TWO CONCEPTIONS OF EXPERIENCE

T HE canonical text relating experience to knowledge for the philosophers of the High Middle Ages was Aristotle's *Meta-physics* A.1.[1] The very first remarks in First Philosophy describe how humans, after repeated exposure to the world, come to have art and then science through experience: *hominibus autem scientia et ars per experientiam evenit* (981^{a}2–3: ἀποβαίνει δ' ἐπιστήμη καὶ τέχνη διὰ τῆς ἐμπειρίας τοῖς ἀνθρώποις). Aristotle explains this process in terms of cognitive capacities and their objects: sense, memory, and imagination give rise to experience, which is directed to particulars; reason gives rise to art and science, each directed to universals, the former being the exercise of practical reason and the latter of speculative reason.[2] So much is familiar. Mediæval philosophers who read Aristotle's text generally followed his lead, to the point where Robert Kilwardby, around the middle of the thirteenth century, begins his explanation of the origin of the sciences by simply giving a close paraphrase of *Metaphysics* A.1 (*De ortu scientiarum* 1.8–11). The philosophers of the High Middle Ages offered analyses of cognition whose details, meant to flesh out Aristotle's account, were elaborated in their debates over the role of the agent intellect, the need for *species* in perception and in thought, the reliability of the cognitive apparatus for induction, the nature and function of memory, and so on.[3]

Yet there is an alternative conception of experience also present in *Metaphysics* A.1—a conception that does not lend itself readily to the reductive psychological analyses favored by Aristotle and many of his mediæval followers. Instead, obviating the need for Aristotle's "leap to the universal"

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[1] There are five mediæval Latin translations of Aristotle's *Metaphysics*: (*i*) James of Venice's partial translation from the Greek made in the twelfth century, the *vetustissima*; (*ii*) an anonymous thirteenth-century revision of James's translation, the *vetus*; (*iii*) an anonymous twelfth-century translation from the Greek, the *media*; (*iv*) Michael Scot's translation from the Arabic, the *nova*, appearing along with his translation of Averroës's "great commentary" on the *Metaphysics* and dating from 1220–1235; and (*v*) William of Moerbeke's translation from the Greek, made sometime before 1272, which apparently became the most widely used. I cite William's text in what follows unless noted otherwise.

[2] There is a less detailed account in *Posterior Analytics* B.19 covering some of the same ground; see also the *Protrepticus* (fr. 13 in Ross's edition; B48 in Düring's reconstruction).

[3] The recent surveys in Tachau [1988], Spruit [1994], and Pasnau [1997] concentrate on intentionality and mental representation; King [1994] focuses on mental architecture.

through reason, experience is itself understood as a form of knowledge, namely competence in regard to some subject, a way of getting around in the world. Recognizing this alternative paradigm allows us to see mediæval discussions of experience and knowledge in a new light, and furthermore suggests a way of understanding the radical novelty of William of Ockham's turn away from *species* to habitual knowledge.

The first order of business, therefore, is to take a closer look at Aristotle's discussion, distinguishing the traditional conception of experience (§1) from the alternative conception (§2). Once these have been clarified, I will examine mediæval discussions of each, the former when considering what role reason plays in experience (§3), the latter when considering experience as a competitor to art and science (§4). I will then be in a position to describe and assess William of Ockham's contribution as an attempt to recast the traditional conception of experience, and the questions it was meant to address, in light of the alternative conception (§5).

1. The Traditional Conception of Experience

Aristotle's goal in *Metaph.* A.1 is to show that metaphysics, a form of wisdom (*sapientia* or σοφία), is knowledge of the causes or principles of things (981^b27–28), a goal he follows up in A.2 by arguing that metaphysics properly speaking is knowledge of the first causes or principles of things. His procedure in A.1 is to trace the stages of cognition, from sense to science, to see what can be known at each stage.[4] The simplest animals have only the power of sense—Albert the Great tells us they are shellfish, who have the sense of touch alone (*Metaph.* 1.1.6)—however most animals have, in addition, memory and imagination (*imaginatio* or φαντασία). Indeed, as memory 'arises' (*fit* or γίγνεται) from sense, some animals with memory, depending on the senses they possess, can also be teachable (980^a28–$^b25$).[5] Yet while some animals live by memory and imagination, they 'share little' in experience: *experimenti autem parum participant* (980^b25-26: ἐμπειρίας δὲ μετέχει μικρόν). For humans, experience 'arises' from memory, since "many memories produce the capacity of a single experience" (980^b28–29). Furthermore, in the case of humans, art and science 'arise' from experience when, from many things understood in experience, there comes to be one

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[4] See the division of the text in Aquinas's *In Metaph.* 1.1.1, and his analysis of the stages of cognition in 1.1.9–18.

[5] Aristotle claims that hearing is the relevant sense for being teachable; however, Albert argues that animals can learn through any communicative signs, *e. g.* a dog can be trained by head movements (*Metaph.* 1.1.6).

view universally applying to similar items: *ex multis experientalibus conceptionibus una fit universalis de similibus acceptio*[6] (981^{a}5–7: ὅταν ἐκ πολλῶν τῆς ἐμπειρίας ἐννοημάτων μία καθόλου γένηται περὶ τῶν ὁμοίων ὑπόληψις). This distinction holds generally; experience is the cognition of singulars, whereas art is of universals (981^{a}16–17).

Aristotle's remarks delineate a conception of experience that has become traditional in philosophy: a buzzing, blooming confusion of sense-impressions that, through repetition and memory, comprise the world as understood by us; "we cannot go beyond experience," as Hume is fond of remarking, for it is the raw material of all our ideas, including our general or abstract ideas. Aristotle's conception is something very like the notion of 'experience' that seems to be at work in seventeenth- and eighteenth-century philosophy.[7] Although its details are vague—do animals have experience? how does experience 'arise' from memory, or art and science from experience? do we experience objects, our sense-impressions, or our memories? and so on—this traditional conception has exercised a power over the philosophical imagination.

It has two features worth remarking. First, it is a *mentalist* account: experience is "in the head," a function or product of the operation of cognitive faculties, either singly or in combination; in *Metaph.* A.1 Aristotle mentions sense, memory, and imagination as candidates for the job. Second, it is *reductionist*: experience is explained in terms of these cognitive faculties, so that our experience of the world is 'constructed' in some fashion from their operation. As outlined above, Aristotle takes experience to be generated from (repeated) sense-impressions, or, more precisely, he takes it to be the product of cognitive processing, by memory and perhaps imagination as

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[6] So Moerbeke, the *media*, and the *nova*. James of Venice has *ex multis experimento intellectis universaliter una fit de similibus opinio*, and the *vetus* has the intermediate version *ex multis experimento intellectis una fit universalis de similibus acceptio*.

[7] Locke and Hume use rather than analyze the notion of experience. Locke comes the closest to providing an account of it when he writes (*Essay* 2.1.2): "Whence has [the mind] all the materials of reason and knowledge? To this I answer, in one word, from EXPERIENCE. In that all our knowledge is founded; and from that it ultimately derives itself. Our observation employed either, about external sensible objects, or about the internal operations of our minds perceived and reflected on by ourselves, is that which supplies our understandings with all the materials of thinking." Hume, inquiring into our ideas of cause and effect, declares (*Treatise* 1.3.6): "The nature of experience is this. We remember to have had frequent instances of the existence of one species of objects; and also remember, that the individuals of another species of objects have always attended them, and have existed in a regular order of contiguity and succession with regard to them..."

well, of (repeated) sense-impressions.[8] That is why he sketches the hierarchy of cognitive faculties from the simplest of animals through increasing levels of complexity all the way to humans. Experience, on this conception, is thus something mental, to be explained as far as possible in terms of the operation of lower-level cognitive or pre-cognitive processes.

