves.[6] So the direct concern of the problem is the knowability of individual substantial forms.

Aristotle is explicitly aware of the problem and presents it at the end of *B* in the following terms (1003a13–17): If the principles are individuals, then since knowledge is universal, the principles will not be knowable. If the principles are to be knowable but individuals, then there must be universal principles which are knowable and prior to the individual principles. The principles Aristotle has in mind are substantial forms.[7] So 1003a13–17 is concerned with the problem of whether substantial forms can be known. Since Aristotle's view is that substantial

[6] I argue that substantial forms are individuals in 'An Argument in *Metaphysics Z* 13', *CQ* xxx (1980) 72–85, and in *Arch. Gesch. Philos.* lxi (1979) 249–70.

That form is primary substance is shown by the following. (1) In *Z* 7 (1032b1–2) Aristotle explicitly says that form is primary substance. (2) In *Z* 11 Aristotle says that a soul is a primary substance (1037a5, 27–9), and a soul is a form (1035b14–16, 35–1036a2, 1037a28–9, 1043a35–b4; *de An.* 407b23–4, 412a19–21, b10–11). (3) At the end of *Z* 11 Aristotle says (1037b3–4): 'By primary substance I mean that which is defined not by predicating one thing of another as its substratum and matter.' And Aristotle has just explained in *Z* 10 and 11 that the form, unlike the composite, is definable without reference to matter. (Another debatable claim. I defend it in the second paper referred to above.) (4) At the end of *Z* 11 (1037a33–b2) Aristotle says that primary substances are identical with their essences and immediately (b3–4) points out that composites of form and matter are not identical with their essences. (*Z* 6 does not contradict this. Rather, 1037a33–b2 says that this point was made before, and that can refer to nothing but *Z* 6. So this passage explains what *Z* 6 was talking about, *viz* forms). (5) In *Z* 3, at the start of his discussion of the substratum (1029a5–7), Aristotle says that if it turns out that form is prior to matter, it will also be prior to the composite of form and matter. The outcome of the discussion is that form is prior to matter (1029a27–30), and Aristotle dismisses the composite as plainly posterior to the form (1029a30–1).

It might be thought that *Z* 7, 1032a15–19 says that sensible individuals are the primary substances:

> Now natural comings to be are the comings to be of those things which come to be by nature; and that of which they come to be is what we call matter; and that by which they come to be is something which exists naturally; and the something which they come to be is a man or plant or one of the things of this kind, which we most of all call substance (*τὸ δὲ τί ἄνθρωπος ἢ φυτὸν ἢ ἄλλο τι τῶν τοιούτων, ἃ δὴ μάλιστα λέγομεν οὐσίας εἶναι*).

If 'the something which they come to be' referred to the composite, then it might be thought that in the final sentence Aristotle is saying that the composite is primary substance. But this is impossible since, if Aristotle did mean that, he would contradict himself twenty lines later when he says that form is primary substance (1032b1–2).

That interpretation assumed that 'the something which they come to be' (*τὸ δὲ τί*, 18) refers to the composite. But in fact it refers to the form. The point is clearest in *Λ* 3, 1069b36–1070a2, where the three factors in generation mentioned at the start of *Z* 7 reappear: *πᾶν γὰρ μεταβάλλει τὶ καὶ ὑπό τινος καὶ εἴς τι· ὑφ' οὗ μέν, τοῦ πρώτου κινοῦντος; ὃ δέ, ἡ ὕλη· εἰς ὃ δέ, τὸ εἶδος*. So the *τί* which something becomes is the form, not the composite (*cf.* 1033a24–b10: what is generated is the *bronze sphere* [1033a30–1, 32–3, b1–2, 8–10; *cf.* 1034b10–11], not the something which *τὸ γιγνόμενον* becomes, *viz* 'sphere,' which refers throughout to the form). Hence, 'man' and 'plant' are used in *Z* 7, 1032a17 to refer to the *form* of man or plant, just as 'plant' and 'animal' are used in 1032a33 to refer to the nature or form of a plant or animal. Such terms are used in a similar way throughout *Z* and *H* (1033a29, 33, b9, 17–18, 1034b11, 1035a7–9, 10, 11 (*cf.* 14–16), b1–3, 1036a1, 16–18, 1037a7–8, 1043a29–37; *cf.* 1070a16, *GC* 321b22–3, 33, *Cael.* 278a13–15).

Hence, 1032a15–19 is saying that forms are most of all substances. But Aristotle may have in mind the difference between natural substances and artifacts.

[7] This is clear from 1003a9–12. Aristotle has said that if we were to suppose that the principles are universals, then they would not be substances, for substance is a this, and no universal is a this. He then argues: *εἰ δ' ἔσται τόδε τι καὶ ἓν θέσθαι τὸ κοινῇ κατηγορούμενον, πολλὰ ἔσται ζῷα ὁ Σωκράτης αὐτός τε καὶ ὁ ἄνθρωπος καὶ τὸ ζῷον, εἴπερ σημαίνει ἕκαστον τόδε τι καὶ ἕν*. The suggestion that the principles are universal thises is not a suggestion that has anything to do with efficient, material or final causes. Rather, it is because the formal cause of Socrates becomes pluralized that the suggestion results in his becoming many animals. So the principles under discussion in this *aporia* are formal causes. And since *M* 10 answers this *aporia*, it too is concerned with formal causes.

That *M* 10 is concerned with formal causes is also indicated by the following points. First, Aristotle thinks that the objections developed at the beginning of *M* 10 against the two conceptions of principles are objections to Platonic Ideas (1087a4–7; *cf.* with 1086b20–32, 999b27–1000a4 and 1002b12–32). And in Aristotle's opinion the Forms were supposed to be formal causes of sensible things (988a10–11, b1–5). So formal causes are the principles he is concerned with. Secondly, one of Aristotle's arguments in *M* 10 against the view that universals are principles of substances is identical with one of the arguments in *Z* 13 against the same view (1038b7–8). *M* 10, 1087a1: *ἔσται μὴ οὐσία πρότερον οὐσίας*. *Z* 13, 1038b26: *πρότερον γὰρ ἔσται μὴ οὐσία καὶ τὸ ποῖον οὐσίας*. So we have the same argument deployed against the same view, and since *Z* 13 is attacking the view that substantial forms are universals, *M* 10 too is attacking the view that substantial forms are universals.

forms are the primary substances, 1003a13–17 does in effect raise the question of how to avoid a discrepancy between the most real and the intelligible.

In *M* 10 Aristotle attempts to answer the question raised at the end of *B*, and again he is concerned with the principles of composites rather than composites themselves. He begins by saying that if one does not allow that there are substances which are separable and particular, one will destroy substance in the sense in which he understands it (1086b14–19). The rest of the chapter proceeds on the assumption that there are such substances. The question, then, is whether the principles of such substances are universals or particulars. And again, Aristotle points out the epistemological problem that arises for the view that the principles are individuals (1086b22, 32–7).[8]

At the end of the chapter (1087a10–25) Aristotle attempts to solve the epistemological problem by drawing a distinction between actual and potential knowledge. A distinction between actual and potential knowledge is drawn in several other places in Aristotle's writings. I now propose to examine Aristotle's views on actual and potential knowledge as stated outside of *M* 10. Then I will explain Aristotle's answer to the epistemological problem on the basis of the results of this examination. And finally, I will try to determine whether Aristotle's answer satisfies his own requirements for knowledge.

II

Aristotle uses the contrast between actual and potential knowledge in two different ways. These will be gone through in turn.

