THE SOUL/BOATMAN ANALOGY IN ARISTOTLE'S *DE ANIMA*

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AT THE conclusion of his description of the soul as form or entelechy of the body in *De anima* 2. 1, Aristotle asserts that soul, with the possible exception of some part not informing body, is clearly inseparable from its proper body as axeness is from the axe or sight from the living eye (412b27–413a7). He then adds the enigmatic sentence: ἔτι δὲ ἄδηλον εἰ οὕτως ἐντελέχεια τοῦ σώματος ἡ ψυχὴ ὥσπερ πλωτὴρ πλοίου (413a8–9). The common interpretation takes οὕτως . . . ὥσπερ as correlatives. Thus, R. D. Hicks translates: "Again, it is not clear whether the soul may not be the actuality of the body as the sailor is of the ship."[1]

Understood this way, the sentence has posed a notorious problem for commentators from Alexander to W. D. Ross. In the passage Aristotle has been at pains to establish the soul as substantial form of the body but now seems (in this interpretation) to be suggesting that its relation to the body might be something other, a loose presence in the body like that of the boatman in the boat. Alexander, in order to preserve the form/matter relationship in the analogy, would substitute "the art of seamanship" for the concrete "boatman."[2] Ross, on the other hand, would emend the text by inserting ἢ ("or"): "But it is still uncertain whether the soul is the actualization of the body in the way we have discussed, or is related to it as a sailor is to his ship."[3] Ross comments on the sentence thus emended: "It is surprising to find this suggestion made here, since it flatly contradicts the thesis A. has been maintaining. The wording suggests that A. may be referring to a simile which someone had actually put forward, but I

1. *Aristotle: "De anima"* (Cambridge, 1907), p. 53. Cf. J. A. Smith in the Oxford translation (W. D. Ross [ed.], *The Works of Aristotle*, vol. 3 [Oxford, 1931], ad loc.): "Further we have no light on the problem whether the soul may not be the actuality of its body in the sense in which the sailor is the actuality of the ship"; P. Siwek, *Aristotelis "Tractatus de anima"* (Rome, 1965), p. 105: "Praeterea nondum . . . evidenter apparet, utrum anima sit actus corporis simili modo, quo nauta sit navis"; E. Barbotin, translating the text established by A. Jannone (ed.), *Aristote: "De l'âme"* (Paris, 1966), p. 32: "Il reste encore à déterminer si l'âme est l'entéléchie du corps comme un pilote en son navire"; similarly, J. Tricot, *Aristote: "De l'âme"* (Paris, 1947), p. 72; D. W. Hamlyn, *Aristotle's "De anima"* (Oxford, 1968), p. 10.

2. 15. 9. The reactions of the Greek commentators (Alexander, Themistius, Simplicius, Philoponus) are summarized by Hicks, *"De anima,"* pp. 320–21, and Siwek, *"Tractatus,"* p. 279. Representative of current reactions, Tricot, *"De l'âme,"* p. 72, n. 2, remarks: "De tout l'exposé d'*An* il résulte manifestement, en effet, que l'âme n'est pas comme le pilote en son navire." He then cites as possible solutions those of Themistius and Simplicius, the latter favored by Rodier. Hamlyn, *Aristotle's "De anima,"* p. 87, however, counsels despair: "The remark about the possible analogy between the soul and a sailor in a ship . . . is puzzling, since the argument up to this point has tended completely in the opposite direction. It can be set down only as a lecturer's aside."

3. *Aristotle: "De anima"* (Oxford, 1961), p. 212.

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have found no trace of it in the Pre-Socratics or in Plato. . . . We need not suppose that A. has any doubt which of the two alternatives he mentions is correct; what he says is that he has not yet disproved the suggestion that the soul is to the body as a steersman is to his ship. He does not return to the suggestion elsewhere."[4]

Reactions to Ross have come notably from H. J. Easterling, W. F. R. Hardie, and C. Lefèvre.[5] Easterling points out the weaknesses in Ross' solution and, like Zabarella and Siwek before him,[6] suggests that Aristotle introduces the boatman/soul analogy here not as an alternative or parallel to the notion of soul as form and entelechy of the body but as symbolizing the soul's function as *efficient* cause of change or movement in the organism. Hardie and Lefèvre agree and offer valuable supporting considerations. None of these commentators, however, indicates in what way he would construe the manuscript reading of the text to support this. Nor do they present a review of evidence from *De anima* or elsewhere other than to show that Aristotle saw no incompatibility between the notions of soul as entelechy of the body and as efficient cause of its life functions.[7]

It may be useful, then, to examine some of the larger questions raised by Ross' comment. Is Aristotle referring to an analogy (soul : body = steersman : ship) current in his time? Is there any trace of this in the Presocratics or in Plato? Does Aristotle himself "return to the suggestion elsewhere"? Answers to these questions will presumably cast light upon the meaning, construction, and import of the troublesome sentence under consideration and at the same time provide a broad view of the development and use of this interesting metaphor in early Greek philosophy.

THE SOUL/BOATMAN ANALOGY IN GREEK PHILOSOPHY

That the soul/boatman analogy had become a cliché among later Greek philosophers seems clear from Plotinus' reference to it as among "the current modes of explaining the presence of one thing in another" (4. 3. 21). His critique of the analogy may indicate the various ways it was commonly applied. (1) He finds the boatman in the boat quite adequate as a symbol of the separability of soul and body. (2) The analogy seems

4. Ibid., pp. 214–15.

5. H. J. Easterling, "A Note on de Anima 413a8–9," *Phronesis* 11 (1966): 159–62; W. F. R. Hardie, *Aristotle's Ethical Theory* (Oxford, 1968), pp. 81–83; C. Lefèvre, *Sur l'évolution d'Aristote en psychologie* (Louvain, 1972), pp. 137–40, and again in *Aristotle on Mind and the Senses*, ed. G. E. R. Lloyd and G. E. L. Owen (Cambridge, 1978), pp. 23–25. Easterling establishes the unlikelihood that Aristotle introduces the simile to illustrate the separability of soul and body, as Themistius and Philoponus propose.

6. *Commentarii Jac. Zabarellae Patavini in III. Aristot. libros "De anima"* (Frankfort, 1606), pp. 174–76. Zabarella claims to be following Simplicius in this. Siwek, "*Tractatus*," indicates that Aristotle turns here from the formal to the efficient aspect of soul, although neither his translation (p. 105) nor his commentary (p. 279, n. 272) offers justification for it.