2. The Alternative Conception of Experience

Before Aristotle is done with *Metaph.* A.1 he articulates a different conception of experience that is neither mentalist nor reductive. He begins by likening experience to art and science (981^{a}1–2: ὅμοιον). All three seem largely indistinguishable in practical affairs (981^{a}12–13); the only distinction among them worth mentioning is that people with experience are often more proficient than those who have theory but no experience: *expertos magis proficere videmus sine experientia rationem habentibus* (981^{a}13–14: μᾶλλον ἐπιτυγχάνουσιν οἱ ἔμπειροι τῶν ἄνευ τῆς ἐμπειρίας λόγου ἐχόντων). For example, the old nurse does better than the novice resident intern. Aristotle explains this away by claiming that action, like experience, has to do with particulars, putting those with art and science at a disadvantage, if anything, since they must learn how to apply their universal knowledge (981^{a}3–12 and 981^{a}14–24). Furthermore, Aristotle argues, art and science are closer to wisdom than is experience, since people with experience know only that something is so but not why it is so: *ipsum quia sciunt sed propter quid nesciunt* (981^{a}28–29: τὸ ὅτι μὲν ἴσασι, διότι δ' οὐκ ἴσασιν). Knowledge of causes comes closer to wisdom than mere knowledge of facts. Aristotle therefore dismisses experience and concentrates on art and science as finalists for the role of wisdom, or, at least, what we ordinarily understand to be wisdom (981^{b}28: ὑπολαμβάνουσι πάντες), and so ends A.1.

Experience, in this second sense, is something that rivals art and science as a form of knowledge. Even Aristotle, who wants to argue for the superiority of art and science, admits that people with 'experience' of this sort typically do as well as or better than people equipped with theory alone. What is more, even if we grant Aristotle his further contention that experience is not the highest form of knowledge, it is nonetheless a form of knowledge, not merely its raw material (as it is on the traditional conception of experience), and certainly not something reductively explicable in terms of atomic sense-impressions. The alternative conception is much closer to the

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[8]   There is no small difference between these versions: the former takes experience to be a manifold of impressions, the latter an impression of a manifold. We will look at some mediæval accounts of how the former becomes the latter in experience in §3.

root meaning of *experientia* and ἐμπειρία: acquired skillfulness, competence, expertise.[9] Aristotle's concerns make sense when experience is thought of in this way. Should charge of the platoon be given to the sergeant who has risen through the ranks or to the lieutenant fresh from OCS? Should psychiatrists have medical degrees or are 'lay analysts' sufficiently qualified? Is on-the-job training as good as an MBA? These questions only make sense if we understand experience along the alternative lines Aristotle sketches here. His preferred example of such experience is drawn from medicine, having to do with the sort of practical knowledge that a nurse or a lay practitioner might have.[10] However, it is easy to think of other competencies that fit the model: the auto mechanic who can fix anything; native speakers of a language; sailors who are 'old salts'; chess champions; self-taught musicians ignorant of theory; corporate executives who have worked their way up from the mailroom; wrestlers; executive secretaries—the list goes on and on, even without taking into consideration task-directed skills (touch-typing, driving a car, riding a bicycle, hunting, and so on).

While it is hard to deny that such people have knowledge, it is also hard to see their expertise in 'mentalistic' or reductive terms. People acquire competencies by interacting with the world, to be sure, but we do not profitably explain their expertise by reference to their mental states, much less by constructing it from isolated sense-impressions. The wrestler's ability to overcome his opponent is not best seen as something fundamentally 'in the head,' and, while the mechanic has had more sense-impressions of Buicks than other people, only a philosopher in the grip of a theory would insist that it is the sheer quantity, or remembered quantity, of such Buick-impressions that best explains his expertise. Likewise, the last fifty years of research in the philosophy of language should have cured us of the idea that linguistic competence is a function of inner episodes of private meaning, a claim that generalizes to cover other competencies, which likewise do not depend on private inner episodes. Knowing *how* to do something does not depend on a prior mental grasp of knowing *that* various propositions are true. If anything, the opposite holds. Aristotle's claim that such competencies do not involve the (overt) grasp of universals arguably makes the same point, that

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[9]   Liddell and Scott, *A Greek-English Lexicon*, *s. v.* ἐμπειράζω; *The Oxford Latin Dictionary*, *s. v.* experior.

[10]   Aristotle assumes that physicians have theoretical knowledge of why their therapeutic techniques are effective. This seems overly optimistic as well as unrealistic. We know that aspirin is a general analgesic, for instance, but we don't know why it works, much less have a 'grasp of the universal' (presumably a mix of biochemistry and neurophysiology).

is, that such competencies are not best explained by agents (consciously) following internalized general rules.[11] Experience as a matter of expertise, then, is an alternative paradigm that is neither mentalist nor reductive.

This alternative conception of experience does not emerge as clearly as it might from Aristotle's text, in part because Aristotle wants to eliminate it as a candidate for wisdom. His second claim, that competencies involve only knowledge of facts but not causes, and his unstated assumption that competencies can be superseded by explicit or overt theories, are part of his argument against expertise and not part of his conception of it; we may endorse or reject these further claims as we see fit.[12] However, we should not let them obscure the underlying construal of experience as acquired skillfulness. It is a real alternative to the traditional conception of experience.

Philosophers have by and large gone along with Aristotle in preferring to work with the traditional conception of experience.[13] Yet the alternative conception does periodically share in the spotlight.

In the first decades of the twelfth century Hugh of St. Victor (†1141), in his remarkable *Didascalion*, maintains that there are four branches of knowledge (*scientia*): theoretical, practical, mechanical, and logical. The *artes mechanicae*[14] are "the third part of philosophy," seven in number (2.20), comprising textiles (2.21 *lanificium*), weaponry (2.22 *armatura*),

[11] The general failure of so-called 'rule-based' expert systems in modern artificial intelligence (AI) research, and the promising start to nonreductionist neural-net models of learning and competence, suggest that thinking of experience along these lines can be a profitable way to approach issues in cognitive psychology. Already in the Middle Ages Hugh of St. Victor suggested further that art and science are parasitic on varieties of expertise, just as grammar only emerges long after people are competent native speakers (*Didascalion* 1.11).

[12] Aristotle's contention that competencies rely on knowledge of facts rather than knowledge of causes is shaky at best. The mechanic who can diagnose an engine problem by listening to the sounds it makes, the musical performer who is able to play something on her instrument upon hearing it, the nurse who knows what the patient needs require more than mere 'factual' knowledge, and arguably a grasp of (non-universal?) causes: what engine condition produces those noises, which finger-position on the instrument makes that particular sound, what a given ailment calls for. Likewise, we have seen reasons above to question Aristotle's assumption that competencies can be successfully replaced by theoretical knowledge.

[13] Aristotle himself arguably does not do so. His conception of the φρονίμος can fruitfully be understood as an example of skillful expertise (in moral matters). He aligns this with the distinction between theoretical and practical knowledge, though, making it hard to see how certain components of his ethical theory can be understood, *e. g.* the doctrine of the mean, since they seem to involve the grasp of universals in some sense.

