

СТАТЬИ / ARTICLES

PLATO'S CRITIQUE OF SCIENTIFIC MANAGEMENT IN *CHARMIDES*

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ABSTRACT. I discover resources in Plato's *Charmides* for a critique of management as a form of knowledge. After interpreting in a practical register Critias' idea of a science that would comprehend all sciences without understanding any of their objects (166c – 175a), I argue that the paradoxes with which Socrates confronts this idea can be overcome. With reference to F.W. Taylor's *Principles of Scientific Management*, I show how this overcoming depends upon transforming productive activity so that it no longer requires the knowledge of products that characterizes *techne*. As Socrates foresaw, a science that has all ways of working as its object must have somehow expropriated work of its own proper objects.

Keywords: Techne, work, efficiency, Taylorism, management.

1. Introduction

It seems unlikely that Plato could offer a critique of scientific management. He obviously knew nothing of the economic conditions under which it developed. Even if he had somehow anticipated its development, his having done so would hold little philosophical interest. Such a premonition could not reckon with the effects of modern managerial practices on the workplace and other social institutions. And yet, Plato did develop a critique of scientific management. It is a critique in the sense of a reflection on the very possibility of something. It holds philosophical interest because it considers scientific management as an intellectual accomplishment. Unlike our modern, sociologically-minded critiques of management, Plato encourages us to ask what management knows about, and

what is implied by the possibility of such knowledge. Plato's manner of raising these questions exposes the roots of a form of intelligence that continues to bring into being the only kind of practical activity it can know about.

Narrowly understood, the term "scientific management" refers to the discipline for which F. W. Taylor lays the groundwork in his text of 1911, *The Principles of Scientific Management*. While Taylorism is a distinct current within management theory, Taylor's fundamental thesis is general enough to express the very idea of managerial thinking, and coincides remarkably well with the possibility entertained in *Charmides*. The thesis is that there is a science underlying the action of each worker and that the worker, just by being a worker, does not possess this science (2014, 9, 18, 31). Taylor's other principles are guidelines for developing this science and developing a worker who works in accordance with the science he does not possess. They build upon his basic claim that all work, regardless of its object, is the subject matter for a single body of knowledge that is not the knowledge that work itself is. For Taylor, scientific management is actual. *Charmides* is the dialogue in which Plato asks how it is possible.

2. The Dignity and Blindness of Work

In *Charmides*, an investigation of temperance eventually becomes preoccupied with the idea of a single science that would be "a science of itself and of the other sciences" (166e). This topic is framed in a decidedly practical register. The "other sciences" at issue are those practiced by craftsmen (173b-c, 174c). A meta-science is required because work fails to live up to its own ideal.

This ideal is articulated by Critias in defense of his initial definition of temperance as "minding your own business" (162d). In order to avoid the conclusion that craftsmen are intemperate because they make things for other people, he focuses on what the craftsman does rather than the thing he makes. The action of working is the craftsman's own business. Working may coincide with making, but the essence of work lies in the action being beneficial or good. From the beginning, Critias incorporates the worker's awareness of this goodness into the propriety of work. To work is to undertake an action understanding that its goodness is precisely what makes it appropriate for one to do. In this spirit, he presents Hesiod as thinking "that only things of this sort [i.e. 'works'] are 'one's own' and that all the harmful ones belong to other people" (163c). To mind one's own business (to work), is now equivalent to both "the doing of good things" (163e) and "to know oneself" (164d).

Working is acting in the knowledge that one is bringing about something good. While the sphere of work, so described, extends beyond the crafts, there are

reasons to think that the crafts are most likely to meet Critias' standard. According to a line of thinking Socrates advances in *Republic* and *Gorgias*, genuine crafts exist precisely in order to create, improve and maintain good things, and, by doing so, to benefit the community. Unlike the adherent of abstract morality, the craftsman actually *knows how* to help others and himself, at least in the domain to which his craft pertains. Random acts of kindness presuppose the stability of a practical world of routines, a world sustained by the concrete philanthropy of the craftsmen, each according to his ability. Those at work as doctors, pilots, and housebuilders are the best candidates, then, to reliably know what they are doing in bringing about the good.

However, Socrates doubts that even the most admirable crafts permit the worker this kind of self-possession. At least sometimes, the worker, in working, "doesn't know himself whether he has acted beneficially or harmfully" (164c). The doctor, for instance, may not know "when he cures in a useful way and when he does not" (164b). We will consider three plausible interpretations of Socrates' claim that that craftsmanship fails to inform craftsmen as to whether they are acting in a useful or beneficial way. Each interpretation foreshadows a problem that a second-order science of crafts would solve, provided it could overcome paradoxes that threaten its very possibility.