7. Easterling, "A Note," pp. 161–62, citing *De an.* 415b8–20. Following Trendelenberg, Easterling also suggests (p. 162) that the soul/boatman simile may be introduced as "an example of a σύνολον (sailor + boat)" operative only when the agent (boatman/soul) is present in the passive component (boat/body). This seems unlikely, since Aristotle would hardly consider the σύνολον aspect of the organism "still not clear" (ἔτι δὲ ἄδηλον) after having just provided much better examples of σύνολα, namely, the imprint and the wax, axeness and the axe, sight and the living eye (412b6–413a2).

to him totally inadequate, however, to illustrate the mode of presence of soul in body (". . . the steersman is not omnipresent to the ship as the Soul is to the body"). (3) He agrees that the steersman controlling the ship's movements through the helm does illustrate the soul's control over bodily changes ("Soul . . . does in much that way move the body") but finds this also inadequate to illuminate the soul's "mode of presence within the instrument."

Plotinus' discussion indicates contemporary use of the analogy to illustrate (1) the separability of soul and body, (2) the soul's mode of presence in the body, and (3) the soul's control of bodily change (efficient causality). But this establishes the currency and application of the metaphor *after* Aristotle. Plotinian scholars, tracing the sources of this passage, find them only in *De anima* 413a9 and Alexander's extant comment on the problem.[8] We are still left with the question whether the comparison was initiated by Aristotle or came to him from his predecessors. Ross has remarked (in the comment quoted) that the wording of the sentence suggests Aristotle "may be referring to a simile which someone had actually put forward" but then goes on to say that "I have found no trace of it in the Pre-Socratics or in Plato." Awareness of Ross' superlative control of these sources might well discourage further search for earlier traces of the comparison if one did not realize that Ross understood the analogy as being used by Aristotle in Plotinus' second sense, that is, as illustrating the soul's *mode of presence* in the body, an alternative to the form/matter relationship previously explained in *De anima* 2. 1. We may indeed accept Ross' testimony that there is no trace of this application of the metaphor in sources earlier than Aristotle. It appears, however, that these sources do yield traces of the boatman/boat analogy used in Plotinus' third sense, that is, to illustrate the soul's function as determining movement or change in the body, a function which, as Aristotle remarks, "more than any other is all but universally assigned to the soul" (*De an.* 408a1). This application of the metaphor Plotinus finds adequate as far as it goes.

The Presocratic use of the verb "to steer" (κυβερνᾶν) seems to reveal a trace of the boatman or "steersman" (κυβερνήτης) metaphor. Κυβερνᾶν is commonly applied to cosmic powers governing or giving direction to the movements of the universe. Aristotle (*Phys.* 203b10–15) attributes to Anaximander and others the notion that the ἄπειρον "surrounds all things and steers all."[9] Parmenides, describing the universe in his Way of Seem-

8. See P. Henry and H.-R. Schwyzer, *Plotini opera,* vol. 2 (Paris–Brussels, 1959), p. 46, where the apparatus to *Enneads* 4. 3. 21 provides references to *De an.* 413a9, 412b12, and Alexander's comment. These sources are discussed by H. J. Blumenthal, "Plotinus *Ennead* IV. 3. 20–1 and Its Sources: Alexander, Aristotle, and Others," *Arch. Gesch. Phil.* 50 (1968): 254–61.

9. See Kirk's comment, in G. S. Kirk and J. E. Raven, *The Presocratic Philosophers* (Cambridge, 1962), p. 115: " 'Steers all' obviously reproduces Presocratic terminology. . . . Again, the metaphor of steering does not necessarily entail a conscious and intelligent agent, for the steering of a ship can be regarded as a purely mechanical process. . . . Yet the archaic theomorphic, and thus to some extent anthropomorphic, conception of the primary stuff favors the assumption of purposeful action." I have traced briefly the use of the soul/boatman analogy from the Presocratics to Descartes in a short paper presented at the First International Week on Philosophy of Greek Culture, Chios, 1977, and subsequently published under the title "The Soul as Boatman of the Body: Presocratics to Descartes," *Diotima* 7 (1979): 195–99.

ing, assigns the primary cause of movement and all becoming to "the goddess, situated at the midpoint, who steers all things" (DK 28 B 12; Aetius 2. 7. 1).

Heraclitus employs two nautical terms to describe the directing power of the cosmic fire when he declares that "all things are steered (κυβερνᾶται) through all" (DK 22 B 41; cf. B 90) and that "thunderbolt steers (οἰακίζει) all" (B 64). The cosmic fire at its purest and best, as in the thunderbolt, also seems to be identified with soul (cf. DK 22 B 31, 36) and with the ultimate intelligence or wisdom that is "both unwilling and willing to be named Zeus" (B 32; cf. B 118). The implication is that the cosmic fire (soul, wisdom, Zeus) "steers all" in the universe.[10]

G. S. Kirk suggests that this same "steering" power may also be ascribed by Heraclitus to the soul in each human being. In discussing the fragments dealing with the soul of the individual (esp. B 45; cf. A 15), he remarks that "it could be conceived as an adulterated fragment of the surrounding cosmic fire, and so as the possessor in some degree of that fire's directive power."[11] At any rate, the pseudo-Hippocratic essay *Regimen I*, written under Heraclitean influence, clearly speaks of the individual soul as exercising this "steering function" in the body. The author identifies the soul with fire and describes its activity as follows: "The hottest and most powerful fire, which controls everything, arranging everything according to nature, being imperceptible by sight or touch, in this is soul (ψυχή), intellect (νόος), thought, growth, movement, decrease, mutation, sleep, waking. This continually steers (κυβερνᾷ) everything . . ." (DK 22 C 1).[12]

Similarly, Diogenes of Apollonia identifies soul (ψυχή) and intelligence (νόησις), both in the universe and in individuals, with air, the breath of life, and declares that "it seems to me . . . that men are steered (κυβερνᾶσθαι) by this and that it has power over all things" (DK 64 B 4, 5).