[14] The singular form, *ars mechanica*, was used in antiquity to refer to what we now call mechanics; the plural was unknown, apparently used in the broad sense for the

commerce (2.23 *navigatio*), farming (2.24 *agricultura*), hunting (2.25 *venatio*), medicine (2.26 *medicina*), and entertainment (2.27 *theatrica*). Hugh takes the categories broadly; 'weaponry,' for example, covers armaments, architecture, metalworking and carpentry, engineering, and the like. He also describes the tools, materials, and craft techniques in common use for a given mechanical art. Textiles, for instance, includes the techniques of weaving, sewing, and twisting that are accomplished by hand, needle, spindle, awl, comb, or loom, working on flax, fleece, animal hide, cane, cork, rushes, straw, and so on, typically producing blankets, saddles, clothing, nets, curtains, baskets, and similar products. Throughout his discussion, Hugh shows a lively awareness of the varied kinds of skills and competencies that enter into expertise in a given 'mechanical art.' His discussion of them proved decisive for the later Middle Ages.[15] Robert Kilwardby later offers a close paraphrase of Hugh's discussion of the mechanical arts as a form of knowledge (*De ortu scientiarum* 39.363–371). Bonaventure makes mention of them as part of his all-embracing classification of knowledge, designed to show its subordination to theology (*De reductione artium ad theologiam* 2).

Albert the Great treats the mechanical arts while glossing *Metaph.* A.1, recognizing that they embody the alternative conception of experience Aristotle takes up here. The mechanical arts, Albert informs us, are pursued not for their own sake but for the sake of their usefulness, and hence are less admirable than forms of knowledge that are pursued to govern our action or even for their own sake (*Metaph.* 1.1.10). The mechanical arts are properly human, however—apes can provide brief parodies of human competencies by imitation, but no more (*Metaph.* 1.1.6). Albert sides with Aristotle in dismissing such forms of expertise as a matter of knowing that something is so rather than why it is so, aligning this with the distinction in objects of knowledge between the particular and the universal (*Metaph.* 1.1.9); however, he qualifies his conclusion by trying to say something about the different *kind* of knowledge involved in expertise.[16]

first time in the ninth century by John Scottus Eriugena in his notes on Martianus Capella's *De nuptiis Philologiae et Mercurii* (see Whitney [1990] 70–71).

[15] See Ovitt [1987] and especially Whitney [1990] for evidence to back up this claim. Not all philosophers were receptive: Aquinas stigmatizes the *artes mechanicae* as "servile" (*Summa theologiae* I^a-II^{ae} q. 57 art. 3 *ad* 3). Nor were other important figures always sympathetic. Innocent III's *De contemptu mundi* §14 contains a devastating survey of the emptiness and vanity of all human activities, including the practice of the mechanical arts.

[16] I will return to Albert's discussion of this last point in §4.

At the beginning of the High Middle Ages, then, there is a lively awareness of the two different conceptions of experience as found in A.1. I will next examine the way in which mediæval philosophers treated each, concentrating on points where the tension between the two conceptions comes to the fore.

3. Reason in Experience

Aristotle's presentation of the traditional conception of experience is imprecise at many points, but perhaps nowhere more so than on the question whether animals also have experience: they are said to "share little" in it, a phrase that could be taken either positively or negatively.[17] Yet the question whether animals have experience is more pressing than it might at first seem, since it turns on whether reason is necessary for experience, and if so, how. Animals undeniably have sense-impressions and, since they become habituated to pursuit or avoidance through repeated exposure to the world, they must have memory as well.[18] Yet this history is not sufficient for experience, argues Albert the Great, because the manifold of impressions must be processed using cognitive faculties animals do not have.

Albert argues that in order to have knowledge through experience, there have to be at least three separate mental events: an impression of an item, an impression of another item that is similar to the first, and an act of taking the two preceding impressions, at least one of which is recalled from memory, to be instances of the same universal, which can only happen through reason.[19] This 'act of taking' (*tentio*), though not conscious, structures our remembered impressions into discrete natural kinds depending on their objects; Albert proposes that it is, so to speak (*quasi*), the formal component of experience, whereas remembered impressions are its matter (10.11–14). The result is 'experience' of the world as divided into natural kinds.

John of Jandun, who follows Albert closely in his questions on Aris-

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[17] This ambiguity was noted even among the Greek commentators. Alexander of Aphrodisias, for example, maintains in his commentary that animals do not have experience, since μικρόν can carry the sense 'not at all' (4.13–23).

[18] Aquinas, *In Metaph.* 1.1.15; see also 1.1.17.

[19] Albert, *Metaph.* 1.1.6 (8.65–75): *Sed cum non perficiatur per unicam sensibilium apprehensionem sed potius ex duobus aliis cum isto, quorum unum est tentio sensibilium acceptorum similium, eo quod universale est una de multis essentialiter similibus acceptio, tentio autem prius accepti cum posterius accepto et horum duorum cum tertio et quarto et deinceps acceptis non fit nisi per memoriam et una acceptio de omnibus his non fit nisi per rationem. . .* See also 1.1.9 (13.8–10): *experientia est cognitio singularium ex multiplicatis accepta memoriis, circa quae est actus.*

totle's *Metaphysics*, explicitly asks how memory "arises" from sense (*In Metaph.* q. 10) and how experience "arises" from memory (q. 11).[20] In the former case, John argues, sense is not the material cause of memory—that is, sense-impressions are not 'matter' that is combined with recollection, or perhaps 'being recollected,' as some sort of 'form' (as "among acts of different powers one is not the matter of another"[21]); rather, sense-impressions are motive and efficient causes that are the remote agents whereby memories are produced, through the operation of intermediate faculties: exterior sense, interior sense, imagination, and the cogitative power (fol.7vb). Such memories are, for John, the matter of experience, as noted above. More precisely, John argues that the impressed species, first in the memorative power and then in the cogitative power, is the material cause of experience (fol.8rb). The formal cause is the comparison of these singular impressed species with one another.

The ontology underlying Albert's account is uncompromisingly realist, a fact made fully explicit by John. Albert maintains that universals are 'mixed in' and 'fused together' with singulars (*confusi et permixti*); the universal is "the being of many" (*esse multorum*), pertaining to them all (*Metaph.* 1.1.7). The mind separates it from singulars by 'purifying' it (11.38: *depuratio*), or, as we might say, through abstraction. The link between universals mixed in with singulars and universals abstracted by the mind is, of course, their presence in sense-impressions. The sensing of an item results in a sense-impression of that item being the kind of thing it is, and reason takes sense-impressions that incorporate or embody the same universal together. The 'act of taking' here is the same as that described in the preceding paragraph, with the additional detail that sense-impressions are sorted by the abstractive function of reason.

Albert offers no further details about this process; however, his former student, Thomas Aquinas, proposes in his commentary on *Metaphysics* A.1 that the comparison or collation of impressions is a function of what he calls 'particular reason' (*particularis ratio*), that is, reason applied to particulars

[20] Robert Grosseteste, commenting on Aristotle's parallel remarks in *Posterior Analytics* B.19, writes that sense and memory "are common to brute animals and rational beings, but in rational beings it happens that experience arises from many memories once reason has been stirred up" (404.35–37: *contingit ex multis memoriis excitata ratione fieri experientiam*). He does not say why reason gets stirred up, or how it acts after being stirred up.

[21] John applies the same principle later to argue that experience is not the matter of art and science, since experience occurs in the cogitative power whereas art and science occur in the intellect: *In Metaph.* 1 q. 12 fol.8vb (the incunabulum has the misprint *memoria* for *scientia* in line 4).