When Socrates claims that the doctor may not know that he cures in a useful way, he might simply mean that the doctor is unsure that his actions are curative. He and Critias agree to the premise that "a doctor, when he makes someone healthy, does something useful both for himself and for the person he cures" (164a). On this interpretation, the phrase "cures in a useful way" at 164b is equivalent to "cures at all." The doctor cannot know that he is curing because medicine, like every craft, attempts to bring about its product under circumstances into which it lacks perfect insight and over which it lacks perfect control. Even when the doctor, the builder, and the pilot do what their crafts show to be best, the success of their actions depends upon an infinity of conditions ultimately tantamount to the state of the world as a whole. Although the peculiarities of a science of science lead Socrates and Critias to consider sciences that yield nothing located in space or time (165e), the first-order sciences at issue work with worldly materials to produce worldly products. The practitioners of such crafts always run the risk that their actions will prove futile. This potential failure to bring about the intended product is the first sense in which the craftsman does not know that he acts "in a useful way."

The second interpretation concerns a limitation on craftsmanship even when it successfully produces its product. The limitation follows from the Socratic principle that all potentially beneficial things only become beneficial when they

are used rightly; used wrongly, they become harmful (*Meno* 88a). Craftsmanship is intelligent attention to bringing about potentially beneficial objects or states of affairs, but, because it delivers up its products for general use, it is powerless to ensure that they actually become beneficial. The crafts are powerless in this respect, not simply because they cannot foretell the future, but because craft-knowledge does not extend to the goodness and badness of the manifold ends their products might promote. In *Gorgias*, Socrates imagines the helmsman, not as he is at work, piloting his ship, but as he is afterwards, strolling beside the ship that he has safely brought to port. If he understands his craft properly, the helmsman contemplates his work “with a modest air” because “it isn’t clear which ones of his fellow voyagers he has benefited by not letting them drown in the deep, and which ones he has harmed” (511e). At the beginning of *Charmides*, Socrates describes this blindness in terms of an inability to promote goodness in the whole, which implies an inability to promote it even in the part: “if the whole is not in good condition, it is impossible that the part should be” (156e). Merely human doctors (who lack the divine medicine of Zalmoxis) treat the body without treating the soul so that it puts a healthy body to good use. The phrase “cures in a useful way” only characterizes curing that is useful for something ultimately good. No craft can comprehend the total action to which the production of its product contributes.

We will soon turn to a third interpretation of the craftsman’s failure to know that he acts in a useful way. It concerns an ignorance of method, i.e. of the way the products of the craft are brought about. From the perspective of scientific management, this third failure is the most glaring. The way management corrects this lack of methodological awareness in craftsmanship prefigures its solution to, or dissolution of, the two problems outlined above. Taylor’s attitude toward bricklaying is exemplary. He expresses astonishment that this trade “which has been continually practiced since before the Christian era, and with implements practically the same as they are now” should never have discovered that the number of motions involved in laying a brick could easily be reduced “from eighteen to five” (2014, 40). A simple timing of motions employed in various bricklaying methods quickly reveals certain motions “to be useless” (40). On the modest conception of bricklaying as a craft that promotes a *presumptive* human good *more reliably* than otherwise possible, this discovery, no doubt, would have allowed generations of bricklayers to lay bricks in a more useful way. How can one explain this failure?

Taylor’s reflections on trades of long standing are noteworthy because they speak against his recurrent claims as to why the worker knows nothing of the science that underlies his action. Elsewhere, Taylor reasons that the man suited to

handling pig-iron is “so stupid that the word ‘percentage’ has no meaning to him, and he must consequently be trained by a man more intelligent than himself into the habit of working in accordance with the laws of this science before he can be successful” (2014, 28). Later, he argues that “the workman’s whole time is each day taken in actually doing the work with his hands, so that, even if he had the necessary education and habits of generalizing in his thought, he lacks the time and opportunity” (53). Generally speaking, “the science that underlies each act of each workman is so great and amounts to so much that the workman who is best suited to actually doing the work is incapable of fully understanding this science” (9). Perhaps. But the science of bricklaying, which overcomes millennia of tradition-bound ignorance, involves innovations as simple as modifying the arrangement of tools so that actions may be done simultaneously with two hands rather than sequentially with one (40). Similarly, Taylor writes of shoveling that although the science underlying it “is so elementary as to be self-evident” he has “never met a single shovel contractor to whom it had ever occurred that there was such a thing as the science of shoveling” (31). This raises the possibility that scientific management compensates for a kind of “stupidity” in craftsmanship that has to do, not with the contingent intellectual make-up of the worker, but with the kind of intelligence that craftsmanship is.

