

Whately on logical and natural species in 1826

John S. Wilkins¹

Given the mythology that species were defined by essences prior to Darwin found in nearly every textbook, I find this passage, published in 1826 by Archbishop Richard Whately (1787–1863), first in the *Encyclopaedia Metropolitana* (a project initially proposed by Coleridge) and then as a separate textbook, very telling. Whately was Archbishop of Dublin in the Church of Ireland, and was both a social reformer as well as an educator. He was a mentor to John Henry Newman, who later converted to Catholicism and became one of the greatest apologists for the Church (and a Cardinal) writing in English.

The Elements of Logic, first published in 1826² (1823 in the *Encyclopaedia*) underwent nine editions, but Whately never substantially changed any of his logical positions even as logic underwent a major revival in large part due to his own text³. He was derided by Whewell, for example, for his emphasis on deductive logic rather than inductive reasoning, and for thinking that logic was merely the inference of ideas than more substantive reasoning⁴. Nevertheless, much of modern logic would not have developed as it did without him. Pierce read his *Elements* as a young man (around 13), and it inspired much of his thinking⁵. Boole, Mill and many others drew inspiration from him.

In this section, which is notionally about Realism (what would now be called Platonism), Whately makes several points that are relevant to the species question/problem. They are:

1. *Species* as used in syllogistic logic is a different sense of the term from how it is used by naturalists; hence what can be said of logical species (they have essences that define them; they are not real but are simply convenient abstractions, etc.) cannot be transferred over to the naturalist's sense.
2. Naturalists will define varieties and races within species. Any such subtaxon will be a "species" in logic.
3. The standard meaning of natural species is descent from a common stock and resemblance of organisms.

¹ Honorary Fellow, The University of Melbourne. Email: john@wilkins.id.au

² (Whately 1826, 1875)

³ (Berlin 1980, Jongsma 1982, historical context is given by Van Evra 1984)

⁴ (Snyder 2006, 36)

⁵ (Burch 2014)

4. The naturalist's *genus* is a matter of a convenient arrangement. Specificity (being a member of a natural species), however, is a fact.
5. Natural species may be defined or identified by "marks", but these are not necessarily, or even often, the *differentia* (the essential differences) of the species.
6. The cause of specificity is not observable; hence we infer species rather than observe them.
7. Realism regarding classes is a mistake, except in the case of natural species, either of living or inorganic objects (like gems).

This text alone is sufficient to destroy the essentialism myth⁶. Not only is it some 33 years before Darwin published the *Origin of Species*, the third edition was actually in Darwin's library⁷. It is clear that most educated English speakers would have known, therefore, that the species of logic and essences are distinct from the species of natural history.

The passage is taken from the first edition of the *Elements*. It is substantially the same as late as the ninth edition, however.

⁶ The myth can be found in (Hull 1965, Mayr 1982, Hull 1988). It also makes a regular appearance in biology works as well.

⁷ In his house, at any rate. See <http://darwin-online.org.uk/content/frameset?itemID=A298&viewtype=text&pageseq=1> accessed 24 December 2016.

§ 1. Nothing has a greater tendency to lead to the mistake just noticed, and thus to produce *undetected* verbal questions and fruitless logomachy⁸, than the prevalence of the notion of the Realists,⁹ that genus and species are some real THINGS, existing independently of our conceptions and expressions; and that, as in the case of singular-terms there is some real individual corresponding to each, so, in common-terms also, there is some thing corresponding to each; which is the object of our thoughts when we employ any such term.¹⁰

There is one circumstance which ought to be noticed, as having probably contributed not a little to foster this error: I mean, the peculiar technical sense of the word “species” when applied to *organized beings*. Technical sense of
Species when applied
to organised Beings

It has been laid down in the course of this work, that when several individuals are observed to resemble each other in some point, a common name may be assigned to them indicating [implying, “or, connoting”¹¹] that point — applying to all or any of them so far forth as respects that common attribute — and distinguishing them from all others; as, *e.g.* the several individual buildings, which, however different in other respects, agree in being constructed for men’s dwelling, are called by the common name of “house:” and it was added, that as we select at pleasure the circumstance that we choose to abstract, we may thus refer the same individual to any one of several different species and again, the same species, to one genus or to another according as it suits our purpose; whence it seems plainly to follow that genus and species are no *real things* existing independent of our thoughts, but are creatures of our own minds.