(or the sense-impressions thereof), and thereby is proper to humans (*In Metaph.* 1.1.15).[22] Aquinas argues that, since the forms of material objects (given in the sensible species or the phantasm) are only potentially and not actually intelligible, there must be an active principle which makes them actually intelligible, and this reduction from potency to act requires an agent cause, which Aquinas identifies as the agent intellect. The agent intellect has two distinct and logically sequential functions: (*a*) preparing the sensible species so that it is actually intelligible; (*b*) "impressing" this prepared sensible species, called the 'intelligible species,' on the possible intellect (*Summa theologiae* I^aq. 79 art. 3).

Aquinas further justifies his claim that the forms of material objects are only potentially and not actually intelligible by taking the intelligible species to consist in the universal formal features of the object, which, of course, are not actually intelligible, since they are not apparent to sense. Sense, thus, has as its medium the sensible species, which is particular, and the intellect has as its medium the intelligible species, which is universal. Mediation between the two takes place through abstraction, that is, by removing the individualizing conditions from the particular sensible species.[23] These individuating conditions do not alter the formal content of the nature of the object they individuate but merely render it singular, distinct from others of the same kind; formal differences only occur at the specific and

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[22] Aquinas tells us that particular reason is the human correlate of the *vis aestimativa* in animals (*In Metaph.* 1.1.15). Elsewhere he states that it is sometimes called the 'cogitative power' and is localized in the midbrain (*Summa theologiae* I^aq. 78 art. 4; see also q. 81 art. 3). Oddly, he does not explicitly link particular reason to abstraction in his discussion of A.1.

[23] Thomas Aquinas, *Summa theologiae* I^aq. 54 art. 4, q. 79 art. 3–4, q. 84 art. 2 and art. 6, q. 85 art. 1, q. 86 art. 1; *Summa contra gentiles* 2.77; *De spiritualibus creaturis* art. 10 *ad* 4 and *ad* 17; *Quaestiones disputatae de anima* art. 4; *De veritate* q. 10 art. 6 *ad* 2 and *ad* 7; *In De anima* 3 lect. 8 and lect. 10; *De unitate intellectus* n. 111. Note the ambiguity between 'removing individuating conditions from the item represented in the sensible species' and 'removing the conditions that individuate one sensible species from another' (a distinction Aquinas sometimes fluffs). While holding that matter is responsible for individuation, Aquinas seems to have changed his mind about whether so-called designated or undesignated matter is the principle of individuation. Because the senses take on the form of the material object without its matter, there is a problem in individualizing the sensible species. (Aquinas's offhand remark in *Summa theologiae* I^aq. 75 art. 6 that the senses operate *sub hic et nunc* suggests a possible way out: the individualization accomplished by material conditions combined with the form in the external thing might correspond to the individualizing conditions of here-and-now combined with the form in the sensing). However, nothing turns here on the precise details of his account of individuation.

generic levels. Hence the process of abstraction does not formally alter the nature, but simply removes or cancels its surrounding individuating conditions. Yet because the individuating conditions do not alter the content of the form in the individual, the form in itself must have the abstracted features, that is, the characteristics revealed through abstraction, though in combination with the appropriate principle of individuation the form is individualized in the object: the form in itself is universal. The end result is that 'reason' (in the person of the agent intellect) automatically removes individuating conditions from the sensible species, allowing the human mind to have experience of a world that is divided into distinct natural kinds, and all of this takes place *prior* to conscious experience—in sum, a mediæval 'abstractivist' version of Kant's transcendental machinery.

Whether the sort of classical concept abstractivism sketched above is an adequate psychological account is a question I wil not explore here. It is enough that it explains why *reason* is required for experience such that non-reasoning animals are left out of account, or, more exactly, why reason is required for the mediæval version of the traditional conception of experience. It is worth noting, however, how heavily indebted the abstractivist account is to a kind of realism about universals. The more attention paid to the knowledge of singulars and the more antirealist arguments ventured on behalf of nominalism, the less plausible the abstractivist line will be, and likewise the theory of experience it underwrites.

Although I will return to these points at the end of the next section, it is worth noting here that even in the defense and elaboration of the traditional conception of experience, the alternative conception raises its head. John of Jandun applies Albert's analysis to animals, and concludes that while they may have experience in a material sense (namely the 'memorative species') they cannot have experience formally, as they lack reason, which is required for the comparison of impressions mentioned above (*collatio*: *In Metaph.* 1 q. 9 fol. 7va). Experience in the material sense is sufficient, though, for mere habituation; as John puts it pithily, "we see that the horse usually returns to the stable." Aquinas, as we should expect, also holds that animals have mere habituation (*consuetudo*) rather than experience (*In Metaph.* 1.1.15–16); repeated exposure leads to their "easy and correct" behavior but no more (1.1.17).

Yet the difficulty with the line taken by Jandun and Aquinas is that it seems not to respect the facts. Habituation is not enough. Animals do not merely respond to sensible properties of the objects they encounter but act as though they have some (limited) competence in getting around in the world. The horse figures out the fastest way to the stable; the dog

herds the sheep effectively; the fox knows how to avoid the hunter's traps. John reasons that animals must therefore have "something similar to the formal principle of experience," but says nothing about its nature—a remarkably lame conclusion.[24] Duns Scotus recognizes animal competence (*In Metaph.* 1.3.10) but denies that it requires us to ascribe human-like cognitive states to animals: "the exterior acts of [humans and animals] resemble each other" but "they are not masters of their actions in the same way" (1.3.11), since animals, despite appearances, act as they do out of necessity (1.3.14). He then explains the sensitivity to circumstances characteristic of acquired skill by the different histories of the individual animals involved (1.3.15). Recognizing the weakness of his case, though, he suggests that "there is another way of preserving Aristotle's intention," namely by holding that animals sometimes seek what is absent (for example) out of imagining the absent object as suitable for it (1.3.17–20). So interpreted, animal behavior is very similar to non-deliberative human behavior, and, at that point, Scotus drops the discussion. The inconclusive nature of his discussion, if nothing else, shows that the alternative conception of experience is not so easily set aside. I will now turn to some mediæval discussions in which it is directly on the table.

4. "Experience a Plus"

Aristotle admits that experience as acquired skillfulness is a worthy competitor to art and science, and indeed that people with such expertise outdo those who have 'theoretical' knowledge but lack hands-on training. As we have seen, Aristotle does not try to explain this difference in terms of low-level cognitive processing of isolated sense-impressions, as the traditional conception of experience would dictate. Instead, recognizing the alternative conception of experience at work here, he contends that the reason 'experience' is a plus on the job is that actions have to do with particulars (the object of expertise) rather than universals (the object of art and science). As Aquinas puts it, the advantages normally enjoyed by art and science are cancelled when action in the world is at stake (*In Metaph.* 1.1.20). Aristotle's mediæval followers are for the most part content to reproduce his line of reasoning and chalk up practical success to the particular/universal distinction. However, they differ in explaining just *how* this distinction explains the differential success of those with and without experience. Moreover, at least some philosophers are prepared to recognize certain distinctive fea-

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[24] John of Jandun, *In Metaph.* 1 q. 9 (fol.7va), makes matters worse by further claiming that this conclusion is *de se nota*.

tures of experience as acquired skillfulness—all the while maintaining its
cognitive inferiority to art and science, of course.