While Diogenes and the author of *Regimen I* identify soul and intelligence indiscriminately with the primal element, Plato's more sophisticated psychology introduces a distinction between the immortal intelligent soul (νοῦς) and the affective and nutritive souls which more directly animate the mortal body (*Tim.* 69C–70E). Men at their best will, for Plato, be governed by the intellectual soul. If a man is not so governed during life, after death this part of his soul, being immortal, will migrate into some type of body inferior to man (*Tim.* 41D–E; cf. *Phd.* 81B–82B). Hence, it is this intelligent soul, the νοῦς, which appears in Plato as the principal governing agent, the "steersman" of the organism.[13]

10. The metaphor comparing the intelligence of Zeus to a transcendent "steersman" appears also in Pind. *Pyth.* 5. 122–23: "It is indeed the mighty intellect (νόος) of Zeus that steers (κυβερνᾷ) the spirit of the men he loves."

11. *The Presocratic Philosophers*, p. 206.

12. The author is responsible for all translations unless indicated otherwise. Also to the Heraclitean tradition probably belong the lines attributed to Epicharmus (DK 23 B 57): "The Logos [Reason?] steers (κυβερνᾷ) men and preserves them fittingly at all times. Man has reasoning (λογισμός); man also has divine logos [reason?]." See K. Freeman, *The Presocratic Philosophers* (Cambridge, Mass., 1946), pp. 134–35.

13. The steersman, like the charioteer, general, physician, farmer, and shepherd, is a favorite Platonic analog for the controlling agent, whether that be the ruler(s) of the universe (*Laws* 905D–906A) or of a

The intellectual soul is qualified for this function, of course, because it alone can know the Forms, the eternal, unchanging reality, "the being that really is, colorless, shapeless, intangible, visible only to the νοῦς, the steersman of the soul" (*Phdr.* 247C). Plato spells out the analogy in Book 12 of the *Laws* (961D–E), where the Athenian Stranger explains that the soul and the head are the chief preservers of each animal organism, the soul because it contains, among other powers, the νοῦς and the head because it has the senses of sight and hearing. The νοῦς, he says, procures the safety of the animal by combining with the best of the sense powers and cooperating with them. To illustrate he compares the animal to a ship whose safety at sea is procured when the steersman and sailors cooperate, combining their sense perceptions (αἰσθήσεις) with the steersman's intelligence (τῷ κυβερνητικῷ νῷ). Thus the νοῦς is clearly the steersman, served by the powers of the sensitive soul (which have the duty to report faithfully; cf. *Rep.* 389C) and making the decisions upon which the safety of the organism depends.[14]

The pseudo-Platonic *Alcibiades II* follows out this analogy, explaining that many fail to achieve the best because they act on opinion (δόξα) without the intelligence (νοῦς) and so without knowledge of the best (146C–E). A soul that will live rightly must hold fast to a steersman (146E). A soul that follows any other knowledge than that of the best will have a short and stormy voyage, being at sea without a steersman (147A). Similarly, the *Clitopho* reflects that one who "does not know how to use his soul" is better off dead; or, if he must live, it is better that he do so as a slave, "handing over, as it were, the boat-rudders of his intellect (διάνοια) to another who has learned the art of steering men" (408B).

The intellect as "steersman of the soul" and preserver of the total organism does not appear often in the genuine Platonic writings, since the analog of the charioteer, for example, suited Plato's purposes better, allowing for the metaphor of the two horses representing the two parts of the nonrational soul. The evidence from Plato and the Presocratics, however, suggests that the soul/steersman metaphor was fairly commonplace. Menander, Aristotle's younger contemporary, may simply be formulating a bit of popular wisdom when he observes: "He who has a good body but a corrupt soul (ψυχή) has a good ship but a bad steersman" (κυβερνήτης).[15] But popular or not, it is important to note that the soul : body = steersman : boat analogy is used, in all the pre-Aristotelian examples we have seen, to illustrate the soul's governing function, by

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city-state (*Statesman* 297A–299E, *Laws* 640E–641A). Thus, in the *Statesman*, the universal golden age that had prevailed under the guidance of the divinity comes to an end when "the steersman of the universe, as it were, let the handle (οἴαξ = tiller) of the rudders (πηδαλίων) go and retired to his lookout station" (272E). The ensuing chaos is finally halted when "he had again seated himself at the helm" (273E).

14. Cf. *Gorg.* 512B. For Plato the "true steersman" must have real knowledge of his art (τέχνη), what the pseudo-Platonic *Theages* calls "the skill (σοφία) by which we know (ἐπιστάμεθα) how to control ships" (123D), i.e., the science of navigation (ἡ κυβερνητική). This is the basis of the steersman's authority to command others; cf. *Rep.* 488B–D. So it is the intellectual soul's capacity for knowledge or science (ἐπιστήμη) that gives it the right to "steer."

15. J. M. Edmonds, *The Fragments of Attic Comedy,* vol. 3B (Leyden, 1961), p. 892, no. 1100.

which it directs or determines the activity of the organism, exercising dynamic control. In other words, the analogy commonly illustrates that aspect of the soul which falls under Aristotle's category of efficient, not formal, causality.

THE SOUL/BOATMAN ANALOGY IN ARISTOTLE

In the comment on *De anima* 413b8–9 quoted above, Ross remarks that, while Aristotle suggests the soul/boatman analogy in this sentence, "he does not return to the suggestion elsewhere." This is valid only if one takes the analogy in the very limited sense that Ross understands it, that is, as illustrating the soul's "mode of presence" in the body. For Aristotle does indeed suggest elsewhere what Ross seems to deny, namely, that "the soul is to the body as a steersman is to his ship" or, in the more general term actually found in the sentence, "as the boatman is to his boat" (*πλωτὴρ πλοίου*).[16]

It may be useful to note first that Aristotle regularly associates living organisms and their organs with boats or ships and their parts, as if these were readily linked in his thought. Thus, in the *Politics* (1320b34–1321a1) well-constituted *poleis* are compared to healthy bodies and tight ships with good crews, while *poleis* poorly constituted are said to be like diseased bodies and leaky ships with worthless crews. The *Categories*, discussing reciprocity of correlative terms (6b36–7a21), brings together as examples wing/bird, rudder/boat, head/animal. And the *Metaphysics*, listing various meanings of the term *ἀρχή*, proposes as the third "that thing as a result of whose presence something first comes into existence, for example, as the keel is the beginning of a ship . . . and in the case of animals some say the heart, others the brain . . ." (1013a4–6).