One kind of potential knowledge is in question when we say that Socrates has knowledge because he has grammatical knowledge. Such a person has potential knowledge in that he can contemplate what he knows whenever he wants if nothing hinders him (*de An.* 417b24, *Ph.* 255b1–4, *Metaph.* 1048a32–5); but he is not in fact thinking about it or contemplating it (*de An.* 412a22–6; *Ph.* 255a33–4, b2; *Metaph.* 1048a32–5; *EN* 1146b31–3). To have actual knowledge is to contemplate something one knows, and Aristotle sometimes employs the terms 'to use' (χρῆσθαι) and 'to contemplate' (θεωρεῖν) interchangeably with 'to actualize' (ἐνεργεῖν) (*de An.* 412a9–11, 21–6; *Ph.* 247b7–9, 255b4; *Metaph.* 1050a22–4, 30, 35–6; *EN* 1146b31–5; *EE* 1219a16–17; *MM* 1208a33–b2).

Before discussing the objects of actual and potential knowledge the different uses of the term 'universal' (καθόλου) which will be relevant to the discussion must be sorted out. 'Universal' is used in Aristotle's writings to mean, among other things, the following:

(1) what is predicated of many and contrasted with the individual (*Int.* 17a38–40; *PA* 644a27–8; *Metaph.* 1000a1, 1038b11–12, 1040b25–6);

(2) a truth which always obtains (*APo.* 87b32–3, 88a12–17, 96a8–15; *Metaph.* 981a5–12, 1077b17, 1088b26);

[8] He presents two arguments against the view that the principles are particulars (1086b20–32, 1086b32–7) and one argument against the view that the principles are universals (1087a1–4). But, while he leaves standing the argument against the view that universals are principles, he has a reply for both arguments against the view that the principles are particulars (1087a4–10, 10–25). So Aristotle is arguing that the principles in question are individuals, and we have already noted (n. 8) that the principles in question are forms. Hence, *M* 10 defends the position that substantial forms are individuals. (The first objection against the view that the principles are individuals is that, if so, there will not be more than one object exemplifying a kind. The objection assumes that the view that the principles are particulars is like the theory of Forms and makes each principle unique in its kind (*cf.* 999b27–1000a4, 1002b30–2). Aristotle's reply (1087a4–10) is that nothing prevents there being many individual principles of the same sort. I discuss this problem and Aristotle's answer in the first paper mentioned in n. 6.) There can be no question of the epistemological problem with the problem of whether sensible individuals can be known. The following passages prove conclusively that Aristotle is concerned with principles: 996a9–10, 1003a5–7, 14–17, 1060b22–3, 1086b20–2, 32, 37, 1087a2–4, 12, 21. This means that the examples in 1087a19–21 are analogies rather than illustrations.

(3) a truth expressed by a proposition of the form 'All Bs are A' or 'B is A' where (i) it is always the case that all Bs are A; (ii) B is A in itself (i.e. A occurs in the definition of B, or vice versa); (iii) B is A *qua* B (*APo. A* 4).

In what follows 'universal' can be understood in either the first or the second sense (see n. 21).

It is evident from Aristotle's statements concerning actual and potential knowledge that universals can be objects of both. I may know a universal without contemplating it although I am able to do so whenever I want. And in that case I have potential knowledge of the universal. And when I contemplate it I have actual knowledge of the universal. So in *De Anima* Aristotle says (417b22–4): 'But knowledge is of universals, and these are somehow in the soul. So that one can think of them whenever one wishes.' The object of 'think' (*νοῆσαι*) is a universal where 'to think' clearly amounts to 'to contemplate' (*θεωρεῖν*) (417b19) and we have already seen that 'to contemplate' is equivalent to 'to have actual knowledge' (*ἐνεργεῖν*).

To have actual knowledge of a universal in this way is not 'to apply knowledge to a particular instance'.[9] Two passages show this. First, in the *Prior Analytics B* 21 Aristotle tries to explain how one can know that all Bs are A and yet fail to recognize that C—an individual B—is A. And in the course of giving his solution Aristotle points out (67a33–7):

> Nothing prevents a man who knows both that A belongs to the whole of B, and that B again belongs to C, thinking that A does not belong to C, e.g. knowing that every mule is sterile and that this is a mule, and thinking that this animal is with foal; for he does not know that A belongs to C unless he contemplates the two propositions together (cf. *APo.* 78a5–6).

One can contemplate either of the two premises of a syllogism, but if one does not contemplate them together, one will not draw the conclusion and so may err on a particular occasion. Now we have no reason to believe that Aristotle presupposes that when, in such a case, 'All Bs are A' is contemplated but not applied to C because 'C is B' is not contemplated together with it, there is some other B to which it is applied. So the universal can be contemplated, one can have actual knowledge of the universal, without applying it to a particular case.

Secondly, in the *Nicomachean Ethics* 1146b35–1147a3 he says: 'But since there are two kinds of premises [*viz* universal and particular, i.e. singular] nothing prevents a man having both premises and acting against his knowledge, provided that he is using only the universal premise but not the particular.' One can use the universal premise without using the particular premise. But since contemplation of the particular premise is a necessary condition for the application of the universal to the particular case (*APr.* 67a33–7), this cannot be an instance of the application of the universal to a particular case. But since it is an instance of the use of the universal—i.e. actual knowledge of the universal—using the universal premise is not here, and so cannot generally be said to be, the application of the universal to a particular case.

The distinction between actual and potential knowledge also applies to knowledge of individuals. In the *Nicomachean Ethics* vii 3, the distinction (1146b31–3) is applied equally to universal premises and premises dealing with individuals. And in the *Eudemian Ethics* (1225b11–12) it is applied solely to knowledge of particulars.

Another way in which Aristotle speaks of actual and potential knowledge can be explained as follows. Suppose that C is either an individual instance or a sub-species of B. Then if S knows that all Bs are A (this is a *ἕξις* of the soul), S knows potentially that C is A; and it is not necessary that S be aware of the existence of C (*APo.* 86a23–7, *de An.* 417a24–9; cf. *APr.* 66b31–3, 67a11–16, 19–20, 27, 39, b6; *APo.* 71a24–9, b6, 7, 86a11–12; *Metaph.* 982a23).[10] For example, if

[9] A. Kenny, *Phronesis* xi (1966) 170.

[10] At *APo.* 86a23 'universal' may be being used in the strict sense of *APo. A* 4. But it is not necessary for 'B is A' to be universal in this way in order for the knowledge of it to constitute potential knowledge that C is A. This is shown by *APr. B* 21 and *APr. A* 1. In those chapters Aristotle is attempting to explain how one can know that all Bs are A, and hence know that C (an individual B) is A, but fail to recognize that C is A. The solution is that in knowing that all Bs are A one only knows *potentially* that C is A and so may still fail to have *actual* knowledge that C is A and may think that C is not A. The problem and its solution are not restricted to cases where 'All Bs are A' is universal in the strict

S knows that all triangles have angles equal to the sum of two right angles (hereafter '2RA') then S knows potentially or 'by the universal knowledge' (*APr.* 66b32, 67a19, 27, b2, 4; cf. *APo.* 71a28) that the isosceles triangle (or that this individual triangle) has 2RA. Presumably, one has actual knowledge that C is A when, on the basis of the knowledge that all Bs are A, one recognizes that C is A.

However, what is known need not be the conclusion of a syllogism. To know what B is is to have potential knowledge of individual Bs. In *de Anima* Aristotle uses the example of knowing the letter type 'A', where this is to have potential knowledge of this individual 'A' (*de An.* 417a24–9).