Aquinas takes Aristotle's explanation to work as follows. Recall the ex-
ample of the old nurse and the young intern. The young intern must take
theoretical medical knowledge and use it to accompish a particular end in
the world, namely healing. Medical science, presumably, consists of value-
neutral propositions about health and illness, or less determinately about
physiology, anatomy, biochemistry, and the like. But healing, and for that
matter poisoning too, "belongs to the singular essentially and the universal
accidentally," since it is, after all, *this* person who is healed: Socrates is
cured (or harmed), and only incidentally is 'man' (the universal) affected
(*In Metaph.* 1.1.22). The old nurse is well-acquainted with all the particu-
lars, but the young intern is much more liable to make a mistake in applying
only theoretical knowledge for a (merely) practical end.

As far as it goes, Aquinas's version of the differential success of peo-
ple with and without experience is clear, and it follows Aristotle closely.
However, it does not go far enough. Like Aristotle, Aquinas leaves the fun-
damental question unsolved, and, indeed, unaddressed. What is it about
the application of a theoretical science that makes mistakes more likely than
mere 'acquaintance with particulars' would? John of Jandun, following the
same train of thought, suggests that it is the mere fact of application that
introduces the greater likelihood of error. He tells us that causes act "more
swiftly and certainly" the closer they are to their effects (*In Metaph.* 1 q. 14
fol. 10rb). Yet even if we grant John this claim, much work remains to turn
it into a satisfactory answer. Why should a cause be more 'certain' if closer?
What kinds of mistakes are the result of 'distance' from the effect? Con-
trast this case with the theoretical physicist, who can 'apply' his theory to
many real-world cases with scarcely a hitch. What is it about medical sci-
ence, or its practitioners, that makes determining a pharmaceutical dosage
fundamentally different from calculating the trajectory of a missile?

Duns Scotus, perhaps recognizing the difficulty in cashing out John's
metaphor of closeness and distance among causes, takes a different tack.
Aristotle's overall explanation is still correct in that the difference between
particulars and universals is the key factor, but, Scotus thinks, the culprit
is not the abstractness of theoretical knowledge; rather, it is the richness
of the particular: "in the singular with which the operation is concerned
per se, there are many factors besides the individuated nature of what is
common, and they diversify the action" (*In Metaph.* 1.5.19). A given pa-
tient in a particular set of circumstances (*annexa*) has to be treated in one
way; a patient in a different set of circumstances, even if suffering from

the same kind of malady, has to be treated in a different way. The old nurse is familiar with the surrounding circumstances by repeated exposure to them (*ex multiplicata cognitione singularium*), both in themselves and as they pertain to the patient. The young intern, however, need not know about such circumstances, at least *qua* medical science.[25] While the intern's theoretical knowledge is complete, and, for all Scotus says, can be applied properly, the intern lacks the sort of knowledge the old nurse has: practical skill and expertise.

Scotus's account, unlike Thomas's or John's, gives room to expertise as a form of knowledge complementary to bare knowledge of theoretical principles, and seems to have supplanted theirs as the preferred explanation of why experience is a plus. Later in the fourteenth century we find Jean Buridan, for example, endorsing an essentially Scotist account. Buridan takes "perfect" science to include theoretical knowledge as well as knowledge gained from experience, that is, expertise; merely learning things out of books or through lectures, "the way they do at Paris," gives one imperfect knowledge at best (*In Metaph.* 1 q. 8 fol. 7vb).[26] The old nurse is familiar with the surrounding circumstances, which are the ground of her proficiency. Furthermore, the old nurse is accustomed to noticing individual differences, unlike the young intern, and this habit, combined with knowledge of circumstances, is enough to explain why experience outdoes the intern's mere 'booklearning.'

Scotus and Buridan recognize that some competencies are matters of acquired skills, and that they call for special kinds of experience. Any musician who plays a stringed instrument, for example, has physically trained the fingers and the muscles of the hand, wrist, and arm in order to play the instrument.[27] This sort of knowledge is necessary for musical performance

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[25] Scotus writes: *Haec autem annexa non oportet artificem cognoscere ex hoc solo quod est artifex* (*In Metaph.* 1.5.19). Currently we are likely tempted to think that such circumstances are and should be a part of 'medical science' (*e. g.* a certain kind of drug should not be given in tropical climates), but it's hard to fit this into the mould of Aristotelian demonstrative science, concerned with necessary connections among universals.

[26] Buridan adds that even if relevant circumstances are included in theoretical studies, they are nevertheless not treated uniformly: they are put "under one heading in one book and under another in another, so that the student of the art can't grasp and combine all the requisite circumstances quickly and properly" (fol.7vb: *seorsum in uno libro de una et in alio de altera, ideo talis artifex non potest bene et cito percipere et combinare omnes circumstantias requisitas*), which is one of the abilities provided by expertise.

[27] Duns Scotus, *In Metaph.* 1.5.19, *in membro quo agit, ut citharista exercitatus in*

and can only be attained through practice. (Theoretical knowledge about finger-placement and the like is not part of music theory proper, and, in any event, cannot take the place of actual playing.) Scotus and Buridan, like Aristotle, don't think that this sort of expertise is a threat to the primacy of theoretical knowledge, however. Aristotle's further contention that acquired skillfulness is a matter of knowing facts rather than causes has some plausibility for physical skills, at stake here.[28] Yet, even if we grant this contention, there is more to say about how experience can be a plus even if it is not a matter of theoretical causal knowledge.

Albert the Great proposes that competencies are *not* intrinsically concerned with causal knowledge. He makes his remarks while discussing Aristotle's claim that the master-artist, who directs the actions of experienced subordinates according to the knowledge of why things must be done a certain way, is exercising a kind of theoretical knowledge. In contrast, the artist's subordinates, who lack this knowledge, are no better than tools or machines (*inanimata*). Albert endorses Aristotle's reasoning, but tries to say something about the kind of competence that a subordinate might have, *Metaph.* 1.1.9 (14.17–39):[29]

> Thus master-artists know more than those who are called subordinates, who do not consider the material cause in what is made by their art, or the efficient cause, or by which motions it is fashioned, but only take into account the species or the form of its shape and make use of these features in their activities, the way a soldier uses a sword or a sailor uses an oar. . . They only work with the use of the form as applied to action. . . Now they have some cognition, since they know the species (not as something extracted from or impressed upon matter by the activity of an efficient cause but *qua* pertaining to activities proper to that species), yet they work with

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manu; Jean Buridan, *In Metaph.* 1 q. 8 fol. 7vb, *experti habent iam membras et organa habilitata.*

[28] As noted in §2, even this contention is dubious, but I will grant it here for the sake of the argument.

[29] *Hi ergo magis sciunt quam hi qui dicitur manu-artifices sive usuales, qui non materiam et efficientem et quibus motibus fiat considerant in artificiato, sed tantum speciem sive formam figurae, et illa utuntur in opere, sicut militaris utitur gladio et nautica temone. . . usuales sive manu-artifices non operantur nisi usu formae ad actum. . . Sed manu-artifices, licet aliquid habeant cognitionis quia cognoscunt speciem, non quidem prout ex materia vel in materia inducitur motibus efficientis sed prout refertur ad opus illi speciei proprium, tamen operantur sicut ex forma consuetudinali, quae usu acquiritur, et hoc magis determinatur ad opus.* I have altered Geyer's punctuation in several places.

it as from a form to which they are accustomed, which is acquired
by usage, and this is targeted for the most part at their work.