Furthermore, in the biological works the living organism and boat or ship are not simply linked by free association, but the boat and its parts (especially oars and rudders) are employed as working models to illustrate the shape, function, and mechanics of various organic parts. Thus, in the *Historia animalium*, the back legs of certain jumping insects are called "rudders" on the basis of shape and function (532a29),[17] and locusts are said to produce sound by rubbing these "rudders" (535b12), while the

16. The term *πλωτήρ* (boatman, sailor) is generic and includes shipmates with various functions, e.g., *ὁ ἐρέτης* (oarsman), *ὁ πρωρεύς* (prowman, lookout), and *ὁ κυβερνήτης* (steersman, pilot); see *Pol.* 1276b21–24. As we have found in citations from Plato, the steersman, endowed with the science of navigation, has authority over his crewmates, using them as living instruments (*ὄργανα*) to achieve the ultimate objective for ship, passangers, and crew, namely, safe passage; thus, *Pol.* 1253b25–31, 1279a4–6; cf. *Eth. Eud.* 1247a25–28. The steersman's decision, arrived at with the aid of his crewmates, his own observation, and the science of navigation, is transmitted through his hand on the tiller or helm (*οἴαξ*) and thence to the rudder(s) (*πηδάλιον*) to change the course of the ship, determining the response of the total seagoing organism to its environment of wind and wave. Most translators of *De anima* render *πλωτήρ* by a generic term (sailor, *nauta*); but most commentators, ancient and modern, assume, probably correctly, that at 413a9 *πλωτήρ* = *κυβερνήτης*.

17. See J. Tricot, *Histoire des animaux*, vol. 1 (Paris, 1959), p. 251, n. 4. The "inward" articulation of these legs makes them "rudder-like": *Part. an.* 683a34.

nautilus in motion lets fall on each side two tentacles to serve as rudders or steering oars (622b13). Likewise, in the *De partibus animalium*, sepias and calamaries are said to moor themselves with long probosces and to ride out a storm like a ship at anchor (685a35); the human hand is able to grasp and hold because the middle finger, which exerts effective pressure, is long like the oar amidship (687b19); and aquatic birds, to survive in water, need webbed feet to serve like oars for the sailor (694b9).

But the most sustained comparison appears in *De incessu animalium* 710a1–32, where for winged organisms the tail is said to function in directing flight like a rudder in the case of ships; and so, like the rudder, it must be capable of pivoting in either direction at the point where it joins the body. Birds that lack proper tails cannot keep a straight course; and insects, being without tails, are like rudderless ships, colliding with everything. Insects generally, having wings too weak for their bodies, are slow and weak in flight, like heavy merchant vessels trying to make headway at sea by means of oars, whereas swift flying birds, equipped with proper tails and wings, have small heads and sharp, compact breasts, built like a fast-sailing launch.

It must be clear from these examples that the analogy of ship to living organism was commonplace for Aristotle. Furthermore, in the biological works the analogy is used to illustrate the form, function, or mechanics of organisms *in motion*. It should not be surprising, then, to find that Aristotle employs the specific soul/boatman analogy, either expressly or by implication, in a number of passages. And it is important to note that he does so always in connection with the soul as "moved" or "moving," that is, in contexts dealing with two distinct but interconnected problems: (1) In what sense can the soul be said to be moved and be moved by itself? (2) How does the soul cause movement or change in the bodily organism?

Aside from its occurrence at 413a9, the soul/boatman analogy appears explicitly in Book 1 of *De anima* in the passage where Aristotle is at pains to refute the definition of soul as "the self-moving thing," which implies that to be in motion is the soul's essential nature (405b31–407b11). Aristotle's position is that the soul is the source or cause of change and movement in the organism but itself remains unmoved per se (*καθ' αὑτό*). The soul can "be moved" only through another, per accidens (*καθ' ἕτερον, κατὰ συμβεβηκός*), in so far as it is present in the body which moves. To illustrate this distinction Aristotle introduces the analogy: "We mean that things are moved through another (*καθ' ἕτερον*) in so far as they are moved by being present in something else. For example, sailors: they are not moved in the same way as the ship; for that is moved per se (*καθ' αὑτό*), but they by being present in what is moved" (406a5–11).

Aristotle goes on to remark that the sailors would properly be said to move per se if they were walking; since they are not, they are motionless (406a8–10). Both soul and sailors, then, are per se motionless; they are moved per accidens by reason of their presence in another, in the body and in the boat, to which alone motion is properly ascribed. Although the principle is here exemplified through local motion, Aristotle maintains

that it holds true for the other types of change also (qualitative alteration, increase, diminution), since all changes take place in extension or space (406a12–16).

In the *Physics* (240b8–241a26) Aristotle indicates that it is precisely because the soul is immaterial and not extended that it cannot be in motion per se but only by reason of the material or extended body which it activates. He explains that anything unextended, without parts (i.e., quantitatively indivisible), is incapable of being moved except per accidens and illustrates this point as follows: "It can be in motion only in so far as the body or the magnitude is in motion and the partless is in motion by being present therein, just as that which is in a boat may be in motion in consequence of the locomotion of the boat, or a part may be in motion in virtue of the motion of the whole. . . . As we have said, then, that which is without parts can be in motion in the sense in which a man sitting in a boat is in motion when the boat is travelling . . . (240b9–12, 17–20; R. K. Gaye translation adapted).

This is sufficient to establish that the soul/boatman analogy was for Aristotle a standard illustration of how the soul could be said to "be moved." The same principle and illustration are used, moreover, in solving a further problem raised in *De anima*, namely, the sense in which the soul can be said to be "*self*-moved" (405b31–406a1). Aristotle's solution is summarized thus: "It can be moved, as we have said, per accidens; and it can move itself, that is, that in which it is present [the body] can be moved, and be moved by the soul" (408a30–33).

The last clause represents an important addition, since it implies that the soul is not only present in the body (e.g., as formal cause) but that it is also the cause of bodily movements or change (i.e., efficient cause). This raises a problem in the *Physics*, since self-moving entities like animals seem to contradict the principle that "whatever is moved is moved by another" (259b1–31). Here again Aristotle links animal organisms and ships as analogous examples of self-moving entities and indicates the basis of his solution: "The uncertainty here is not whether it is moved by something, but rather how one should distinguish the part of it that causes movement from that which is moved. For it seems that, just as in ships . . . in this same way also in animal organisms, the part which causes movement is distinct from that which is moved, and only in this sense is anything itself the cause of its own motion" (254b28–32).