I will distinguish these two sorts of actual and potential knowledge by subscripts, referring to the first kind as actual$_1$ and potential$_1$ knowledge, and the second as actual$_2$ and potential$_2$ knowledge. They differ in the following respects. In the first case the potential$_1$ knowledge of a proposition q is constituted by the knowledge of q which one possesses but is not contemplating. But in the second case the potential$_2$ knowledge of a proposition q is constituted by the knowledge of a *different* proposition p. Further, if C is an individual, then to know (without thinking) that C is A is to have potential$_1$ knowledge that C is A. But this item of knowledge does not constitute potential$_2$ knowledge of anything.

Universals can be objects of both potential$_2$ and actual$_2$ knowledge. For example, the knowledge that the triangle has 2RA constitutes potential$_2$ knowledge that the isosceles triangle has 2RA (*APo.* 86a25–6). And since this fact can be potentially$_2$ known it can also be actually$_2$ known. But if a universal is also universal in *APo. A* 4's sense—(3) on p. 66—then it cannot be an object of actual$_2$ or potential$_2$ knowledge, i.e. there is nothing the knowledge of which could constitute potential$_2$ knowledge of such a universal.[11] This point further distinguishes the two kinds of actual and potential knowledge since universals of this kind (3) can be objects of actual$_1$ and potential$_1$ knowledge.

As already indicated, individuals can be objects of actual$_2$ and potential$_2$ knowledge. To know that all triangles have 2RA is to know potentially$_2$ that this individual triangle has 2RA. In *de Anima* 417a29 what is actually$_2$ (and therefore potentially$_2$) known is this individual letter 'A': someone has potential knowledge if he is 'able to contemplate whenever he wants (*βουληθεὶς δυνατὸς θεωρεῖν*) if nothing external hinders him. While he who is contemplating (*θεωρῶν*) is in actuality and is knowing this A[12] in the proper sense' (417a27–9).[13]

sense of *APo. A* 4, as is shown by two of Aristotle's examples: 'Every mule is sterile' (*APr.* 67a35), 'Every pair is even' (*APo.* 71a31–2). Thus, knowledge of the first proposition constitutes potential knowledge that this mule is sterile even though it is not universal in the sense of *APo. A* 4.

[11] The reason why no universal (3) can be the object of potential$_2$ knowledge is that if 'All Bs are A' is a 'commensurate universal', then all As are B. Hence there is no genus G of B such that all Gs are A. So there is no truth—'All Gs are A'—the knowledge of which could constitute potential$_2$ knowledge that all Bs are A.

[12] Cherniss argues that 'this A' at 417a29 cannot be intended to refer to a sensible particular. After having pointed out that in *de Anima* ii 5 (417b19–26) Aristotle distinguishes between knowledge and sensation on the basis of the fact that actual knowledge is not dependent on an external object while actual sensation is, Cherniss goes on to say: 'In the same chapter of *De Anima* in which this distinction is made and the reason given for it that actual sensation is of particulars while actual knowledge is of universals (417B22–23) he whose knowledge is actual is said to be knowing in the proper sense of the word (417A28–29). This [i.e. 'this A' at 417a29] cannot be interpreted as a particular here without convicting Aristotle of self-contradiction as obvious as it would be unnecessary' (*op. cit.* [n. 1] 343). There are two replies to this argument. First, the 'contradiction' can be thought to exist only if Aristotle's explicit reference to actual knowledge of particulars at 417b26–8 is ignored: 'The same holds for knowledge (*ταῖς ἐπιστήμαις*) of the objects of perception, and for the same reason, *viz* because the objects of perception are particulars and are external objects.' Cherniss (345 n. 253), like the Greek commentators, thinks that Aristotle is here referring only to the productive arts since he has just said that knowledge is of universals (417b22–3). But (1) there is nothing in the text to suggest this; and (2) in two other passages where Aristotle says that knowledge is of universals the examples of universals are drawn from the productive arts (*Metaph.* 981a5–27, *EN* 1180b13–23; cf. *Rh.* 1356b28–31, Alexander, *in Metaph.* 79. 15–22).

Secondly, and decisively, 417a30–b2 shows that 'this A' is a particular perceptible letter: *ἀμφότεροι μὲν οὖν οἱ πρῶτοι κατὰ δύναμιν ἐπιστημόνες* [*sc.* the man who has the first-level potentiality of knowledge and the man who has the second-level potentiality of knowledge—417a22–7] *ἀλλ' ὁ μὲν διὰ μαθήσεως ἀλλοιωθεὶς καὶ πολλάκις ἐξ ἐναντίας μεταβαλὼν*

III

We are now in a position to begin examining Aristotle's proposed solution to the epistemological problem given in *M* 10, 1087a10–25:

> The statement that all knowledge is universal, so that the principles of things must also be universal and not separable substances, contains the greatest problem among those mentioned, but nonetheless the statement is in one way true but in another way it is not true. For knowledge, just like knowing, is double, of which the one is potential, the other actual. The potentiality being as matter universal and indefinite is of the universal and indefinite, but the actuality, being determinate, is of the determinate, being a this it is of a this. But sight sees the universal color accidentally because this color which it sees is a color; and that which the grammarian contemplates—this A is an A. For if the principles must be universal, what is derived from them must also be universal, just as in proofs; but if this is so nothing will be separable or a substance. But it is clear that in one way knowledge is universal and in another way it is not.

Prima facie it appears that on any interpretation there must be a correlation between actual knowledge and particulars on the one hand, and between potential knowledge and universals on the other; and no corresponding correlation between actual knowledge and universals, or potential knowledge and individuals. Now, one might emphasize a19–21 ('But sight sees the universal color accidentally because this color which it sees is a color; and that which the grammarian contemplates—this A is an A') and take Aristotle to be saying that *by* having actual knowledge of the particulars one has potential knowledge of the universals; i.e. Aristotle would be referring to induction or something like induction. In a particular case it might work roughly like this: In some way I acquire the knowledge of Socrates' soul and have actual knowledge of this primary substance. The actual knowledge of this soul (and perhaps other souls) is accidentally and potentially knowledge of the universal *human soul* because Socrates' soul is a soul and (we already know) does not differ in species from the soul of any other human being. So by knowing this soul I know the universal *human soul* and knowledge of the universal depends on knowledge of the particular[14] (cf. *Metaph.* 1047b31–4, 1049b29–1050a3, *APo.* 88a14–17).

Such an interpretation is attractive because it would solve the epistemological problem. For the difficulty, as explained at the end of Book *B* (1003a13–17), was that if the principles are particulars, knowledge of the particulars requires prior universal principles, presumably because the universal principles will have to be known in order for the individuals to be known. But now

ἕξεως [γίγνεται ἐπιστήμων], ὁ δὲ ἐκ τοῦ ἔχειν τὴν αἴσθησιν ἢ τὴν γραμματικήν, μὴ ἐνεργεῖν δ' εἰς τὸ ἐνεργεῖν ἄλλον τρόπον. If the actual knowledge of 'this A' depends on actual sensation, then what is actually known must be a perceptible individual.

[13] In 417b18–28 Aristotle distinguishes between actual knowledge of universals and actual knowledge of particulars by virtue of the fact that S can think of a universal he knows whenever he wants (διὸ νοῆσαι μὲν ἐπ' αὐτῷ, ὁπόταν βούληται) but can have actual knowledge of particular sensible objects only while perceiving them, i.e. *not* 'whenever he wants'. But in 417a29 what is actually known is an individual sensible letter and so when Aristotle *there* says that S can contemplate whenever he wants (βουληθεὶς δυνατὸς θεωρεῖν, ἂν μή τι κωλύσῃ τῶν ἔξωθεν, a27–8) he cannot mean that S can contemplate 'this A' irrespective of his surroundings. Rather, the point is that if the individual 'A' is within the range of perception, then S can contemplate it whenever he wishes.