As indicated above, we can characterize this “stupidity” as an ignorance of method. Of course, there is a sense in which craftsmanship is perfectly cognizant of its method. Crafts are necessary precisely because in creating, maintaining or improving certain things it is not initially clear how to proceed in a useful way. The question of method is thus at the forefront of every craft tradition. In book two of *Republic*, Socrates describes crafts as those kinds of productive activity where the need for a “better job” requires the sustained attention of a person whose nature is suited to the particular task, and who is freed from other work so that he never “misses the right moment” to engage his materials (370b-c, 374b-c). Of course, a farmer shouldn’t mind getting dirty and should be around at harvest time, but Socrates’ remarks on nature and timeliness also point to the deep affinity that a genuine craftsman has for his subject matter. When success and failure hang in the balance, the useful ways pursued in the crafts are often followed like hints that arise in the work itself, not like rules that apply to it. This responsiveness of the worker to his work, what Taylor will call his “initiative or originality” (2014, 72), distinguishes him as the one who knows how and when to act. By contrasting the craftsmen with mere wage-earners, who apply their bodily strength to any and all labors (371e), Socrates emphasizes that craftsmanship is an intelligent pursuit of its specific product. The craftsman appears to the layperson in terms of his mastery of a special form of methodical action. Mature participants

in a social world know how to accomplish certain routine actions that enable a common life. But what the craftsman is doing and why he is doing it are opaque to this general understanding, which knows only about the result of his work.

Considered only in relation to the product he is bringing about, and assuming that "the useful" is equivalent to "the most useful practically possible," the craftsman works in methodological self-awareness, i.e. knowing that his action is proceeding in a useful way. The method of craftsmanship is product-oriented. It sees a way through to the product. In book one of *Republic*, Socrates describes this seeing. Seizing upon Polemarchus' view that justice involves benefiting friends, Socrates argues that each craft does justice to its object through a singular focus on discerning what is beneficial to it. The cook, in cooking, does not care for the hungry, nor the cobbler, in cobbling, for the barefoot. Instead, the cook and the cobbler act in the best interest of food and shoes. It is this discipline that distinguishes the craftsman from the abstractly philanthropic person who might want the best for the hungry and the shoeless. The craftsman works on the roots of publically available goods and looks only to two things: the product and what is advantageous to it. It is this attention that governs everything he "says and does" (342e). One might formulate explicit principles that control the craftsman's actions, a "method" that guides his work. Indeed, in *Gorgias*, Socrates defines a genuine craft by the craftsman's ability to give such an account (465a). Such *logoi*, however, derive from and return to the primary attention of the craftsmen, which finds and applies, in the right way at the right time, whatever is needed to bring about a good product. It is the action of the craft itself that "has investigated both the nature of the object it serves and the cause of the things that it does" (501a).

It is precisely due to its product-oriented methodology that craftsmanship suffers from the methodological ignorance that scandalizes scientific management. The craftsman does not know that the way he proceeds in doing the best for the product is *a* useful way. He has no ability, as craftsman, to evaluate his method *as a method*. This would require him to possess a craft of how to bring about good things in general, of which the knowledge of his method as a method would be a specification. But the craftsman's method has its sole measure in the product he brings about through it. Everything he says and does is guided by a teleological orientation to the product. What could it mean to improve the utility of the method as a method apart from an intelligent attention to the specific nature of the object it serves? The property of being advantageous or beneficial is relative to the virtue proper to the specific nature of something (*Republic* 335b-c). This is the insight behind Socrates' comical interpretation of Thrasymachus' definition of justice as the advantage of the stronger. According to this definition it would be just, jokes Socrates, for the weak to eat like strong athletes who require high-

calorie diets (338c-d). To ensure that one is acting “beneficially” or “in a useful way” can only mean to have one’s eye on the nature of the object upon which one acts. The dietician who attends to Polydamus the pancratist looks after his advantage by feeding him beef. It seems incomprehensible to Socrates that a craft, in its nature as craft, should require the attention of some other craft to improve it. What is appropriate to the nature of the craft is to “seek what is to the advantage of...that of which it is the craft” (342b). If a craft improves, it does so through its own work. It is “at its best when it doesn’t fall short in any way” of being that craft that it is (345d).

3. Efficiency and its Object

Taylor’s standard for the relative utility of methods is the norm of efficiency. This latter is defined in terms of effort, motion and output (2014, 2, 9, 17). The question raised by the above reflection is whether the agent of a product-oriented action can regard his very action as something more or less efficient. Do the concepts that define efficiency describe anything undergone or attended to by the agent of the action? If they do not, it becomes possible to judge the efficiency of the actions only after reinterpreting them apart from this agency. In pursuing this question, we do well to adopt a way of thinking developed by Thrasymachus and Socrates in book one of *Republic*. A “strict account” of the crafts considers the craftsman, not as a person who employs a craft, but as a person insofar as his action is brought under the discipline of a craft. In *Republic*, this has the implication, unrealistic at first blush, that “no craftsman ever errors” (340e). A craft in the strict sense seems to be an ideal. But the ideal is not a philosophical fiction. It is internal to the kind of intelligent attention that craftsmanship itself is. The intention to act solely in the best interest of the product brought about through one’s action (342e), and the concomitant disregard for the future exchange of the product (345c), one’s personal ambitions (350a), etc. describes the special attitude of the craftsman at work.