Aristotle does not specify the parts referred to as causing motion and as being moved in both animal and ship; but, after discussing the principle and the problem of the first mover in abstract terms, he returns to the subject of self-moving things and summarizes: "In all these the first cause of motion, and the cause of the entity being self-moving, is itself moved, but per accidens; for it is the body that changes place, and so also that which is present in the body and which causes self-motion by leverage (*τῇ μοχλείᾳ*)" (259b16–20).

The commentators agree that Aristotle has in mind here the *soul* as that which is cause of the movement of the body and so the cause of its own movement per accidens. But they seem baffled by the strange ref-

erence to "leverage."[18] The expression becomes less mysterious, however, if we assume that Aristotle also has in mind the soul/boatman analogy (suggested in 254b28–32 above) and that he speaks of the soul controlling the movement of the body as the steersman controls that of the boat, namely, "by leverage."

This becomes clearer if we turn to the *De motu animalium*, where Aristotle addresses, specifically and in detail, the problem of how the soul controls the bodily movements of animals. This treatise builds consciously on the discussion of motion in Book 8 of the *Physics*, from which our two previous quotations have been drawn (see *De motu* 698a7–15). And it relies heavily upon the soul/steersman analogy.

The man-in-the-boat analog is introduced first in *De motu animalium* to illustrate the proposition that locomotion requires something unmoving outside and separate from the animal (e.g., the ground) as well as something unmoving within the animal which is the source of its movement (i.e., the soul). "For just as in the animal there must be something which is immovable if it is to have any motion, so a fortiori there must be something which is immovable outside the animal supported upon which that which is moved moves" (698b13–16; E. S. Forster translation). Not only as illustration but also as "proof" (μαρτύριον) of this, Aristotle cites the ease with which a man may move a boat by pushing upon it from the outside, but the impossibility of moving it by pushing it while inside (698b21–699a6). He concludes: "Now the man who tries to push the boat while he himself is in it and leaning upon it, naturally does not move the boat, because it is essential that that against which he is leaning remain still; but in this case that which he is trying to move and that against which he is leaning is identical. If, on the other hand, he pushes or drags the boat from outside, he can move it; for the ground is no part of the boat" (699a7–11 Forster).

Later, turning to discussion of the immovable entity which must be present within beings that move themselves (700a7–8), Aristotle approaches the problem of "how the soul moves the body and what is the origin (ἀρχή) of movement in the animal."[19] He finds that movement is

18. Ross, e.g., identifies the *soul* somehow with a lever and comments, *Aristotle's "Physics"* (Oxford, 1955), p. 707: "If a lever is to continue to lift a weight, it must keep in contact with the weight as the latter moves. Aristotle's thought is that similarly the soul as it moves the body must keep in contact with the body, and thus by moving the body incidentally moves itself." The point of the expression ("by leverage"), however, is hardly to emphasize that the soul must remain "in contact" with the body to move it; that would be redundant, since for Aristotle the animal would not be alive and capable of movement in the first place if the soul were not continually "in contact" with the body. Rather, the expression is meant to suggest *how* the soul causes or controls local movement of the body in the living organism. Other commentators have seen this and, relying solely on data provided by the passage, make desperate attempts to wring meaning from the expression by suggesting that the *body* somehow serves as a lever in locomotion. Thus, the Oxford translator, R. K. Gaye, in a note to 259b20, remarks: "The sense appears to be that the soul may be said to move itself by means of the body, the body acting as a sort of lever." And Cornford explains that the soul changes place "only as contained in a body . . . which the soul uses as a sort of lever": P. H. Wicksteed and F. M. Cornford, *Aristotle: "The Physics,"* vol. 2 (Cambridge, Mass., 1957), p. 350. None of these comments, however, casts much light on the connection between leverage and locomotion.

19. 700b10–11. On the previous questions of whether the soul is moved and, if it is moved, how it is moved, Aristotle refers to the earlier discussion in *De anima* (405b31–406b11) where, we have seen, the soul/boatman analogy appears as the standard illustration in his solution. See *De motu* 700b4–6 and the order of the treatises listed at *De motu* 704a3–b3.

ultimately a response to *desire*, which arises through sensation or imagination and thought (700b15–701b1), expressing itself physically in movement through contraction or expansion of the connate spirit (πνεῦμα) centered in the heart (701b2–25, 703a4–28), whence motion is communicated through a thermodynamic mechanism to the rest of the organism.[20] To indicate how a small change in the vital center can cause large changes in the limbs and periphery of the body, Aristotle has recourse once more to the body/boat analogy: "Now it is clear that a small change taking place in an origin of movement causes great and numerous changes at a distance; just as, if the rudder of a boat is moved to an infinitesmal extent, the change resulting in the position of the bows is considerable. Furthermore, when, owing to heat or cold or a similar affection, an alteration is caused in the region of the heart—and even in an imperceptibly small part of it—it gives rise to a considerable change in the body . . ." (701b25–31 Forster).

The analogy behind the explanation should be clear: the soul, itself unmoved per se, causes a slight contraction or expansion of the connate spirit in the heart, which change at the center of the organism brings considerable movement of the extremities, just as the boatman, himself unmoved per se, causes the whole ship to swing about by a relatively small shift of the rudder. In this context it is easier to understand why Aristotle speaks of the soul as moving the body by "leverage" (*Phys.* 259a20).

Perhaps the best commentary on this passage appears in the Peripatetic work *On Mechanics*, preserved in the Aristotelian corpus. Here the shifting of the whole weight of the ship by a relatively small change of the rudder is analyzed as one example in the discussion of the problem: "Why do small amounts of power move great weights by means of the lever?" (850a30–31). The treatise explains that "the rudder is a lever-bar and the helmsman applies leverage. The point at which the rudder is attached to the ship is the fulcrum, the whole rudder is the lever-bar, the sea is the counterweight, and the helmsman is the one who causes the change" (850b32-34).