Aristotle uses the same expression in other places where he does not mean to suggest that the exercise of a potentiality can occur independently of what is externally present. For example, in *Metaph.* 1049a5–8: 'The delimiting mark of that which as a result of thought comes to exist in complete reality from having existed potentially is that if the agent has willed it it comes to pass if nothing external hinders (ὅταν βουληθέντος γίγνεται μηθενὸς κωλύοντος τῶν ἐκτός), while the condition on the other side—*viz* in that which is healed—is that nothing in it hinders the result.' The man with medical knowledge can heal whenever he wants, Aristotle says, but obviously in saying this he does not wish to imply that the man with medical knowledge can heal independently of the presence of a body to be healed (*cf.* 1048a13–21).

[14] *Cf.* Ps.-Alexander, *in Metaph.* 792. 21–4; 793. 2–12; Schwegler (n. 5) 338; A. Baudin, *Revue Thomiste* vii (1899) 277; Chevalier (n. 5) 149 n. 1; J. Geyser, *Die Erkenntnistheorie des Aristoteles* (Münster 1917) 243; Owens (n. 5) (1962) 428, (1966) 166, 168; Wieland (n. 5) 96 n. 12, 99 n. 15; Sellars (n. 5) 101–2; Seidl (n. 5) 53.

on the present interpretation of *M* 10, 1087a10–25 Aristotle is claiming that knowledge of universals depends on knowledge of particulars. Hence the difficulty would be solved.

Furthermore, one might hope to find some independent textual support for this interpretation from a passage in the *Physics* (247b4–7): 'The potential knower becomes [potentially] knowing not by moving himself but by the presence of something else. For whenever a particular occurs, he knows in a way the universals by the particular.' Aristotle is arguing that there is no generation (*γένεσις*) of the state (*ἕξις*) of knowledge. This state of knowledge is identified as potential knowledge and is knowledge of universals. So when Aristotle says that one acquires potential knowledge of universals 'by the particular' might he not mean 'by actual knowledge of the particular'?

It seems that he cannot. For Aristotle immediately goes on to argue that there is no generation of actual knowledge, and he begins by saying (247b7–8): 'Again, there is no generation of the use (*τῆς χρήσεως*) and actuality.' On the view under examination, the actual knowledge referred to in this line must be the actual knowledge referred to in 247b4–7. But on the interpretation in question, I acquire potential knowledge of the universal *human soul* by having actual knowledge of Socrates' soul which I did not know beforehand. But now, it would seem to make little sense to speak of 'using' knowledge which was not possessed before. If I use knowledge then I must be using knowledge which I possessed prior to my use of it. And in fact, Aristotle explicitly points out in *de Anima* and elsewhere that in an individual potential knowledge must occur earlier in time than the corresponding actual knowledge (412a26–7, 430a20–1, 431a2, *Metaph.* 1050a4–14; cf. *Metaph.* 1051a32–3, 1075b32–3, 1077a26–7; *EN* 1105a22–5, 1147a21–2; *Cael.* 283a20–1; *MM* 1208a33–5, 39–b2).[15]

A second reason for rejecting the proposed interpretation is that in the *Posterior Analytics* Aristotle asserts that knowledge of the particular is not potential knowledge of the universal (86a22–9):

> It is most clear that universal demonstration is more important from the fact that grasping the prior of the propositions we have in a sense the posterior one too and we grasp it potentially. E.g. if someone knows that every triangle has two right angles, he knows in a sense of the isosceles too that it has two right angles—potentially—even if he does not know of the isosceles that it is a triangle. But one who grasps the latter proposition does not know the universal in any sense, neither potentially nor actually (*cf.* 86a12–13).

To know that the isosceles triangle has two right angles is to know the particular (*τὸ κατὰ μέρος*, 86a12) but this knowledge is not potential knowledge of the universal. While the particular here is a sub-species rather than an individual, there is no reason to believe that Aristotle would say anything different about the latter.

Thirdly, the analogy with sight in 1087a19–20 tells against this interpretation, for seeing a color cannot be said in any sense to lead to the ability to see color (cf. *EN* 1103a26–31). And fourthly, nowhere outside of *M* 10 does Aristotle use the terms 'actual knowledge' and 'potential knowledge' in the way suggested by this interpretation.

One assumption of the interpretation which does seem correct, however, is that there is a correlation between potential knowledge and universals on the one hand, and between actual knowledge and individuals on the other, but no corresponding relation between potential

[15] It is true that in *Metaph.* *Θ* 8, 1049b27–1050a3 one of Aristotle's arguments for the priority of actuality to potentiality is that the learner acquires knowledge (*δύναμις*) by exercising (*ἐνέργεια*), and hence the actuality is temporally prior to the potentiality. However, in the immediately following argument (1050a4–14) Aristotle is assuming that potentiality precedes actuality, and specifically, that potential knowledge (*θεωρητικήν*) precedes actual knowledge (*θεωροῦσιν*, a12–13). And in a12–14 Aristotle explains that although the learner contemplates in order to have knowledge, he contemplates (knows) only in a way (*οὗτοι δὲ οὐχὶ θεωροῦσιν ἀλλ' ἢ ὡδί*). But then this 'knowledge' cannot be what is in question in *Metaph. M* 10 (cf. *Cat.* 9a5–8, *EN* 1147a21–2).

knowledge and individuals or actual knowledge and universals.[16] An adequate interpretation, then, must correlate potential knowledge with universals and actual knowledge with individuals. And I think that we have no choice but to interpret *M* 10 in light of the results of the previous section. Now it is obviously hopeless to attempt to understand *M* 10 in terms of the first distinction between actual and potential knowledge. For no correlation obtains between potential$_1$ knowledge and universals on the one hand and actual$_1$ knowledge and individuals on the other. Potential$_1$ knowledge of universals is the potentiality of having actual$_1$ knowledge of universals, and potential$_1$ knowledge of individuals is the potentiality of having actual$_1$ knowledge of individuals. So the distinction between actual$_1$ and potential$_1$ knowledge is completely indifferent to the distinction between universal and individual.

But the distinction between actual$_2$ and potential$_2$ knowledge is not. The knowledge that all triangles have 2RA constitutes potential$_2$ knowledge that *this* triangle has 2RA. But the knowledge that this triangle has 2RA does not constitute potential$_2$ knowledge of anything. Hence potential$_2$ knowledge is correlated with universals in a way in which it is not correlated with individuals: knowledge of a universal is potential$_2$ knowledge, but knowledge of an individual is not potential$_2$ knowledge.

However, it cannot be said that actual$_2$ knowledge is correlated with individuals in a way in which it is not correlated with universals. The knowledge that all triangles have 2RA is potential$_2$ knowledge of which the actuality will be actual$_2$ knowledge that an individual triangle has 2RA; but it will equally be the potentiality for having actual$_2$ knowledge that all isosceles triangles have 2RA. So there is actual$_2$ knowledge of universals as well as of individuals. So actual$_2$ knowledge is not correlated with individuals in a way in which it is not correlated with universals.