It is certainly possible for the person who practices a craft to reflect in such a way that he regards his work as something more or less efficient. It is even possible that this person comes to regard his work as nothing more than applied management, that he even becomes, to the fullest extent possible, his own manager. But the fulfillment of these possibilities depends upon a reconceptualization of the agency of product-oriented action. The craftsman, in the strict sense, cannot know that he is acting “in a useful way” because the concepts that define efficiency do not name any kind of thing in his practical field. The knowledge of more and less useful methods according to the norm of efficiency belongs to a new sci-

ence. Its object is first constituted through an original reinterpretation of the practical field so that the norm of efficiency becomes applicable to it. Concepts like “effort” “motion” and “output” are specifically managerial concepts insofar as they accomplish this reinterpretation. It is because of the integrity of the resulting theoretical domain that managerial science can utilize insights from other disciplines such as engineering, psychology and economics while retaining its identity. Taylor senses the magnitude of this discovery. If we avoid mistaking the mere “mechanism” of scientific management for its “true essence” (2014, 11, 67), we see that it is not primarily the application of techniques for efficiency, but the determination of a potentially infinite domain to which these techniques apply. This domain ultimately includes “all kinds of human activities, from our simplest individual acts to the work of our great corporations...to the management of our homes; the management of our farms; the management of the business of our tradesmen, large and small; of our churches, our philanthropic institutions, our universities, and our governmental departments” (iv).

We have suggested that Taylor gets at the true essence of scientific management when he claims that there is a science “back of” every action of every worker (2014, 31). This way of speaking is imprecise. He really means that there is a scientific subject matter contained in every action of every worker that is unavailable to the worker in his capacity as worker. This subject matter is already described, in a primitive way, by the concepts “effort,” “motion” and “output.” By looking at a simplified example, we can show how judgments employing these concepts presuppose a transformation of craftsmanship that renders it available to norms of efficiency.

Consider someone who is at work collecting things into groups of twenty. He regards each collection of twenty as a product of his action. Now, it is certainly possible for him to attempt to do this “more quickly.” This attempt involves an adverbial modification in how his action brings about the product. With greater concentration, or perhaps counting by twos, the agent of this action knows that he is proceeding more quickly. He feels the tempo internal to the action increase. But what it means to proceed has not changed. Acting with increased tempo, he attends to the collection of twenty as it comes about, seeing how each added thing contributes to the emerging product. Every moment of his product-oriented action contributes, or aims to contribute, to the coming about of the product. He may attend to how he is moving his body as he collects things. He may even adjust his movements so as to reduce the difficulty with which he assembles the collection. He may even count his movements as the steps that, each in turn, advance the product toward its completion. All these movements, as moments internal to the action, are on the way to the product. For this reason,

the collector, even as he economizes his work, does not encounter what is described by the scientific-managerial concept of “motion.”

The motions of work that interest managerial science are not themselves on the way to a product. They are what they are without this orientation. A person who is collecting things can perform the same motion without collecting. A person who is laying bricks can perform this same motion as well. The identification of these motions requires detaching them from the final cause of everything the craftsman does: the specific nature of the product. These motions must be describable in craft-neutral terms, as events that yield various products by the way. The teleological relation to the product must cede to a functional relation. To understand what is meant by motion, it is helpful to recall a conceptual distinction Socrates draws between the object of a craft regarded as a product on the one hand, and as a result or outcome on the other (*Charmides* 165c-d, *Republic* 345c-d). The product is what the craftsman in the strict sense has in view as coming about through his beneficial actions. Only the doctor, for instance, knows about health as a product; only the builder knows about a house. The result or outcome is the useful thing made available when the product-oriented action of the craftsman is complete. Regarded as a result or outcome, health can be known equally well by the doctor and the non-doctor, a house by the builder and the non-builder, etc. The Socratic concept of result or outcome is equivalent to the scientific-managerial concept of output. Motions are the actions of a worker regarded as resulting in an outcome. How they result in an outcome is a methodological question entirely external to the special intelligence of the worker who moves toward the product of his craft.

The craftsman in the strict sense also knows about something analogous to “effort.” There is a practical resistance, a difficulty, in the materials and circumstances through which craftsmanship brings about its product. Working through this resistance requires effort. The craftsman is distinguished from the layperson by his ability to exert the effort that wrests the product from the world that harbors it. It is not that the layperson’s efforts fail. He is incapable even of the effort because he cannot discern the difficulty lying in the way of what is best for the product. But the effort expended in mere motions is no longer dedicated to overcoming the difficulty of realizing a specific product. It is craft-neutral, and is the same no matter who exerts it. As a scientific-managerial concept, “effort” just refers to the capacity of the worker to perform motions. Every motion is difficult in that it uses up effort, and it is more difficult if it uses up more. Effort is “wasted” to the extent that a motion does not translate into an outcome.

The reinterpretation of product as outcome, of movement as motion, and of difficulty as effort renders a craft susceptible to the norm of efficiency. To accom-

plish something “more quickly” is no longer an adverbial modification of the work in its intensity and rhythm. Such a modification may or may not correlate to one’s really being quicker. In order to evaluate his quickness, the collector ceases to build up a product through his counting. Instead, he counts motions against motions, ultimately the uniform motions of a clock. Meanwhile, the outcome accrues. The collector acts efficiently, i.e. “in a useful way,” to the extent that his motions are not wasted and allow him to work quickly throughout the expenditure of his effort. When he begins to think this way, the product-oriented intelligence of the collector disappears. It is replaced by a nascent form of scientific-managerial attention. Managerial science comes into being through a rigorous investigation of “best practices” in the field opened up by this reinterpretation: “Among the various methods and implements used in each element of each trade there is always one method and one implement which is quicker and better than any of the rest. And this one best method and best implement can only be discovered or developed through a scientific study and analysis of all of the methods and implements in use, together with accurate, minute, motion and time study” (2014, 9).