Albert's point is that the soldier knows how to *use* a sword: he knows the
kind of thing it is (the point of Albert's talk of *species sive forma figurae*)
and, more importantly, how it fits into his activities. He does not care about
what the sword was made of, how to make swords, or anything other than
its fitness for a particular purpose.[30] Even then the soldier's interest is not
obviously a matter of means-ends practical deliberation. Instead, the sword
is equipment that is part of the soldier's life; he is accustomed to the sword,
having it available and ready to hand, and he wields it with a competence
born of practice.[31] The soldier's expertise belongs to a very different order
from the theoretical knowledge of the master-artist, as Albert describes it.
It is not 'causal' knowledge at all. Instead, it is the kind of experience—here,
deadly combat experience—that is itself knowledge.

The traditional conception of experience has to be linked to our knowl-
edge of the world. Because it provides the raw material for knowledge-
claims, it does not also justify them, or does so only to the extent that
we think the formulation of such claims to be an 'automatic' process (as
sketched in §3). The more skeptical we are about such claims, the greater
the jump from 'traditional' experience to knowledge will seem to be. First,
we might come to doubt the underlying metaphysical realism, and hence the
underpinnings of classical concept abstractivism. Second, we might think
that our experience of the world is primarily an experience of *singular* things
rather than *kinds* of things.

The drift under High Scholasticism seems to have been to recognize the
justice of these two points, and to try to work out an account of knowl-
edge flexible enough to allow for singular cognition but strong enough to
ground Aristotelian science. Unfortunately, the better the account of singu-
lar knowledge, worked out in the theory of intuitive and abstractive cogni-
tion, the worse the prospects for grounding knowledge seemed to be. Diffi-
culties in the traditional conception of experience came to the fore.[32] Duns
Scotus, for example, canvasses Mill's Methods as a way of securing inductive
knowledge (*In Metaph.* 1.4.70–82), and he worried about Hume's 'missing
shade of blue' example: how can someone who has never had experience of
a particular shade of blue—indigo, according to Scotus—apparently have

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[30] The sword's fitness may be affected by what it is made of, how it is shaped, and so on,
in which case the soldier must take notice of these points, but not for their intrinsic
interest.

[31] See Heidegger, *Sein und Zeit* I.iii.14A (68–72), on equipment.

[32] See Tachau [1988] and Pasnau [1997].

knowledge of it?[33] Skeptical challenges to the justification of knowledge, long absent from the philosophical agenda, were raised anew at the end of the thirteenth century, and responses ranged from attempts to securely ground our knowledge to shrugging off the question—none of which seemed satisfactory.[34] The project of justifying knowledge on the basis of experience, apparently mandated by Aristotle, seemed to have come to a standstill.

5. Ockham's Revolution

Ockham tries to break out of this apparent impasse by basing his philosophical system on the alternative conception of experience as knowledge rather than on the traditional philosophical conception. Since 'experience' on the alternative reading is already a form of knowledge, he could sidestep skeptical worries; since it is nonmentalist and antireductive, he could jettison the complex causal accounts of psychological processes that his predecessors put forward. Instead, Ockham could sketch an account of mental activity that used a bare minimum of 'internal machinery' and introduce a new way of talking about our competence in interacting with the world, namely through habits (*habitus*), or, as we might say now, complex sets of interlocking abilities.

[33] Duns Scotus, *In Metaph.* 1.4.93–94. Hume presents the example at the end of *Treatise* 1.1.1: "Suppose therefore a person to have enjoyed his sight for thirty years, and to have become perfectly well acquainted with colours of all kinds, excepting one particular shade of blue, for instance, which it never has been his fortune to meet with..." Scotus's reply depends on his modal distinction, described in *Ordinatio* 1 d. 8 p. 1 q. 3 nn. 138–140, and runs roughly as follows. From experience of any determinate shade of blue we grasp a nature ('blueness') capable of increase or diminution along a continuous scale, which we can perform mentally; indigo is, in the end, just a certain amount of blueness. Hume by contrast holds that a given shade is a "simple nature" in its own right and therefore not able to be grasped through a complex idea; he proposes a solution based on the imperfect operations of our psychological faculties, if nothing else a less elegant account than Scotus's.

[34] Scotus tries to ground 'experiential' knowledge of principles by combining singular propositions known through sense with analytic propositions, so that, for example, we know that a stick partially submerged in water and apparently bent is in fact straight by combining the sense-impression that the stick feels straight with the proposition "No harder object is broken by contact with something soft that gives way to it" (*Ordinatio* 1 d. 3 p. 1 q. 4; see also *In Metaph.* 1.4.49). The problem, of course, is in knowing that the sense-impression falls under the principle. At the opposite pole, Jean Buridan dismisses skeptical worries as simply unanswerable, chalking up general knowledge-claims about the world as the product of an inborn propensity to generalize from our (insufficient) data: *In Metaph.* 2 q. 1 (fol. 9rb), *In Phys.* 1 q. 15 (fol. 19ra), *Summulae de dialectica* 8.5.3; see also King [1987].

Not that Ockham set out to do this. The evolution of his philosophical psychology has been well-documented, and we can trace particular dialectical exchanges with others, such as Walter Chatton, William Crathorn, Peter Aureol, and John of Reading, that shaped and in some cases sharply altered Ockham's views.[35] The details of Ockham's mature psychological theories were hammered out over perhaps a dozen years at Oxford. In that time he came to reject mental representationalism in the form of *species*-theories; he moved from an act-content-object model of thought to a direct realist view; he rejected any real distinction among psychological faculties. But his journey interests me less than his destination, that is, what Ockham thought in the end was the best and most philosophically defensible account of psychology along Aristotelian lines. Notorious to posterity for his nominalism, his radical innovations in psychology seem to me equally important, if not more so.[36]

On Ockham's mature view, human psychological faculties are only conceptually, not really, distinct: there is only a single entity, the human soul, which we may talk about as thinking or choosing, as active or passive.[37] Because the distinction among mental faculties is merely conceptual, there do not have to be causal intermediaries that transfer information from one faculty to another, in particular intermediaries that are representational. That is, there need not be any *species*, whether sensible or intelligible. Any job they might have performed can be accounted for adequately by postulating habits, Ockham argues.[38] Such habits are produced by causal interaction

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[35] For detailed accounts of these debates, see Adams [1987] Part Three; Tachau [1988] Part Two and Part Three; Spruit [1994] and Pasnau [1997] *passim.*

[36] Pasnau [1997] reaches a similar conclusion in his concluding chapter, "A New Form of Knowing": "Indeed, it is Olivi and Ockham, if anyone, who emerge as the real advocates of a radically distinct account of cognition" (290). That doesn't mean Ockham's innovations were accepted. A major theme in Tachau's study is to explain "what did *not* happen in the fourteenth century: Ockham did not establish a school of Ockhamists, and he did not succeed in displacing visible species from accounts of cognition even in *Sentences* commentaries" (Tachau [1988] xv).

[37] See for instance *Ordinatio* 1 d. 3 q. 6 (OTh 2 520.11–13): "The agent intellect is not distinct from the possible intellect at all; instead, one and the same intellect is denominated in different ways" (*intellectus agens nullo modo distinguitur ab intellectu possibili sed idem intellectus habet diversas denominationes*).