The principle of the lever is ultimately explained through the balance of a diameter upon the fixed midpoint of a circle or sphere. "The phenomena of the balance can be referred to the circle, and those of the lever, to the balance, while practically all the other phenomena of mechanical motion are connected with the lever" (848a12–15). The fixed center (the heart, rudder hinge) of a symmetrical body (animal organism, boat) is conceived as the fulcrum, the balance point from which opposite motions can arise. And, as the extremities of the balance arm move in a greater arc than do points closer to the center, so a small change at the center of the symmetrical body initiates motion which becomes ample in the extremities. The change is initiated and directed by the efficient cause

20. For a summary of the physiodynamics through which Aristotle explained how desire is translated into physical movement, see T. Tracy, *Physiological Theory and the Doctrine of the Mean in Plato and Aristotle* (Chicago, 1969), pp. 354–59.

(soul, helmsman) per se unmoved, present in the symmetrical body. These, then, must be the mechanical principles assumed in *De motu animalium* 701b25–33 which explain how both soul and helmsman are conceived as effecting change through "leverage."

Up to this point we have found Aristotle using, or assuming, the soul/boatman metaphor to illustrate how the soul causes the animal organism to move locally, the most obvious type of self-movement. But for Aristotle all forms of change involve basically some kind of movement in space (cf. *De an.* 406a12–16, *Phys.* 260a27–b14). It is not surprising, then, to find the metaphor assumed also in his discussion in *De anima* of the soul as ultimate cause of nutrition and growth, the fundamental function of any living organism (415b23–416b31).

Early in the discussion Aristotle deals with the position of those who hold that "the nature of fire is the sole cause of nutrition and growth" (416a9–10). Aristotle explains that "a co-cause (*συναίτιον*) it is in a certain way, but not the cause absolutely, which is more properly the soul" (416a 13–15). For fire, like matter of any kind, is of itself undetermined and uncontrolled; it is the soul, as form of the living whole, that controls and sets limits to growth and nutrition (416a15–18).

But if innate heat is the material co-cause working in union with the soul to effect nutrition and growth, how is the food to be classified, since it too is matter essential to the process? In setting out the various elements involved Aristotle returns again to the soul/boatman analogy: "There are three elements, (1) that which is nourished, (2) that by which it is nourished, and (3) that which nourishes it. Now that which nourishes (3) is the primary soul; that which is nourished (1) is the body containing the soul. . . . But that by which it is nourished (2) has two senses, just as that 'by which' one steers a boat (*κυβερνᾷ*) is both (a) the steersman's hand and (b) the rudder, the former (the hand) both causing movement and being moved, the latter (the rudder) simply being moved. Now it is necessary that all food be digested, but it is heat that effects digestion. Hence, everything that is alive [ensouled] has heat" (416b20–22, 25–29).

Clearly, then, in this passage the process of nutrition is analogous to the process of steering, the soul analogous to the steersman, the heat to the steersman's hand, the food to the rudder.[21]

Thus, Aristotle uses the soul/boatman analogy to illustrate the *efficient* causality of soul in both locomotion and nutrition. We have also seen that it was his standard illustration in explaining how the soul can be said to "be moved." But nowhere in the Aristotelian writings, if we put aside the controversial sentence of *De anima* 413a8–9, does the analogy appear as illustrating the "mode of presence" of the soul in the body, parallel or alternative to the *formal* causality of soul outlined in *De anima* 2. 1. It

21. Because of textual difficulties this was not always so clear to the Greek commentators. See Hicks, "*De anima*," pp. 348–49; Ross, "*De anima*," pp. 231–32. How heat acts upon food to effect nutrition is elaborated elsewhere, e.g., *Gen. corr.* 321b18–322a27, *Sens.* 441b27–442a8, [*Resp.*] 474a25–31. On heat as the primary instrument of soul in both nutrition and locomotion, see *Part. an.* 652b11–13.

seems most unlikely, then, that this latter sense was meant to be suggested by the ὥσπερ πλωτὴρ πλοίου of 413a9.

INTERPRETATION OF "DE ANIMA" 413a8–9

Editors of the *De anima* (Hicks, Trendelenberg, Jannone, Siwek, Ross) agree on the manuscript reading of 413a8–9 (although Ross emends, as we have seen): ἔτι δὲ ἄδηλον εἰ οὕτως ἐντελέχεια τοῦ σώματος ἡ ψυχὴ ὥσπερ πλωτὴρ πλοίου. The common interpretation is: "It is not yet clear whether the soul may not be in the same way (οὕτως) the actuality of the body as (ὥσπερ) the sailor is the actuality of the ship." This assumes that (1) οὕτως . . . ὥσπερ introduce correlative clauses of comparison, ". . . in this way . . . as . . . ," (2) the verb "to be" is understood in the main clause and both correlative clauses in the form ἐστὶ, (3) the subject of the second correlative clause is πλωτήρ and the predicate is [ἐντελέχεια] πλοίου.

Against this interpretation one can object, on the basis of the content or thought expressed, that Aristotle nowhere uses the soul/boatman analogy to illustrate the "mode of presence" of the soul in the body (formal causality), nor is there any reference elsewhere to the boatman as "actuality" (ἐντελέχεια) of the boat. It is hardly likely that the metaphor would be introduced in such a brief and offhand way in an entirely new meaning. It was normally used to illustrate how the soul can be said to be moved or how the soul causes movement in the body (efficient causality). Neither is correlative with the notion of soul as ἐντελέχεια or "first actuality of a body having life in potency" (412a27–28).

The syntactical structure of the sentence also makes it unlikely that ὥσπερ and οὕτως are to be taken as correlatives introducing coordinate clauses. So far as I can determine (aside from 413a8–9) ὥσπερ occurs 112 times and οὕτω(ς) 65 times in the three books of *De anima*. Both words occur in the same sentence or clause (as in 413a8–9) some 25 times and fall into the following patterns:

(a) In 17 instances they introduce correlative clauses of comparison in which ὥσπερ introduces the *first* clause, containing the analog or example presumed to be familiar to the reader, and οὕτως, referring to the previous clause, introduces the second, which contains the less well-known subject presumed to be enlightened by the comparison. A typical example is 413b5–7 ὥσπερ δὲ τὸ θρεπτικὸν δύναται χωρίζεσθαι τῆς ἁφῆς καὶ πάσης αἰσθήσεως οὕτως ἡ ἁφὴ τῶν ἄλλων αἰσθήσεων = "*Just as* the nutritive faculty can exist separately from touch and all senses, *so* touch can exist separately from the other senses." Thus, in a majority of cases the ὥσπερ clause comes first, with the correlative οὕτως following; the οὕτως refers to the antecedent ὥσπερ as correlative, but is separated from it by some distance, that is, by a whole clause or series of clauses.