Nevertheless, given the problems facing the other interpretations of *M* 10, the chapter can only be understood in terms of the distinction between actual$_2$ and potential$_2$ knowledge. And the fact that there is actual$_2$ knowledge of universals is mitigated by the following point. The problem Aristotle is concerned to answer in *M* 10 is the problem of how *principles* (substantial forms) can be known if they are not universals (see n. 8). And if we understand his answer in terms of the distinction between actual$_2$ and potential$_2$ knowledge he must be saying the following: the knowledge of the universal constitutes potential$_2$ knowledge of the individual principles, the individual substantial forms. So, for example, the knowledge of the universal *human soul* constitutes potential$_2$ knowledge of Socrates' soul, Plato's soul, etc. But now, to know the universal *human soul* is to know the definition of the human soul. And the definition of the human soul is universal in the strict sense of *APo. A* 4—sense (3). As I pointed out before, universals of this sort cannot be objects of actual$_2$ knowledge (although knowledge of such a universal *constitutes* potential$_2$ knowledge).[17] Hence, universals of this kind cannot be actually$_2$

[16] Cherniss says that Aristotle cannot really wish to maintain that the individual is ever the object of actual knowledge. First, he argues: 'Had Aristotle made the particular in any sense the object of actual knowledge, he could not have distinguished knowledge from sensation by asserting that the actualization of the former is *not* dependent, as that of the latter *is*, upon external objects. (*De Anima* 417B19–26),' *op. cit.* (n. 1) 343. But this argument fails since in the lines immediately following those referred to by Cherniss Aristotle points out that actual *knowledge* of perceptible objects, just as actual sensation, is dependent on the presence of the perceptible objects (417b26–8).

Secondly, Cherniss says: 'If Aristotle means to say that the sensible particular is the real object of knowledge in the full and proper sense, he is . . . denying the doctrine which he everywhere else maintains, namely that actual knowledge is of the universal while particulars are objects of sense perception only.' But it is not true that Aristotle 'everywhere else maintains that actual knowledge is of the universal while particulars are objects of sense perception only', since 417b26–8 explicitly distinguishes actual knowledge and actual sensation of particulars (cf. *APr.* 67a39–b9).

[17] It might be thought that the knowledge of a certain genus of soul (perhaps *bovine soul*, for example) constitutes potential$_2$ knowledge of particular species of soul, but this would be a mistake. If 'three-sided plane figure' is the definition of *triangle*, then to know that the triangle is a three-sided plane figure is to have potential$_2$ knowledge that the scalene triangle is a three-sided plane figure. But this is not yet to know the universal *scalene triangle*, for that requires knowledge of the complete definition of the scalene triangle.

known, and the same will be true for all principles. So although there is actual$_2$ knowledge of some universals, there is *no* actual$_2$ knowledge of the sort of universal Aristotle is concerned with in *M* 10, *viz* those universals the knowledge of which constitutes potential$_2$ knowledge of individual principles.

IV

But can there be knowledge of individuals? Is Aristotle's solution compatible with views which he expresses elsewhere concerning knowledge? What must now be done is to determine whether Aristotle's understanding of knowledge and its requirements excludes the possibility that individuals can be known. My discussion will proceed on the assumption that if sensible individuals can be known, then individual substantial forms can be known.

One requirement of the knowable, according to Aristotle, is that it be necessary, cannot be otherwise (*APo.* 71b9–16, 73a21–3, 74b6, 88b30–89a10, 38–b1; *EN* 1139b19–23, 1140a31–b3, 31–2). But it is not always clear what 'the things that cannot be otherwise' is intended to cover. It is clear that eternal truths like 'the diagonal is incommensurable' are counted necessary by Aristotle (*Metaph.* 1019b24–7, *EN* 1112a21–3). So these sorts of truths can be known. It is also clear that 'this man is sitting' is something which can be otherwise, is not necessary. So according to Aristotle this cannot be known. But what is important for the question of whether individuals can be known is Aristotle's attitude to something like 'the (individual) man is an animal' (hereafter [1]). Does Aristotle count this as something that can be otherwise or as something that cannot be otherwise?

As far as I know, he never makes a completely explicit pronouncement on the question, but some passages do imply that [1] is necessary. In the first place, *whenever* Aristotle gives an example of a fact which can be otherwise it is something like 'the man is sitting' and never something like [1] (*APr.* 32b10–13; *Top.* 102b2–4, 129a3–5; *Ph.* 186b21–2; *GA* 767b28–9; *Metaph.* 1019b27–30, 1025a14–19, 1047a26–7, b13–14, 1051b8; cf. *APo.* 73b4–5), i.e. it is always something that Aristotle would label an accident in his tripartite classification of states of affairs. (See my fourth argument *infra.*) This suggests that [1] cannot be otherwise and hence is necessary.

Secondly, Aristotle regularly distinguishes knowledge and opinion in virtue of the fact that the object of belief is what can be otherwise whereas the object of knowledge cannot be otherwise (*APo. A* 33, *Metaph.* 1039b34–1040a2, *EN* 1140a31–b3, 27). But when Aristotle gives an example of an object of belief it is: the man is sitting (*Cat.* 4a26–8).

Thirdly, in the *Posterior Analytics* Aristotle says (74b5–12):

> Now if demonstrative knowledge depends on necessary principles (for what one knows cannot be otherwise), and what belongs to the objects in themselves is necessary (for in the one case it belongs in what it is [ἐν τῷ τί ἐστιν ὑπάρχει], and in the other they belong in what they are to what is predicated of them, one of which opposites necessarily belongs), it is evident that demonstrative deduction will depend on things of this sort; for everything belongs either in this way or accidentally, and what is accidental is not necessary.

If S is P in itself, then S is necessarily P (*APo.* 73b16–18, 23–4, 74b6–7, 75a28–9; in some cases we will only have 'S is necessarily P or Q or . . . Z', but this point can be ignored). And S is P in itself if P occurs in the definition of S. But now, 'in itself' predications apply to individuals as well as universals (*Metaph.* 1029b13–16). For example, in the *Metaphysics* Aristotle says (1022a25–9): '. . . in itself (τὸ καθ' αὑτό) is necessarily said in many ways . . . in one way, whatever belongs in what it is (ἐν τῷ τί ἐστιν ὑπάρχει), for example Callias is an animal in himself (καθ' αὑτόν), for animal belongs in his definition. For Callias is an animal.' So Callias is an animal in himself, and

Aristotle's statement in the *Posterior Analytics* implies that therefore it is necessary that Callias is an animal.[18]

Fourthly, Aristotle often divides facts into three exhaustive classes: those which are necessary and always the same, those which are for the most part, and accidents (*Metaph.* 1025a14–19, 1026b27–33, 1064b32–1065a3; *Top.* 112b1–2; *Ph.* 196b10–15, 197a19–20, 198b34–6; *Cael.* 283a32–b1; *GC* 333b4–7; *APo.* 87b20–1). The classification applies to facts involving individuals as well as general facts (*Metaph.* 1026b6–9, 33–1027a5, *Δ* 30; *Top.* 120b21–6; *Ph. B* 5–6; 198b36–199a3). Aristotle says that the fact that a man is an animal is not accidental (*Metaph.* 1026b35–7; cf. *Ph.* 186b15–20, 26–34), and therefore he must think that it is necessary (cf. *Metaph.* 1006b28–33).

Fifthly, in the *Nicomachean Ethics* Aristotle says that it is impossible that I should be immortal (1111b20–3). This entails that it is necessary that I am mortal. And Aristotle says just this in *Metaph. I* 9 where we read (1059a2–7): 'For the accidental can fail to belong, but perishability is among those things which necessarily belong to those things to which they do belong . . . Necessarily, therefore, perishability either is or belongs to the substance of each perishable object.' Among the perishable objects are individual men (1059a12), and since perishability necessarily belongs to what it belongs, an individual man is necessarily perishable.