The application of scientific-managerial technique (its “mechanism”) presupposes not only the discovery of a theoretical domain fit for the norm of efficiency, but also the expropriation of the “initiative” of the worker. Failing this expropriation, technologies of efficiency would enter into cooperation with craftsmanship. The former would compensate for the latter’s ignorance of method, the latter for the former’s detachment from the product. Taylor sees this compromise as the fatal flaw of even “the best of the ordinary types of management” (2014, 13). Ordinary managers “recognize frankly” that the “principle asset or possession of every tradesman,” namely his “mass of traditional knowledge,” is “not in the possession of the management” (13). The task of management is to marshal the worker’s “initiative,” his special ability to take up his work, and channel it into an efficient plan “so as to yield the largest possible return” (13). Under the supervision of ordinary (one is tempted to say temperate) management, work itself remains unscientific. In order for the worker to work scientifically “almost every act of the workman should be preceded by one or more preparatory acts of the management” (10). These preparatory acts get ahead of the initiative of the worker. They replace “the traditional knowledge which in the past had been possessed by the workmen” with best practices, expressible in “rules, laws and formulae” (15). These rules “replace the judgment of the individual workman” (16) because they do not merely describe his product-oriented intelligence in terms of efficiency. The managed worker works scientifically by applying these very rules. It now falls to management “to train, teach and develop the workman” who knows how to

work according to best practice (15). The completion of work is no longer due to the worker's "initiative or originality," but "to the knowledge of the science" of his work, which was "developed and taught him by someone else" (72).

Socrates refuses to rule out the possibility of a science that somehow subsumes all the crafts. He merely insists that it is strange, odd, out of place, *atopos* (167c, 168a). At the center of *Charmides*, he outlines the kind of problems such a science would need to overcome in order to establish its a-topical topic. Their solution would institute a new form of practical reason that could lay claim to the Hesiodic ideal of work.

4. The Paradoxes Overcome by Scientific Management

Critias arrives at the unlikely definition of temperance as a "science of science" because the practitioners of crafts do not know sufficiently well that they are proceeding "beneficially" or "in a useful way." The crafts fall short of the Hesiodic ideal because they "are sciences of something else, not of themselves" (166c). The meta-science corrects this deficiency without repeating it. It is thus "the only science which is both of the other sciences *and* of itself" (166c). In practicing this science, one ensures that the other sciences are proceeding beneficially and knows that by ensuring this one is proceeding beneficially oneself. After Socrates adds that such a science must surely also know about the absence of science, the definition is complete: temperance is the only science that, rather than being of something else, is of "itself and the other sciences" and is "also a science of the absence of science" (166e).

Socrates presents two puzzling comparisons to highlight the strangeness of such a science. The first is that it is like "a kind of vision that is not the vision of the things that other visions are but is the vision of itself and the other visions and also of the lack of visions, and, although it is a type of vision, it sees no color, only itself and the other visions" (167c). While Socrates develops variations on this theme, his initial example contains all the fundamental problems that scientific management must solve if it is to appropriate and oversee the work of the crafts.

This new vision "is not the vision of the things that other visions are." The "other visions" at issue are the crafts. What craftsmanship envisions, the analogue of color, is a product. The comparison emphasizes that managerial science is without intelligent relation to any product. A product in the strict sense is what comes about through a work that seeks to supply what is advantageous to a thing's specific nature. The useful objects that correspond to products are visible to everyone who is culturally literate. But the vision that sees its way through to

this useful object belongs exclusively to the object's craftsman. In *Republic*, Socrates likens this vision to friendship because it is guided by a care for improving something with respect to its proper virtue. The cobbler is a friend to shoes, the chef to food, and thereby contributes to the common good. In a regime of practice in which work is applied management, this kind of intelligent care for things is no longer relevant to their coming about, improvement or maintenance. The question of how a vision sees without seeing color translates into the question of how productive activity can know what it is doing when no one involved, neither worker nor manager, knows about, or cares for, products qua products.