[38] Ockham's classic statement of this thesis is in the first conclusion given in *Reportatio* 2 qq. 12–13 (OTh 5 268.2–11). He argues against the need for the *species* at length in these questions. (Similar remarks are found in *Ord.* 1 d. 2 q. 8 and d. 27 q. 2, as well as in his *In Isag.* 2 and *In De int.* preface.) In the *Reportatio* Ockham lists the functions typically played by the intelligible species, namely to inform the intellect, to unite the object with the potency, to determine the potency to the kind of act, to

with the world, to be sure, but this fact does not require a reductive explanation: "Given a sufficient agent and patient in proximity to each other, the effect can be postulated without anything further."[39] In ordinary cases of cognition, Ockham identifies the agent as the external object and the psychological habit as joint co-causes, one material and the other immaterial, and he identifies the patient as the intellect; the effect is the occurent act of understanding. For the formation of the habit, the agent is the external object and the patient the sensitive and intellective souls. Hence Ockham simply declares it to be the nature of the soul that an object is both sensed and understood when it is present (or "in proximity"). Sensing and understanding are distinct effects of the same cause, the former proximate and the latter remote; no further detail is required.

Ockham holds that acts of singular intuitive cognition are the building-blocks of mental life, as Aristotle maintains at the start of *Metaph.* A.1, but gives only a cursory description of how they accomplish this end. On his view, a sensory intuitive cognition occurs when in the presence of an object, and, together with the object, cause an intellective intuitive cognition of that same object; after repeated exposure, the mind is caused to have an abstractive general concept of that kind of object.[40] Along the way, habits are created, which account for overt acts of memory as well the dispositional abilities that make up the concept of the object. Yet even adding in the details of intuitive and abstractive cognition and their 'foundational' role, the most remarkable thing about Ockham's account of human psychology is how spartan it is. In effect, he not only refuses to give causal chains in a typically reductive account of psychology, he doesn't seem to want to give

cause the act of understanding, to represent the object, and to account for the unity of mover and moved, and in each case argues that the function is either unnecessary or can be accomplished by a psychological habit. See Spruit [1994]. The same thesis holds for the sensible species: see Tachau [1988] 130–148.

[39] *Rep.* 2 qq. 12–13: *Posito activo sufficienti et passivo in ipsis approximatis, potest poni effectus sine omni alio* (OTh 5 268.7–9).

[40] See q. 1 art. 1 and q. 12 of the Prologue to the *Ordinatio* (OTh 1 16–47 and 355.22–356.14 respectively); *Rep.* 2 qq. 12–13 (OTh 5 261.7–263.6); *In Phys.* 1.1.2 (OPh 4 25.123–26.152); *Summa logicae* 3-2.10 and 3-2.29. In *Quaestiones variae* q. 5 Ockham suggests that even a single sensory intuitive cognition might be enough to cause the abstractive general concept, though he denies this in *Quodlibeta* 1.13. The exact form of Ockham's theory of intuitive and abstractive cognition has been fiercely debated: see Stump [1999] and Karger [1999] for recent contributions. Ockham gives lip service to the foundationalist picture of *Metaph.* A.1 in his *In Isag.* 2.11 (OPh 2 45.36–39). The 'mentalism' of Mental Language seems to be no more than a way of talking about the mind in terms of linguistic competence, despite Ockham's occasional nods in the direction of compositionality.

a 'mentalistic' theory at all. Habits, as Ockham has described them, are complex packages of interrelated abilities, some of which have to do with recognizing and identifying singular items or kinds of items, but they don't have to be 'in the head' in any interesting way; they are predicates of the whole person as much as they are specifically mental.

The result, a nonreductive psychological theory that dispenses with mental processes to an unprecedented extent, must have looked extraordinarily odd to Ockham's fourteenth-century contemporaries. In fact, it still looks odd to his twenty-first-century commentators today. It has always led to charges that Ockham has made of mental processes a black box, that he has left unresolved, and even unaddressed, the philosophical problems that led to the psychological theories he rejects.[41] There is some justice in these complaints. However, they assume that Ockham was trying to explain such problems on the traditional model of experience, when instead he came to be impressed with human competencies as he found them,[42] and tried to forge a new psychological vocabulary for talking about them (*Quodl.* 3.20 OTh 9 281.11–17):[43]

> After many acts have been performed we have the physical ability
> to carry out similar acts where we weren't able to do so before (or
> at least not as easily), as is clear in the case of scribes, weavers, and
> other artisans. Hence something is either added or is taken away in
> regard to these abilities; hence something is added, and this I call
> the habit.

Ockham identifies the competencies exhibited by skillful practitioners of crafts, acquired through practice, as the sort of thing he has in mind by

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[41] See esp. John of Reading, Robert Holcot, and Adam Wodeham for mediæval examples of this sort of criticism (Tachau [1988] Part Three and Spruit [1994]); King [1994] and Stump [1999] offer modern versions. Fuchs [1952] makes of Ockham's 'psychology of habit' no more than mere behaviorism.

[42] Ockham endorses the standard mediæval view that animals are merely "habituated" (*Rep.* 4 q. 14), explicitly mentioning *Metaphysics* A.1. He does note, however, that animals may have a large number of simple habits which, when taken together, are very much like a complex habit of the sort usually ascribed to humans (OTh 7 313.2–314.6); the same holds for apparent instances of animal reasoning and other competencies (315.5–12).

[43] *Potentia executiva corporalis post multos actos elicitos potest in consimiles actus, in quos non potuit ante, vel saltem non ita faciliter potuit ante in tales actus, sicut patet in scriptoribus, textoribus, et aliis artificibus; igitur in illis potentiis est aliquid additum vel ablatum; igitur est aliquid additum, et illud voco habitum.* Ockham complements his argument for such 'physical' habits with an independent argument for intellectual habits at 283.47–56.

introducing talk of 'habits' in the first place.

Ockham, unfortunately, did not leave behind a commentary or questions on Aristotle's *Metaphysics*, so it is hard to prove that he was motivated by the alternative conception of experience. Yet in q. 11 of the Prologue to his *Ordinatio*, Ockham expressly takes up *Metaphysics* A.1, explaining *pro intentione Philosophi* why experience should be a plus on the job (OTh 1 318.24–320.21). Like Scotus, and Buridan after him, Ockham recognizes that some competencies are matters of acquired physical skills, and a few, such as musical performance, arguably consist for the most part in such skills (*propter exercitium organorum exteriorum*). Musicians can sometimes even improve, or "acquire a better intellectual habit," simply by listening to a song. But more importantly, Ockham describes how acquired skillfulness can outdo mere theoretical knowledge (OTh 1 319.13–22):[44]

> This can happen in another way, namely when experienced people have the notion of some singulars and of some universals that other people do not have an evident notion of. Accordingly, the experienced person acquires in the course of experience familiarity with many universal propositions that another person cannot have, though the experienced person knows only the fact and their cause, whereas another person who has the art knows the cause in some fashion in the universal or the particular case, as sometimes happens in the hierarchy of the sciences. And since such universal propositions are able to guide people more immediately than these other more universal propositions, the experienced person acts more surely [than the inexperienced person schooled in the art].