It appears, then, that Aristotle's requirement that the knowable be necessary does not rule out the possibility of knowing individuals, e.g. that this man is an animal, because he thinks that some facts about individuals are necessary, cannot be otherwise. Now, to this the objection can be made that when Aristotle says that the knowable must be necessary he is using 'necessary' in such a way that it entails being eternal. So in the *Nicomachean Ethics* Aristotle says (1139b19–24): 'We all think that what we know cannot be otherwise . . . Therefore the knowable is necessary. Therefore it is eternal, for the things that are necessary *simpliciter* are all eternal, and eternal things are ungenerated and imperishable' (cf. *EN* 1140b31–2, 1143a2–5; *APo. A* 8; *GC* 335a33–4, 337b35–338a2; *PA* 639b23–4). The fact that this man is an animal is not eternal, and therefore even if Aristotle thought that in some sense it is necessary, it is not necessary in the way (sc. *simpliciter*—*ἁπλῶς*) required of an object of knowledge.

The passage from the *Nicomachean Ethics* clearly does say that only the eternal can be known. But it is not clear that this is intended to rule out the possibility of knowing that, for example, this man is an animal. In *Metaph. E* 2 Aristotle argues that there can be no knowledge of accidents (*cf.* 1064b30–1065a6, *APo.* 75a18–22, 87b19–27). As I pointed out before, in that chapter he divides facts into three classes: some things are always and of necessity (*ἢ λέγομεν τῷ μὴ ἐνδέχεσθαι ἄλλως*, 1026b29), others are for the most part, and others are neither always nor for the most part (1026b27–30). The latter are accidents. Examples of accidents are a house's being pleasant to such and such persons (1026b7), a white thing's being educated (1027a11), and 'that a man is white (for this is neither always nor for the most part, but it is *not* by accident that he is an animal)' (1026b35–7; *cf.* 1007a20–33). Because neither all nor most men are white, the

[18] In *Metaph.* 1025a30–3 Aristotle explains one sense of *συμβεβηκός*: *ὅσα ὑπάρχει ἑκάστῳ καθ' αὑτὸ μὴ ἐν τῇ οὐσίᾳ ὄντα, οἷον τῷ τριγώνῳ τὸ δύο ὀρθὰς ἔχειν, καὶ ταῦτα μὲν ἐνδέχεται ἀΐδια εἶναι.* This suggests that if S is P in itself, then it may be eternal but *need* not be eternal. *Cf.* H. Weiss, *Kausalität und Zufall in der Philosophie des Aristoteles* (Darmstadt 1967) 184.

The fact that Aristotle does not explain 'in itself' predications *in terms of* necessity is not, as N. White thinks (*RMetaphys* xxxi [1972] 61), of any importance. Aristotle says that 'S is P in itself' entails 'S is necessarily P.' And his statement that Aristotle never 'uses statements involving necessity or possibility which are explicitly about such [sensible] particulars' is simply false. See *APr.* 32b10–12; *Top.* 102b4–9, 129a3–5; *SE* 166a23–4; *Metaph.* 1025a14–24, 1047a26–9, b13–14, 1051b7–8, 13, 1059a2–7, 12; *Int.* 19a9–15; *Cael.* 281b9–12; cf. *Top.* 144a24–7, *Metaph.* 1019b27–30. The rest of White's arguments for claiming that Aristotle would not allow assertions of necessity about individuals are also unconvincing.

Martha Kneale errs in saying that 'necessary predication is characterized as not only universal (*κατὰ παντός*) but also as essential (*καθ' αὑτό*)' (*The Development of Logic* (Oxford 1968) 94; *cf.* G. Patzig, *Aristotle's Theory of the Syllogism* [Dordrecht 1968] 34). In the passage she refers to (*APo.* 73b25–8) it is the *καθόλου* that is *κατὰ παντός* and *καθ' αὑτό*, and the latter characteristic entails necessity. Aristotle does not say that only the *κατὰ παντός* is necessary.

fact that this man is white is an accident and so there can be no knowledge of it. But since it is always the case that men are animals (this is eternal—1026b27, 1027a19) the fact that this man is an animal is not accidental but necessary (cf. *Metaph.* 1025a16–21, 1027a11–12, *APo.* 96b2–5, *Int.* 21a14–16). And therefore it can be known since one of Aristotle's aims in this passage is to contrast accidents with necessities (and 'things that are for the most part') in order to explain why there can be no knowledge of the former as there *can* be of the latter (cf. *APr.* 67a33–7, *APo.* 87b19–27, 88a1–6, 14–17).

If this is correct, then in *E* 2 Aristotle is saying that because 'Man is an animal' is eternal and necessary, we can know that this man is an animal. And because 'Whiteness belongs to man' is not necessary the fact that this man is white cannot be known. Now, the passage from the *Nicomachean Ethics* can, I think, be understood in the same way, that is, not as ruling out the possibility of knowledge of individuals but rather as ruling out the possibility of knowing accidents. In that passage Aristotle says that knowledge is of what is eternal. But in *E* 2 Aristotle says the same thing (1027a20–1): 'For all knowledge is of that which is always (ἀεί—*cf.* 1026b27–8, 1027a19, 1064a4–5), or of that which is for the most part.' And since *E* 2 does not exclude knowledge of individuals, the *Ethics* passage too may not be intended to exclude knowledge of individuals.

One reason why such an interpretation may be resisted is that when in the *Ethics* passage Aristotle says that knowledge is of 'eternals' it is natural to understand him to be talking about eternal *objects*, where this would at least include eternal universals as opposed to perishable individuals. And Aristotle has often been accused of confusing 'the eternal holding of facts with the eternal existence of objects'.[19] But the evidence cited in support of the charge instead refutes it (*Ph.* 222a3–9, 252b2–4, *Cael.* 281a4–7, *GA* 742b25–8, *EN* 1112a21–3). Examples of 'eternals' given by Aristotle include 'a triangle always has its angles equal to two right angles' (*Ph.* 252b2–3; cf. *GA* 742b26–7), 'the diagonal of a square is incommensurable with the side' (*GA* 742b27–8). These examples prove that when Aristotle says that knowledge is of eternal 'things that are' (ὄντα) the 'things' in question are not in any normal sense 'objects' but rather facts or truths (cf. *Int.* 23a2–3, 22–3, *APo.* 71b25–6, *Top.* 112b1–9, *Metaph.* 1024b17–25).[20]

But again it might be said that even if this is true Aristotle is still in trouble. For even if it is true that in these passages Aristotle is not *saying* that knowledge has eternal objects, nevertheless his statements imply that knowledge requires eternal objects. 'Every man is an animal' can be eternally true only because there is an eternal 'object' which the statement is about, *viz* the universal *man* (cf. *Int.* ch. 7). And this requirement is just the point he is making when he says that knowledge is of universals, and this requirement rules out knowledge of individuals (*Metaph.* 981a5–24, 1003a15–17, 1059b25–6, 1060b19–22, 1086b5–6, 33; *APo.* 87b38–9, 88b30–2; *de An.* 417b22–3; *EN* 1140b31–2, 1180b15–16, 22–3; *cf.* 1142a23–4, *Rh.* 1356b28–31, Alexander, *in Metaph.* 79. 18–19).[21]

This objection rests on the assumption that when Aristotle says that knowledge is of universals he wishes to thereby rule out the possibility of knowledge of individuals. If so, *M* 10 simply contradicts what Aristotle says elsewhere, since the chapter asserts that there is actual$_2$

[19] J. Barnes, *Aristotle's Posterior Analytics* (Oxford 1975) 130; *cf.* A. Mansion, *Introduction à la physique aristotélicienne* (Louvain 1946) 87, 89, 179–80; S. Mansion (n. 5) 90–1, 252.

[20] *EN* 1139b24's reference to the items in question as ἀΐδια does not show that they are objects (*Metaph.* 1025a30–3, *Ph.* 252b3, *GA* 742b23–8). Nor does its description of them as ἀγένητα καὶ ἄφθαρτα do so (*Ph.* 222a3–9, *APo.* 75b24, 27, *Cael.* 281a3–7).