The answer to this question is the machine. We should understand "machine" as a kind of scientific-managerial invention, only some of which are mechanical in the narrow sense. A machine becomes possible once productive activity is unhinged from its teleological relation to its product and translated into effort, motion and output. It is an a priori truth of scientific management that "among the various methods and implements used in each element of each trade there is always one method and one implement which is quicker and better than any of the rest." A machine is the managerial arrangement of best methods and implements so that they become operable for a worker without craftsmanship. And yet, management's worker must learn how to operate the machine, a process that superficially resembles the learning of a genuine craft. Management thereby assumes responsibility for a peculiar form of education, supplying "teachers to show each new man the new and simpler motions" (2014, 41). The teacher ensures "*enforced* standardization of methods, *enforced* adoption of the best implements and working conditions, and *enforced* cooperation" (41). Learning how to operate a machine is especially difficult when it coincides, as it often does in the early phase of scientific development, with unlearning a craft. Cobblers, teachers and bricklayers can only learn to apply the science of making shoes, teaching students or laying bricks by disregarding their "mass of traditional knowledge." Whatever his traditional formation, the scientifically educated worker understands that the teleological interpretation of his motion as a movement oriented toward the product is irrelevant to how well he operates the machine. Marshalling evidence for the claim that scientific management creates jobs, Taylor asserts that "there are more men working today in the shoe industry than ever before" (5). This is telling because the shoe industry, if it is scientifically managed, will employ "men" or "workmen" but not a single cobbler or leathersmith. And the same is true of every other industry.

Knowledge of particular machines is a specialized form of machine knowledge, and has nothing to do with knowledge of the product that would correspond to the output. On Socrates' formulation, temperance only knows about

“science pure and simple” (170b). The manager who surveys the practitioners of crafts in search of the science underlying their activities “will only know...that the man has some science; yes, but of what, temperance will fail to inform him” (170d). When Socrates claims that the science of the science of music is totally ignorant of harmony, and the science of the science of medicine totally ignorant of health (170d), he understands harmony and health strictly as products. In appropriating subject matter from the crafts, the scientific manager truly knows what he does not know, not in that he knows the limits of his knowledge, but in that he has knowledge that refers to a specific subject matter while remaining ignorant of *what* that subject matter is. Socrates says that the temperate man “won’t know *what* he knows, but only *that* he knows” (170c). This does not mean that there is no object of scientific-managerial knowledge, but that the object is empty, perfectly indifferent to the specific nature that defines the product, and thereby the craft: “Because hasn’t each science been defined, not just as science, but also by that which it is of?” (170c).

From the perspective of scientific management, the craftsman does not know the science of his craft, which is an instance of science as such. The doctor, for example, “knows nothing but health and disease...but about science the doctor knows nothing.” It follows that “neither will the doctor know anything about medicine since medicine is a science” (170e). Socrates does not treat the conclusion that the doctor knows nothing of medicine as evidence for the impossibility of a science of science. Instead, he suggests that this science will have to discover and evaluate crafts by displacing them from the limits that define them as the crafts that they are. Medicine is “distinguished from the other sciences by virtue of its definition as science of health and disease.” Now, someone “who wants to examine medicine should look for it where it is to be found.” However, because the science of craft knows nothing of the products of craft, it faces the difficulty of needing to discover each craft “where it is *not* to be found” (171a-b). Successfully overcoming this difficulty is the only way for Critias’ science to be a “vision of the other visions” without seeing what any of the other visions sees.

To find and evaluate the crafts, management has to overcome their native opacity. What the craftsman is doing and why he is doing it are unclear to the general public. This is because the craftsman works at the roots of the useful things and states of affairs that enable a common life. This work is sufficiently demanding to be pursued in relatively closed traditions, where knowledge is passed from one generation to the next. It is within such traditions that the crafts are “to be found.” To draw crafts into the orbit of management, they must be rendered superficial, stripped of the profundity that results from their concern with the roots of specific things. The identification of best implements and methods

within the conceptual framework of motion, effort and output, the development of machines that operationalize productive activity for a craftless worker—these achievements presuppose that management can somehow define the craft, not as what it is, but as a discrete sphere of scientific activity. For instance, the scientific manager “will know that the doctor has some science” but has to “try and grasp what sort it is” without being able “to examine what it is of” (171a). He cannot conduct this latter examination because about health and disease (as products) he knows nothing. What Taylor bemoans as the “isolation of workmen” (2014, 9), i.e. their confinement within traditions of trade-knowledge, is simply the other side of this managerial ignorance.

The solution to this problem is the workshop. Again, we understand the workshop as a scientific-managerial invention. It is the practical situation that allows management to displace craftsmanship by translating the latter into the idiom of its own empty intelligence. As Socrates points out, there can be no “conversation on the subject” of any craft between a craftsman and the practitioner of the science of science (170e). Instead, craftsmanship must expose itself to a kind of observation and experimentation through which management can get a handle on what works, i.e. what sort of movements are determinable as motions that correlate to best outcomes. Taylor describes how the science of shoveling, for instance, is discovered where it is not to be found. By paying several workers, not really to shovel, but to submit shoveling to experimental observation, management fixes a shovel-load that maximizes output over the course of a day for a “first-class man” (2014, 31-2). Armed with this knowledge, management prohibits workers from using their own shovels, and *itself provides the best implements* for shoveling in a useful way.