(b) In five instances ὥσπερ and οὕτως are used as correlatives, but the order is reversed, and οὕτως intensifies the ὥσπερ, which follows it *immediately* or separated by a verb form. These are: 419b31 οὕτως ἀνακλᾶται

ὥσπερ . . . , 425a21–22 *οὕτω γὰρ ἔσται ὥσπερ . . .* , 425a29 *οὕτως ὥσπερ εἴρηται . . .* , 429b31–430a1 *οὕτως ὥσπερ ἐν γραμματείῳ . . .* , 431a28 *οὕτως ἕξει ὥσπερ. . . .*

(c) Three instances remain. (1) One is a variation on the correlative use of *ὥσπερ . . . οὕτω*: 423b17–20 *ὅλως δ' ἔοικεν ἡ σὰρξ καὶ ἡ γλῶττα ὡς ὁ ἀὴρ καὶ τὸ ὕδωρ πρὸς τὴν ὄψιν καὶ τὴν ἀκοὴν καὶ τὴν ὀσφρησιν ἔχουσιν οὕτως ἔχειν πρὸς τὸ αἰσθητήριον—ὥσπερ ἐκείνων ἕκαστον* = "In universum caro et lingua *ita* videntur se habere ad sensorium [proprium] *sicut* aer et aqua se ad organum visus, auditus, odoratus habent—*sicut* unumquodque eorum [i.e., aer et aqua]" (Siwek, p. 169). Here *ὡς . . . οὕτως . . . ὥσπερ* are used as correlatives, each introducing a correlative clause. The *ὡς*-clause contains the analog familiar to the reader. The *οὕτως*-clause contains the subject less familiar, to be enlightened by the comparison (thus following the order *ὥσ[περ] . . . οὕτως* common to correlative clauses of comparison in (a) above). *Ὥσπερ* follows *οὕτως* but recapitulates and qualifies the initial *ὡς* clause. (2) In two instances, although they appear in the same sentence, *ὥσπερ* and *οὕτως* exhibit noncorrelative or independent usage. The first example is 421b32–422a2 (Aristotle explains that man has an opaque shield over the eye, while "hard-eyed" animals do not; then he draws a comparison to the organ of smell): *οὕτως οὖν καὶ τὸ ὀσφραντικὸν αἰσθητήριον τοῖς μὲν ἀκαλυφὲς εἶναι, ὥσπερ τὸ ὄμμα, τοῖς δὲ τὸν ἀέρα δεχομένοις ἔχειν ἐπικάλυμμα . . .* = "*In this way* [referring to the previous sentence], then, the organ of smell in some animals is uncovered, like the eye, while in those that take in air it has a covering . . . ." Here the order is *οὕτως . . . ὥσπερ . . .* , but they are not used correlatively: *οὕτως*, as regularly in independent usage, refers to the thought of the *previous* sentence (n.b. *οὖν*), while *ὥσπερ*, as normal in noncorrelative usage, simply introduces the object of comparison (= "like, similar to"). They do not introduce correlative comparative clauses; rather the sentence is constructed of coordinate clauses introduced by *τοῖς μὲν . . . τοῖς δὲ*. The second instance is 430b20–21 (Aristotle is discussing how the mind thinks of unitary objects like the point—or moment of time—which divide any continuum): *ἡ δὲ στιγμὴ καὶ πᾶσα διαίρεσις, καὶ τὸ οὕτως ἀδιαίρετον, δηλοῦται ὥσπερ ἡ στέρησις* = "The point, and every dividing element, and anything *in this way* indivisible [or unitary], is apprehended [made clear, known] *like* a privation." Here again the order is *οὕτως . . . ὥσπερ*, but they are clearly not correlative: *οὕτως* modifies *ἀδιαίρετον* and refers to previous elements (*στιγμή*, etc.), while *ὥσπερ* is used to introduce an analog (*ἡ στέρησις* = "like, similar to"). They do not introduce correlative comparative clauses.

This accounts for all the uses of *ὥσπερ . . . οὕτως* in *De anima* when both are used in the same sentence. To which pattern does 413a8–9 conform? With as much confidence as linguistic usage allows we may assert that it does not fit any of the patterns in which *ὥσπερ . . . οὕτως* are correlatives introducing clauses of comparison ((a), (b), (c)(1)). If Aristotle really wanted to express what the common interpretation understands him to say, on the basis of the correlative patterns noted above we

would expect him to write: ἔτι δὲ ἄδηλον εἰ, ὥσπερ ὁ πλωτὴρ ἐντελέχεια τοῦ πλοίου, οὕτως ἡ ψυχὴ τοῦ σώματος. Or perhaps better: ἔτι δὲ ἄδηλον εἰ ἡ ψυχὴ ἐντελέχεια σώματος οὕτως ὥσπερ ὁ πλωτὴρ πλοίου.

In confirmation it may be suggested that, if πλωτήρ were intended to be taken as subject of a correlative clause after ὥσπερ with some form of εἶναι understood, it should have been preceded by the article (ὁ). Both the syntactical structure, then, and the established connotation of the soul/boatman analogy argue against the common interpretation of 413a8–9. What is a possible alternative?

First, from the point of view of content, we have seen the soul/boatman analogy used by Aristotle to illustrate (a) how the soul can be said to be moved and (b) how the soul moves the body (efficient causality). Since he has explained at some length in Book 1 of *De anima* (406a2–407b11) the way in which the soul is "moved," we should expect that it is the second problem, how the soul moves the body, that is still unexplained (ἄδηλον) at the beginning of Book 2.

Second, from the point of view of syntax, we must look to the noncorrelative or independent usages of ὥσπερ . . . οὕτως for possibilities. In its noncorrelative use οὕτως generally refers to an antecedent object, thought, or situation, something mentioned previously in a preceding passage, sentence, or clause. In *De anima*, in only six out of 36 cases does a noncorrelative οὕτως refer to a *following* quotation or clause (408a7, 414b13, 417a24, 417b4, 421a9, 424b10).