Yet in the case of species of *organized beings*¹², it seems at first sight as if this rule did not hold good; but that the species to which each individual belongs, could not be in any degree *arbitrarily* fixed by us, but must be something real, unalterable, and independent of our thoughts. Caesar or Socrates, for instance, it may be said, must belong — different as they may be — to the species Man, and can belong to no other; and the like, with any individual brute, or plant: *e.g.* a horned and a hornless sheep every naturalist would regard as belonging to the same species.

On the other hand, if any one utters such a proposition as “this apple-tree is a codlin;” — “this dog is a spaniel,” — “Argus was a mastiff,” to what head of predicates would such a predicate be referred? Surely our logical principles would lead us to answer, that it is the *species*; since it could

⁸ [An argument over words — *Ed.*]

⁹ It is well known what a furious controversy long existed in all the universities of Europe between the sects of the Realists and the Nominalists; the heat of which was allayed by the Reformation, which withdrew men’s attention to a more important question.

[“Realism” at this time and for a few centuries before, was held to be the view that abstractions are real, or that all kind words denote real things. — *Ed.*]

¹⁰ A doctrine commonly, but falsely attributed to Aristotle, who expressly contradicts it. He calls individuals “primary substances” (πρωται ουσιαι;) genus and species “secondary,” as not denoting (τὸδε τι) a “really-existing thing.” Πᾶσα δὲ οὐσία δοκεῖ τόδε τι σημαίνειν. Ἐπὶ μὲν οὖν τῶν πρώτων οὐσιῶν ἀναμφισβήτητον καὶ ἀληθές ἐστιν ὅτι τόδε τι σημαίνει· ἄτομον γὰρ καὶ ἐν ἀριθμῷ τὸ δηλούμενόν ἐστιν. Ἐπὶ δὲ τῶν δευτέρων οὐσιῶν, ΦΑΙΝΕΤΑΙ, μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπη ἄνθρωπος ἢ ζῷον· ΟΥ ΜΕΝ ΓΕ ΑΔΗΘΕΣ· ἀλλὰ μᾶλλον ΠΟΙΟΝ ΤΙ σημαίνει· κ.τ.λ.. Aristotle, *Categ.* §3. See Appendix, Article, “Same.” There is however a continual danger of sliding into Realism *inadvertently*, unless one is continually on the watch against it: of which Aristotle as well as many other writers not deliberately holding the doctrine, furnish instances.

[*Ed.*— Aristotle is quoted from 3b10–18; Whately’s Greek differs from the Loeb edition. The printer has mis-set ΑΔΗΘΕΣ for ΑΛΗΘΕΣ]

¹¹ See Book II. Chap. v. § 1.

¹² [Whately means here what came later to be known as “organisms”. Terms like “organized beings”, “organic beings”, “natural beings” and the like refer to what we would now call “organisms”. Although the term “organism” had been devised in the eighteenth century in French (Cheung 2006), the term was not introduced into English until Owen discussed the kangaroo in 1834 (Owen 1834), where he said “... if the introduction of new powers into an organism necessarily requires a modification in its mode of development ...” (p359), in the context of which it is clear he means a being that has organs, or is organized. *Ed.*]

hardly be called an accident, and is manifestly no other predicable. And yet every naturalist would at once pronounce that mastiff is no distinct species, but only a *variety* of the species dog. This however does not satisfy our inquiry as to the head of predicables to which it is to be referred. It should seem at first sight as if one needed, in the case of organized beings, an additional head of predicables, to be called “variety” or “race.”

Species distinguished by naturalists from variety. The solution of the difficulty is to be found in the consideration of the peculiar technical sense [or “second intention”] of the word “species,” when applied to *organized beings*: in which case it is always applied (when we are speaking strictly, as naturalists) to such individuals as are supposed to be *descended from a common stock*, or which *might* have so descended; *viz.* which resemble one another (to use M. Cuvier's expression) as much as those of the same stock do.

Now this being a point on which all (not merely naturalists) are agreed, and since it is *fact*, whether an ascertained fact or not) that certain individuals are or are not, thus connected, it follows, that every question whether a certain individual animal or plant belongs to a certain species or not, is a question not of mere *arrangement*, but of *fact*. But in the case of questions respecting *genus*, it is

Questions of fact and questions of arrangement. otherwise. If, *e.g.* two naturalists differed, in the one placing (as Linnaeus) all the species of bee under one *genus*, which the other subdivided (as later writers have done) into several genera, it would be evident that there was no question of *fact* debated between them, and that it was only to be considered which was

the more *convenient arrangement*. If, on the other hand, it were disputed whether the African and the Asiatic elephant are distinct *species*, or merely varieties, it would be equally manifest that the question is one of fact; since both would allow that if they are descended (or might have descended) from the same stock, they are of the same species; and if otherwise, of two: this is the fact, which they endeavour to ascertain, by such indications as are to be found.