Ockham rejects Aristotle's contention that the experienced person knows only particulars. Instead, expertise may involve general truths ("many universal propositions") as well as particular truths. This opens the floodgates to an alternative approach to questions of knowledge and experience. No longer is experiential knowledge restricted to particulars; Ockham declares in no uncertain terms that expertise may be a function of general knowledge, which we find people to have acquired in their histories of getting around in

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[44] *Aliter potest hoc contingere, quia experti habent notitiam aliquorum singularium et aliquorum universalium quorum alii non habent evidentiam notitiam. Unde expertus in experiendo adquirit notitiam multarum propositionum universalium quas alius habere non potest, quamvis expertus nesciat eas per causam sed tantum quia; et alius—scilicet artifex—aliquo modo novit causam in universali vel particulari, sicut aliquando contingit in scientia subalternante respectu subalternatae. Et ideo quia tales propositiones universales magis immediate dirigunt quam aliae universaliores, ideo experti certius operantur.*

the world. The alternative paradigm of experience is given an equal standing with art and science. But with a difference. The traditional conception of experience requires an inductive leap to the universal in order to have knowledge strictly speaking, laying it open to intractable skeptical doubts (as noted at the end of §4). The alternative conception, however, begins with knowledgeable people getting around in the world successfully, and now Ockham allows such expertise to cover the same ground as scientific knowledge. The only grounds for skeptical doubt are wholesale: whether our ability to get around in the world successfully is not fundamentally grounded in the world being as our getting around takes it to be, which, in the mediæval context, amounts to asking whether God could be a wholesale deceiver, a question whose answer was obvious and uninteresting.[45] Perhaps this is why Ockham seems uninterested in skepticism.[46] In connection with *Metaphysics* A.1, Ockham notes that first principles known only through experience are intrinsically subject to doubt (*dubitabilia*): *Summa logicae* 3-2.9 (OPh 1 522.19–33). If he were thinking of the traditional conception of experience, this would have posed a serious philosophical dilemma for him. On the alternative conception, however, this is no more than to recognize that our competencies do not come with guarantees.

To allow some principles to be known by experience is not to say that all principles are known or knowable through experience, of course. Ockham does not tell us how far he is willing to pursue the implications of his radical realignment of knowledge and experience. He does explicitly classify several branches of knowledge, either wholly or in part, as "practical" in nature: logic, grammar, and rhetoric are purely practical, whereas theology and medicine are partially practical. Ockham declares the practical nature of the trivium in no uncertain terms: "I hold that grammar, logic, and rhetoric are genuinely practical sciences in exactly the way the mechanical arts are genuinely practical."[47] Just as architecture describes how to construct a building well (but not whether to do so), logic describes

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[45] Ockham's view is that God could deceive us, and so, presumably, could be a wholesale deceiver (*Quodl.* 5.5 and *Rep.* 4.14), and would not be doing anything wrong in doing so (*Rep.* 2 qq. 3–4). Nor can we know that God is not doing so, for His own inscrutable purposes, since our knowledge of God's will is necessarily limited. And, for Ockham, that's all there is to say about the issue.

[46] See Adams [1987]: "Ockham shows much less interest in [skepticism] than the other philosophers we have discussed" (626), *viz.* Augustine, Henry of Ghent, Duns Scotus, and Nicolaus of Autrecourt.

[47] *Summula philosophiae naturalis* Preamble (OPh 6 149.298–300): *Concedo quod grammatica, logica et rhetorica sunt vere scientiae practicae, ita vere sicut artes mechanicae sunt practicae.*

how to argue well (149.303–314). For logic is a tool, and, like any tool in the hands of a craftsman, its use provides the user with a fuller grasp (*notitia*) of it.[48] It is essentially practical rather than speculative since it regulates our actions (*Expositio* preface OPh 2 7.128–138), although the distinction really is a matter of degree rather than kind (*In De int.* preface OPh 2 137.53–64), since both practical and speculative sciences seek truth as their end (*Ordinatio* Prologue q. 11 OTh 323.12–14). Logic is a matter of devising arguments, drawing distinctions, and reasoning well in general; a grasp of truth-preserving patterns of inference comes from practicing these activities—in a word, from experience. Theology and medicine are 'mixed' enterprises, containing speculative and practical components (*Ordinatio* Prologue q. 13), though Ockham puts little stock in the distinction; we could call medicine speculative or practical, since words are purely conventional (357.21–23).

Ockham does not say anything directly about the nature of psychological theory, but his account has exactly the features we should expect it to have were he to embrace the alternative conception of experience as knowledge. In one of the few passages where he discusses *Metaphysics* A.1, Ockham, as we have seen, denies one of Aristotle's basic theses by admitting skillful expertise to be the equal of traditional 'scientific' knowledge. Farther than this he does not go: to the best of my knowledge he does not discuss equipment or the mechanical arts, and in his non-political writings his concerns are dominated by the philosophical issues common at Oxford in his day. Yet Ockham went farther than his contemporaries could easily follow, and his hard-fought attempt to recast traditional philosophical problems in light of the alternative conception of experience, especially 'epistemological' worries, seems to have found no followers. His radical shift to thinking holistically about human competencies, rather than thinking atomistically about sensory cognition, was too deep a change in outlook for his contemporaries; in psychology, at least, Ockham was a prophet without honor in his own century.

The same cannot be said for his nominalism, whose influence was wide and immediate. Yet there is reason to think that Ockham's nominalism is grounded in his philosophy of psychology. When Ockham takes up the problem of universals in *Ordinatio* 1 d. 2 qq. 4–8, he ranges the positions under discussion in order of decreasing realism. The first view he takes up is the most realist, and he stigmatizes it as "totally false and absurd"; the next less realist and only "simply false"; the next "unreasonable"; and so

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[48] As Ockham says in his prefatory letter to the *Summa logicae* (OPh 1 6.9–15).

on, until in q. 8 Ockham concludes that universals "do not exist outside
the soul in any way"—yet Ockham, surprisingly, presents four alternative
accounts of how universals might be 'concepts' (*i. e.* things inside the soul)
and does not decide among them. Indeed, he does not seem interested in
the question; after some general remarks on our conceiving Socrates and
Plato as more similar to one another than either is to a donkey, he drops
it entirely. For those who have thought Ockham's philosophy is ultimately
based on a rigorous nominalism, and that his views about most subjects can
be derived from his ontological parsimoniousness, his positive discussion of
universals is at best an embarrassment, a non-account where an account is
called for. However, if we begin from his competence-based psychology of
habit, Ockham's lack of interest in the fine details of nominalism becomes
explicable. For we find ourselves in the world with discriminative skills, so
that we do (as a mater of fact) get around by carving the world up into
natural kinds, but with no real explanation of how such habituation takes
place. And this is exactly what Ockham says about universal 'concepts':
they are no more than sets of competencies in classifying things together,
which we do, and that's really all there is to say.[49] The chain of reasons
comes to an end in practice.

Conclusion

Hugh of St. Victor, at the beginning of the High Middle Ages, tried
to create a new philosophical agenda that included acquired skillfulness as
a constituent part of philosophy. William of Ockham, at the close, tried
to carry that conception into the existing philosophical agenda. Neither
succeeded in radically reforming philosophy. What if they had?

At the least, we would no longer be under the spell of the traditional con-
ception of experience, whether it be found in Aristotle, British Empiricism,
or recent positivism. The project of justifying knowledge-claims would be
less a matter of providing foundations than recognizing how knowing is one
of the things we humans do as we get around in the world. And science, as
well as the history of science, would have much more to do with technology
and acquired expertise than with 'philosophical' preconceptions about "the
scope and limits of human knowledge"—a matter of trying to learn to swim
before ever entering the water.

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[49] In *Ordinatio* 1 d. 2 q. 7 *ad* 7 (OTh 2 261.13–20) Ockham tells us that universal cogni-
tion is produced in the soul naturally by interaction with singular items in the world,
although how this happens is hidden from us (*occulte*); we may as well take it as given.

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