[21] Although it is usually assumed that when Aristotle says that knowledge is of universals, he is using 'universal' in sense (1) (what is predicable of many), sometimes he means universals of kind (2) (universal truths) (*Metaph.* 981a6, 10–12; *APo.* 87b32–3, 38–9; *EN* 1140b31; cf. *Metaph.* 1086b33–7, *Rhet.* 1356b28–31). Nevertheless, in some of these statements 'universal' is contrasted with the individual (*Metaph.* 981a16–19, 1003a7–9, 13, 16, 1059b25–6, *de An.* 417b22–3). There is a close connection between knowledge of universals of kind (1) and knowledge of universals of kind (2): normally, to know a (1) is to know a (2), and to know a (2) is to have knowledge about a (1) (to know that all Bs are A is to have knowledge about B).

knowledge of individuals. But I believe that there is evidence to support the view that this assumption is mistaken.[22]

(1) *Metaphysics M* 10, 1086b33–7. In *M* 10 Aristotle is considering the question whether principles are individuals or universals. One of his arguments against the view that the principles are individuals is that if so, they will not be knowable. But Aristotle's argument in support of this position is as follows: 'For they are not universal, but knowledge is of universals. This is clear from proofs and definitions, for there is no demonstration that this triangle has its angles equal to two right angles unless all triangles have their angles equal to two right angles, nor is there a demonstration that this man is an animal unless all men are animals.' Aristotle says that the fact that knowledge is of universals is made clear by proofs and definitions. And it is made clear from proofs e.g. because there is no demonstration that *this* man is an animal *unless* all men are animals.

Now, this is Aristotle's *argument* supporting the claim that knowledge is of universals, but the argument appears to presuppose that we *can* have knowledge of individuals, e.g. the knowledge that this man is an animal, since it assumes that we can demonstrate that this man is an animal.[23] The point of the argument seems to be that we can know that this man is an animal *only if* we know that all men are animals. So Aristotle's statement that knowledge is of universals cannot exclude the possibility of knowledge of individuals since his argument in support of the claim that knowledge is of universals presupposes that there is knowledge of individuals.

(2) *Metaphysics B* 6, 1003a14–17. In 1003a5–17 Aristotle raises the question which he attempts to answer in *M* 10: are the principles universals or individuals? Suppose the principles are individuals. Then the following problem arises: '. . . they will not be knowable; for knowledge of all things is universal. So there will be other principles prior to the [individual] principles—those that are universally predicated—if there is to be knowledge of them [*sc.* the individual principles].' Aristotle says that if the individual principles are to be knowable, there must be universal principles. So if there *were* universal principles prior to the individual principles, then the individual principles *could* be known. Again, the statement that knowledge is universal does not entail that individuals are unknowable but rather that knowledge of individuals depends on knowledge of universals.

[22] The question of whether, in these other passages where Aristotle asserts that knowledge is of universals, he means that potential$_2$ knowledge is of universals, is difficult to answer. It is clear that knowledge of universals will *in fact* be potential$_2$ knowledge. For the knowledge that all Bs are A will be a certain ἕξις of the soul (*Top.* 121b36–8, 124b33–4, 39–125a1, 133b24–30; *APo.* 99b18, 25, 32, 100a10, b6, 8; *de An.* 417a2, b16, 428a3–5; *PA* 639a1–3; *Ph.* 247b1–7, 255b1–3; cf. *GA* 735a9–11; *EN* 1094a26–b2; *EE* 1218b36, 1219a9–18; *MM* 1183a33, 1208a32–5, b1–2), which is potential$_2$ knowledge that individual Bs are A. (A ἕξις is a potentiality that can be actualized: *EN* 1098b31–3, 1122b1–2, 1152b33, 1157b5–6, 1176a33–b1, 1180b32; *EE* 1219a31–3, 1237a33–5; *Top.* 125b15–19; *Ph.* 228a15–16, 247b1; *MM* 1184b12–17). But there seems to be no evidence that Aristotle wishes to refer to potential$_2$ knowledge *rather than* potential$_1$ knowledge. *De An.* ii 5, 417b22–3 says 'knowledge is of universals' where potential$_1$ knowledge is in question. However (as noted below) this cannot be understood to contradict *M* 10 since in the same chapter of *de Anima* Aristotle refers to actual$_2$ knowledge of individuals (417a28–9; *cf.* b26–7). Furthermore, *M* 10 (on my interpretation) says that potential$_2$ knowledge is of universals. And this is not incompatible with the assertion that there is potential$_1$ knowledge of universals. Of course, *if* the assertion that (potential$_1$) knowledge is of universals were intended to rule out actual$_2$ knowledge of individuals, then that assertion would be contradicted by *M* 10. But *de An.* ii 5 (417a28–9, b22–3) appears to demonstrate that it is not so intended.

[23] This fact led Paul Shorey to argue that εἰ μή in lines 35 and 36 must mean 'but only that' rather than 'unless', so that the passage should be translated: 'For we do not syllogize that this triangle has its angles equal to two right angles *but that* every triangle has its angles equal to two right angles, nor that this man is an animal *but that* every man is an animal.' (*CPh* viii [1913] 90–2.) But the motivation for this translation is removed once it is realized that the same line of argument as it appears in my translation also occurs in the statement of the aporia at the end of *Metaph. B* 6 and in *APo. A* 31: see (2) and (4) *infra*. Furthermore, examples of demonstrations involving individuals do not occur merely occasionally in Aristotle, as Ross says (*Aristotle's Metaphysics* ii 464). The fact is that the *Posterior Analytics* is loaded with such examples (74a13–15, 78a29–b4, 4–13, 15–28, 28–31, 83a20, 85a20–31, 87b37–88a4, 89b10–20, 93a37–b6, 94a24–36, 36–b8, 8–23, 95a14–16, 16–21, b32–37, 96a3–7, 98b19–24; also *cf.* 71a2–b8, 73b32–74a3, 83a1–32, b4, 85b30–5, 88a14–17, 89b26, 95b13–27, 98a29–34, 37–b2, *APr.* 43a37–40). I have not come across any attempts to explain how Aristotle could use such examples while maintaining that individuals cannot be known.

(3) *de Anima* 417b22–3: 'But knowledge is of universals.' However, a few lines later Aristotle is talking about knowledge of sensible individuals (*ταῖς ἐπιστήμαις ταῖς τῶν αἰσθητῶν*, 27), and at 417a29 Aristotle refers to actual$_2$ knowledge of an individual letter 'A'. Once again, the statement that knowledge is of universals cannot be understood as ruling out knowledge of individuals.

(4) *APo. A* 31, 87b37–88a5:

> For one necessarily perceives particulars, whereas knowledge comes by becoming aware of the universal. That is why if we were on the moon and saw the earth screening it we would not know the cause of the eclipse. For we would see that it is eclipsed now and not why at all; for there turned out to be no perception of the universal. Nevertheless, if, from considering this often happening, we hunted the universal, we would have a demonstration; for from several particulars the universal is clear.

Aristotle says that we have knowledge by having the universal but he is not thereby ruling out knowledge of individuals. For he immediately goes on to give an example where what is known is why a *particular* eclipse occurs (*cf.* 88a14–17, 98b19–24). The point of saying that we have knowledge by having the universal appears to be not that one cannot know why a particular eclipse occurs, but that one cannot know this without knowing the universal. To know that the moon is eclipsed is to know its cause (*APo.* 71b9–13, 75a35; *Ph.* 184a12–14, 194b18–20; *Metaph.* 983a25–6, 994b29–30) and in order to know the cause one must know the universal (*APo.* 85b23–7, 87b23–7, 87b39–88a6, 12–17; cf. *Metaph.* 981a28, b6). But once we know the universal, then we *can* know why the moon is eclipsed '*now*' (cf. *APo.* 90a26–30). So once more Aristotle is not saying that the individual is unknowable but that in order to know it we must first know the universal.[24] (Cf. *Metaph.* 1086b5–6: 'For one cannot acquire knowledge *without* the universal.')