For it is to be further observed, that this fact being one which can seldom be directly known, the consequence is, that the marks by which any species of animal or plant is known, are not the very

Mark by which a species is known not always the differentia. differentia which constitutes that species. Now, in the case of unorganized beings, these two coincide; the marks by which a diamond, *e.g.* is distinguished from other minerals, being the very differentia that constitutes the species diamond. And the same is the case in the *genera* even of organized beings: the Linnaean genus “felis,” *e.g.* (when considered as a species, *i.e.* as falling under some more comprehensive class) is distinguished from others under the same order, by those very marks which constitute its differentia. But in the “Infimae species” (according to the view of a naturalist) of plants and animals, this, as has been said, is not the case; since here the differentia which constitutes each species includes in it a circumstance which cannot often be directly ascertained (*viz.* the being sprung from the same stock,) but which we conjecture, from certain circumstances of resemblance; so that the *marks* by which a species is known, are not in truth the whole of the differentia itself, but *indications* of the existence of that differentia; *viz.* indications of descent from a common stock.

There are a few, and but a few, other species to which the same observations will in a great degree apply: I mean in which the *differentia* which *constitutes* the species, and the *mark* by which the species is *known* are not the same: *e.g.* “murder:” the differentia of which is that it he committed “with malice aforethought;” this cannot be *directly* ascertained; and therefore we *distinguish* murder from any other homicide by circumstances of preparation, &c., which are not in reality the differentia, but *indications* of the differentia; *i.e.* grounds for concluding that the malice did exist.

Hence it is that species, in the case of organized beings, and also in a few other cases, have the appearance of being some real things, independent of our thoughts and language. And hence, naturally enough, the same notions have been often extended to the *genera* also, and to species of *other things*: so that men have a notion that each individual of every description truly belongs to some one species and no other: and each species, in like manner, to some one genus; whether we happen to be right or not in the ones to which we refer them.

Few, if any indeed, in the present day avow and maintain this doctrine: but those who are not especially on their guard, are perpetually sliding into it unawares.

Bibliography

- Berlin, James A. 1980. "Richard Whately and Current-Traditional Rhetoric." *College English* 42 (1):10-17.
- Burch, Robert. 2014. Charles Sanders Peirce. In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta. Stanford, CA: Metaphysics Research Lab, Stanford University.
- Cheung, Tobias. 2006. "From the organism of a body to the body of an organism: occurrence and meaning of the word from the seventeenth to the nineteenth centuries." *The British Journal for the History of Science* 39 (03):319-339.
- Hull, David L. 1988. *Science as a process: an evolutionary account of the social and conceptual development of science*. Chicago: University of Chicago Press.
- Hull, David Lee. 1965. "The effect of essentialism on taxonomy— two thousand years of stasis (II)." *The British Journal for the Philosophy of Science* XVI (61):1-18. doi: 10.1093/bjps/XVI.61.1.
- Jongsma, Calvin. 1982. "Richard Whately and the Revival of Syllogistic Logic in Great Britain in the Early Nineteenth Century." PhD, University of Toronto.
- Mayr, Ernst. 1982. *The growth of biological thought: diversity, evolution, and inheritance*. Cambridge MA: The Belknap Press of Harvard University Press.
- Owen, Richard. 1834. "On the Generation of the Marsupial Animals, with a Description of the Impregnated Uterus of the Kangaroo." *Philosophical Transactions of the Royal Society of London* 124:333-364.
- Snyder, Laura J. 2006. *Reforming Philosophy: A Victorian Debate on Science and Society*. Chicago: University of Chicago Press.
- Van Evra, James. 1984. "Richard whately and the rise of modern logic." *History and Philosophy of Logic* 5 (1):1-18. doi: 10.1080/01445348408837059.
- Whately, Richard. 1826. *Elements of Logic*. Comprising the Substance of the Article in the Encyclopaedia Metropolitana, with Additions, &c. London: J. Mawman.
- Whately, Richard. 1875. *Elements of logic*. Ninth (octavo) ed. London: Longmans, Green & Co. Original edition, 1826.