In the workshop, scientific management discovers new subject matter by displacing a craft so that the science underlying it becomes visible. It is henceforth possible to form managerial judgments that assess how well the craftless worker applies the principles of this science. The norm of efficiency dictates that work is better if it yields the same outcome in fewer motions. But this assumes that the *quality* of the outcome holds up. The science of science has to know about the quality of work, but it can only do so in a vulgar way. While it closely monitors the “effort” of work, it knows nothing about the difficulties involved in executing movements that bring about products in conformity with their specific natures. So long as craftsmanship exists as a form of practical intelligence, there is a discipline of appreciation on the side of lay understanding that, without knowing the craft, aims at correct judgements about the quality of products precisely as the ends of product-oriented activity. But in a regime of production under which work is simply applied management, there is nothing to appreciate in its results,

which are merely more or less satisfying to the user. Managerial “assessment” is based upon standards that arise, not from a “conversation about the subject” of a craft, but from a conversation about the utility of the output. In this conversation, there is no opacity. With respect to the quality of the output, the science of science is no better off epistemically than general practical understanding. As an engine of managerial knowledge, a “workshop” has its entire function in enabling assessment.

Machine, workshop and assessment are managerial inventions that enable an overseeing of any and all work so that it accomplishes results in a useful way. But if a science of science is possible, it must also effectively oversee itself. It must be like a vision of other visions (though not of their proper objects) that is also a vision *of itself*. Socrates identifies the paradox implicit in this feature of scientific management by suggesting a second comparison. Such a science is like “something greater that is greater than the greater things and than itself, but greater than nothing than which the other greater things are greater” (168b). Omit the phrase “and than itself,” and this statement merely reiterates the problem Socrates expresses in the idiom of vision: management would rule over the crafts without being able to rule over the specific objects over which they exercise rule. This problem is soluble in the ways outlined above. The new problem raised by the reflexivity of management is that to rule itself, it must be “less than itself” (168c). The principle motivating the paradox is that “the very thing which has its own faculty applied to itself will have to have that nature towards which the faculty was directed” (168d). Management, which oversees crafts, must be nothing more than a craft if it is to oversee itself. But if it is a craft, then it requires a managerial science above *it*.

Scientific management is self-sufficient oversight only if it avoids becoming a higher-order craftsmanship that brings about managed work as a product. Taylor himself seems to suggest that implementing scientific-managerial principles depends upon the initiative of managerial craftsmen with traditional knowledge. The transition to scientific management, he writes, is best left to “experts who have had the necessary practical experience...personal experience in overcoming the especial difficulties which are always met with” (2014, 69). Management is no doubt a kind of acquired expertise. However, this superficial likeness to the crafts overlays an essential difference regarding the object of expertise. A craft is analogous to vision in that it has a *proper object* with a specific nature from which it derives its definition as the craft that it is. With his paradox, Socrates implies that there can be no vision of vision because vision sees color and vision itself is colorless. But scientific self-management is possible because it is like a vision that sees no color. It comprehends all crafts, not by transcending specific work on specific

products toward a more general work and product that includes them as components, but by emptying every specific work and product into instantiations of formal, product-less processes. In Aristotelian terms, it does not aim at an end for the sake of which all the other ends are. Instead it interprets in advance every end as an outcome.

The Aristotelian distinction between subordinate and superordinate practices does not pertain to managerial science. A superordinate practice applied to itself would make itself subordinate, just as a number greater than greater numbers, and therefore than itself, would be less than itself. However, a method for methods ("useful ways") completely indifferent to *what* the method aims at applies to itself without difficulty. Because it is not a faculty directed toward a specific nature, it lies outside the scope of the principle motivating Socrates' paradox. Management sees itself the same way it sees every sphere of work. Taylor aptly describes applied management as a "joint effort" between management and the workmen (2014, 17). Scientific management is preferable to its traditional predecessors simply because "it is so much more efficient" (16).

5. The Remaking of the Hesiodic Ideal

Managerial science corrects the ignorance of craftsmanship about itself as a useful method. It does so by displacing crafts so that they become intelligible in relation to the norm of efficiency. We suspected that this displacement would clarify the other ways management improves upon craftsmanship's attempt to realize the ideal of work as self-conscious good-doing. We have described this displacement as the translation of teleological intelligence about specific products into functional intelligence about outcomes. It remains to consider how the problems of error and poor use are resolved through this translation. Their resolution establishes an interpretive framework in which it can appear obvious that the best work is applied management.

Critias supposes that his proposed science, by identifying and assessing the science in every craft, will save us from error (171d-172a). Seen one way, this amounts to the claim that managerial science will yield better results than the crafts. Under the regime of management, we will "have greater bodily health than we do now, and safety when we are in danger at sea or in battle, and...dishes and all our clothes and shoes and things skillfully made for us" (173b). Better results would seem to result from exposing the standards of good work, which craftsmanship conceals within special traditions, and subjecting them to a universal knowledge. This prospect becomes far less utopian as soon as management has at its disposal experimental sciences of physical and psychological nature that em-

brace every component of every work-process. Error threatens craftsmanship because it brings about a product in the midst of unknown circumstances that ultimately extend to infinity. A science of nature masters this infinity by formulating laws that govern every possible event in its domain. If it can design work-processes in light of these laws, managerial science makes exact and renders predictable the functional relations between effort, motion and output. Taylor offers an illustration from mechanical engineering in this connection (2014, 54-57), and anticipates the importance of psychological laws that govern “the motives which influence men” (62). These latter laws are crucial to the application of managerial-scientific principles because it involves, as we have already seen, “a complete change in the mental attitude of all the men...toward their work and toward their employers” (51).