In these passages, then, Aristotle says that knowledge is of universals but is not thereby excluding knowledge of individuals. Consequently, other passages in which Aristotle says that knowledge is of universals should not be taken to exclude knowledge of individuals either.

On the basis of what we have seen so far, then, *M* 10's solution to the epistemological problem is not in conflict with Aristotle's views about knowledge and its requirements. The problem was that if principles are individuals, then they are unknowable; or if there is to be knowledge of them, then there must be universal principles prior to the individual principles since the individual can be known only by means of knowledge of the universal. In *M* 10 Aristotle is not giving up his belief that knowledge of the individual requires knowledge of the universal (*cf.* 1036a8, 1086b5–6, 32–7), for the individual is known by actual$_2$ knowledge which is the actuality of the potential$_2$ knowledge which consists in knowing the universal. Rather, Aristotle is denying that this fact entails that the universal which is known is a substance. So in order to know that Socrates' soul is ABC I must know that the universal definition of *human soul* is ABC. But knowledge of the universal is not knowledge of a substance, except potentially. It constitutes potential$_2$ knowledge of individual substances.

V

In this paper I have tried to present as good a defense as I can of Aristotle's solution to the epistemological problem in *Metaphysics M* 10. The defense took the form of arguing that Aristotle's requirements for knowledge do not exclude knowledge of individuals, and

[24] Another example which may make the same point is *APo. A* 33 where Aristotle is concerned to distinguish knowledge and belief and begins by saying (88b30–2): 'The knowable and knowledge differ from the opinable and opinion because knowledge is universal and through necessities and what is necessary cannot be otherwise.' However, if the man discussed at the end of the chapter (89a33–b6) is an individual, then Aristotle is expressly allowing knowledge of an individual and contrasting knowledge and opinion after having said that knowledge is universal. But it is not clear whether it is an individual man that Aristotle is referring to.

attempting to show that passages which appear to rule out knowledge of individuals should be understood otherwise. But there remains one passage which cannot be understood otherwise than as ruling out knowledge of perishable, perceptible individuals (*Metaph. Z* 15, 1039b20–1040a5):

> Since the substance is different, the composite and the formula (I mean that the one is substance in this way, the formula taken with the matter, the other the definition in general), of those which are said in this way there is destruction (and also generation), but there is no destruction of the formula (nor generation, for the being of house does not come to be but the being of this house), but they are and are not without generation or destruction; for it has been proved that nobody makes or generates these. And on account of this there is neither definition nor demonstration about sensible individuals because they have matter whose nature is such that they are capable both of being and not being; for which reason all the individual instances of them are destructible. If then demonstration is of necessary things and definition is scientific, and if, just as knowledge cannot sometimes be knowledge and sometimes ignorance, but opinion is such, so too demonstration and definition cannot be like this, but opinion is of what can be otherwise, clearly there can be neither definition nor demonstration about them. For perishing things are obscure to those who have the knowledge when they have passed from perception; and though the formulae remain in the soul, there will no longer be either definition or demonstration.

Perceptible, perishable individuals are objects of opinion, and in saying this Aristotle obviously means that they are not objects of knowledge. It seems to be no help to say, with Leszl, that 'when he points out that there is no knowledge of what is contingent and transitory, he is stressing that there is no knowledge of it *qua* contingent and *qua* transitory'.[25] Aristotle is not talking about perishable, perceptible individuals *qua* this or that. He is plainly talking about perishable, perceptible individuals period. And there is no way to avoid the conclusion that 'what can be otherwise' in 1040a1—which is said to be the object of opinion—includes the perishable, perceptible individuals of 1039b27–31.

But now, it is striking that in this passage Aristotle does *not* extend the argument from perishable perceptible substances to substantial forms, even though the start of the passage points out that substantial forms are perishable[26] ('they are and are not without generation or destruction'; *cf.* 1043b14–21, 1044b21–9, 1059a6–7, 1060a21–3, 1070a13–26; *Ph.* 192b1–2, 246b12–16; *GA* 731b31–5, 736b21–4; *GC* 328a27–8, 338b14–17; *Cael.* 306a9–11; *de An.* 408a24–6, 413a3–7, b24–29, 430a24–5; *Long.* 465a27–30; *Juv.* 479a7–9, 22). Rather, immediately after having contrasted sensible composites and substantial forms on the grounds that the former but not the latter are subject to generation and destruction, he infers from this (διὰ τοῦτο) that there is no definition or proof of individual perceptible substances because they contain matter which makes them capable of not being. The fact that Aristotle first *contrasts* substantial forms and composites, and then infers that perceptible individuals cannot be defined or subjects of demonstration *because* they have matter and are generable and destructible, neither of which is true of substantial forms, makes one suspect that Aristotle believed that no parallel argument could be applied to substantial forms to show that *they* are objects of opinion. And this suspicion is supported by the fact that the argument presupposes that whatever it is applicable to is an object of belief alone. But, in the first place, Aristotle considers essences and substantial forms to be objects of the intellect (*Metaph.* 1016b1–3, 1051b25–1052a4, 29–32, 1072a30–2; *de An.* 429b10–22, 430b27–30, 431b12–16, 21–3, 432a3–6; *PA* 641a32–b10). And secondly, in *de Anima* (427a27–8) Aristotle says that whatever is an object of opinion is also an object of perception (*cf.* Alexander, *in Top.* 118. 4–5). Since Socrates' soul is not perceptible it is not an object of opinion, and likewise for any other substantial form.

So although *Z* 15 indicates that Aristotle believes that perceptible individuals cannot be known, it also indicates that he believes that substantial forms *can* be known, and nowhere does

[25] 302–3; *cf.* A. Mansion (n. 19) 322 n. 27.

[26] Another disputable claim. It is defended in the second paper referred to in n. 6.

Aristotle indicate that he believes otherwise. On the contrary, Aristotle expressly states that the substantial form is the most intelligible of the principles (996b13–14; *cf.* 982b2). And since every indication outside of *M* 10 confirms the point that Aristotle considers substantial forms to be knowable, *M* 10 is consistent with Aristotle's epistemological views. Substantial form is primary substance, and *M* 10 explains that substantial forms can be known. In fact, the substantial form is τὸ μάλιστα ἐπιστητόν (996b13). So the most real does coincide with the most intelligible in the substantial form, and Aristotle's express views are to this extent consistent.

The question remains, however, as to whether Aristotle has the right to be consistent. As I explained, Aristotle applies the argument of *Z* 15 solely to perishable, perceptible substances and not to substantial forms in order to conclude that perceptible substances are objects of opinion. But the justification for concluding that perceptible substances are objects of opinion is that they are perishable. And as Aristotle points out at the start of the chapter, substantial forms are perishable too. If perishability is a sufficient reason for concluding that perceptible substances are not objects of knowledge, it would also appear to be a sufficient reason for concluding that forms are not objects of knowledge. It is of course true that since forms are immaterial they are in an important sense changeless (*Metaph. Z* 8; *de An. I* 3, 4; *Ph.* 224b4–5, 11–12, 25) and come into and go out of existence in a way different from that in which composites do, but I am unable to see how that point is of any relevance to the issue.

ROBERT HEINAMAN

University College London