In its noncorrelative use ὥσπερ most often introduces an illustration or example or recalls a previous statement (ὥσπερ εἴρηται) and is translated by "as," "just as," "like," "for example." In some instances, however, where the author introduces a term or phrase strange or uncommon in the context, ὥσπερ is inserted to soften or apologize for the expression, "to limit or modify an assertion or apologize for a metaphor" (LSJ, s.v. II). It is then translated "as it were," "so to speak." Some examples from *De anima:* (1) 407b29 ὥσπερ εὐθύνας δεδωκυῖα = "having, as it were, 'submitted to official public scrutiny' . . ." (introducing a technical legal phrase in referring to wide discussion of a philosophical doctrine), (2) 412a4 ὥσπερ ἐξ ὑπαρχῆς ἐπανίωμεν = "Let us 'start afresh,' as it were . . ." (softens, apologizes for the unreality in the request), (3) 421b29 τὰ μὲν [ὄμματα] γὰρ ἔχει φράγμα καὶ ὥσπερ ἔλυτρον τὰ βλέφαρα = "the eyes have means of protection and, as it were, a 'case,' that is, the eyelids . . ." (introducing into an anatomical context a term commonly used to designate the case for a shield, spear, bow, or mirror). This usage of ὥσπερ seems most appropriate in 413a9, where Aristotle would want to apologize for the sudden introduction of the metaphor πλωτὴρ πλοίου.

Difficulty arises for the interpreter, of course, from the fact that the sentence contains no verb forms. Some form of εἶναι must be understood (1) with ἄδηλον, (2) in conjunction with οὕτως, and (3) with ὥσπερ. It is clear that ἄδηλον demands ἐστι; and the common interpretation assumes that this same form is omitted throughout, thus: ἔτι δὲ ἄδηλον [ἐστι] εἰ

οὕτως [ἐστι] ἐντελέχεια τοῦ σώματος ἡ ψυχὴ ὥσπερ πλωτὴρ [ἐστι] [ἐντελέχεια] πλοίου. However, this assumption is not the only possibility since other forms of εἶναι, and frequently the participle, can be omitted. Hence, it is equally valid to assume the missing forms as follows: ἔτι δὲ ἄδηλον [ἐστι] εἰ, οὕτως [οὖσα] ἐντελέχεια τοῦ σώματος, ἡ ψυχὴ [ἐστι] ὥσπερ πλωτὴρ πλοίου. This assumption is confirmed by the fact that there is no article with πλωτήρ, indicating it is intended to function as a predicate substantive, leaving the metaphorical phrase πλωτὴρ πλοίου intact.

In the light of all these considerations, then, I suggest that the sentence be interpreted thus: "It is as yet unclear whether the soul, being in the way described above (οὕτως) entelechy of the body, is as it were (ὥσπερ) the 'boatman of the boat.' "[22] *Meaning:* The soul has now been established in broad outline as form or entelechy inseparable (with the possible exception of one "part" of soul) from the body; it is still not clearly established if the soul thus conceived as formal cause is also, as it were, the "boatman of the boat," that is, the efficient cause of all change in the organism.

In this interpretation the sentence at 413a8–9, far from being a "mere phrase of the lecture room"[23] or "lecturer's aside,"[24] appears to signal an important transition in Book 2 of *De anima*, linking what has been established (the soul = the form or entelechy of the body) with another aspect of the soul-body relationship to be taken up subsequently, that is, their relationship as "boatman of the boat." The soul as efficient cause of change in the organism was mentioned in passing in Book 1 (407b18).[25] But the problem has become much more complex and must be considered anew now that the soul has been established as form of the body. 413a8–9 poses the problem: is the soul, *conceived thus as entelechy of the body*, also the efficient cause of movement or change in the body, as it has always been considered? The solution can be approached only after analysis and description of the life functions at various levels (nutrition, growth, sensation, local motion, etc.), the faculties of soul they must presuppose, and the organs through which these faculties operate as form in appropriate matter. This is, in fact, what is undertaken in the rest of *De anima*, the *Parva naturalia*, and specialized treatises like *De genera-*

22. Although Ross emends the text and interprets the sentence in a radically different way, it is interesting to note that he also understands οὕτως as closely attached to ἐντελέχεια and referring to Aristotle's previous discussion of the soul. Ross, "*De anima*," p. 212, renders the first clause: "But it is still uncertain whether the soul is the actualization of the body *in the way we have discussed* . . ." (emphasis added).

23. Hicks, "*De anima*," p. 320.

24. Hamlyn, *Aristotle's "De anima*," p. 87.

25. See also 408a30–33. Hicks, "*De anima*," p. 321, remarks: "If, as some think, comparing *Phys.* VIII. 4, 254b30, it only means that, as the sailor steers the ship, so the soul rules, controls and moves the body, A. would not have said ἄδηλον, see 407b18." This is to assume that *Aristotle* believed he had cleared up the whole complex problem of the soul's efficient causality by a few passing references in Book 1. Rather, his new description of soul as form or entelechy in 2. 1 leaves it very much unclear that soul thus conceived (a nonmoving, nonmaterial entity) is also cause of movement or change in the organism.

tione, De motu animalium, and *De incessu animalium*.[26] The sentence at 413a8–9 thus understood marks the end of Aristotle's sketch of the soul as "first act," substantial form or entelechy of the body—its "static" aspect—and introduces the subsequent discussion, larger and more complex, of the soul's dynamic function as efficient cause of all "second acts," the organic reactions involved in nutrition, sensation, appetition, local motion, and even intellectual cognition.

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26. See Siwek's observations on Aristotle's methodology here, "*Tractatus*," p. 279, n. 272. We have mentioned (nn. 5–6) that Siwek, Easterling, Hardie, and Lefèvre find 413a8–9 a transition from consideration of the soul's formal to its efficient causality. As also indicated (n. 6), they were anticipated in this by Zabarella, who remarks of the soul: "Haec ita considerata, habet duos respectus ad corpus, unum quatenus est eius forma et actus primus; alterum vero quatenus utitur corpore iam informato ab ipsa, et ipsum regit sicuti nauta navim . . ." (*Commentarii*, p. 174).