The regime of managerial science also saves us from error by transforming the kind of responsibility operative in productive activity. Because it usurps initiative from the workers, Taylor’s science places a new burden upon management. He expresses this in terms of a division of responsibility between parties: “the philosophy of the old management puts the entire responsibility upon the workmen, while the philosophy of the new places a great part of it upon the management” (2014, 31). However, the division that accords management “a much larger share of responsibility for results” (10) presupposes the transformation whereby responsibility comes to concern results rather than products. Both the craftsman and the managed worker perform activities upon which a result depends. Each is rightly held accountable if the failure to perform the action or perform it correctly contributes to a deficiency in the result. However, because the craftsman’s activity moves toward the result as a product of his activity, he is capable of experiencing error in a way the worker of management is not. A product is at stake in the movements through which it is brought about. To be at stake in this way expresses more than a conditional relationship. The saying and doing of every craftsman is guided by a vision that *looks to* what is advantageous and proper to his object (*Republic* 342e). When the craftsman’s activity goes astray, he undergoes the slipping away of the product, its falling apart, its ruination, etc. The effort and motion of managed work are spared this experience.

Let us return to our collector of twenties. If he loses track of the counting through which he brings the collection about as a product, he sees the twenty itself slipping away. Now imagine him operating a collecting machine, so that he counts the motions as a result of which the collection of twenty occurs. If he loses track of these motions, he may experience failure, but this failure does not *directly concern* the collection, the useful thing his work yields. However acute his awareness that his motions have gone uncounted, and however clearly he under-

stands that this has ruined the collection, he does not preside over the ruination of the collection itself because his actions do not try to steer it into existence. Managed work fails with respect to the rules that spell out the motions with a proper functional relation to the outcome. It is not responsive to norms proper to the nature of what it works on. Craftsmanship, by contrast, fails by failing the object itself.

Management, too, knows no kind of responsibility other than accountability for results. It is true that management has designed the work-process and the worker on its own initiative and so bears ultimate responsibility for flawed outcomes. To bear the burden of initiative is a kind of "leadership," but its formal emptiness dissociates it from the Socratic conception of strength or rule. In book one of *Republic*, Socrates concludes that "the crafts rule over and are stronger than the things of which they are the crafts" because they are capable of responding to the requirements of an object with a specific nature (342c). This rule is amplified where a craft involves the coordination of other crafts. The captain is a "ruler of sailors" because he "seeks and orders" their activities with a view toward serving his more comprehensive end of a successful voyage (342e). The scientific manager, on the other hand, preempts each and every craft precisely because he is unresponsive to what is advantageous and proper to any specific nature. This kind of undefined power is of abiding concern to Socrates. In confronting its champions, he displays a studied confusion as to how one can be stronger without being able to bring about some definite good in light of clearly discerned standards. He insists that the superiority of the superior man be made intelligible on the humble model of craftsmanship: "You simply don't let up on your continual talk," complains Callicles, "of shoemakers and cleaners, cooks and doctors, as if our discussion were about them!" (*Gorgias* 491a). The superiority of the man Callicles wants to discuss turns out to consist in his being able to accomplish "whatever" to attain more of "whatever" (491b-492a). Because this superiority has no objective measure in "states of fitness" (464a), it amounts to nothing more than the sheer fact of having resources at one's disposal, and of having the "courage" to dispose of them. The superior men are "competent to accomplish whatever they have in mind, without slackening off because of softness of spirit" (491b).

We turn now to the managerial dissolution of the other great problem that besets work as self-consciously beneficial action. Recall that the craftsman could not know that he was acting in a beneficial way because his product might be put to bad use. If it is, his action becomes a moment of a harmful action. As the craftsman has no general knowledge of good and evil ends to which things are put, he cannot be sure about the ultimate value of his work. This uncertainty would also seem to trouble the science of science, even if it were to succeed in

unfailingly generating its outcomes. For this reason, Socrates suggests to Critias that it is not the science of science but rather the science of good and evil that points the crafts in the direction of the Hesiodic ideal: “if you consent to take away this science [of good and evil] from the other sciences, will medicine any the less produce health, or cobbling produce shoes, or the art of weaving produce clothes, or will the pilot’s art any the less prevent us from dying at sea or the general’s art in war? / They will do it just the same. / But, my dear Critias, our chance of getting any of these things well and beneficially done will have vanished if this [science of good and evil] is lacking” (174c-d).

The implication of this challenge is that the possibility of Critias’ science hangs on its being able to oversee the moral science that would determine the benefit of the other sciences. Reminded by Socrates that it will have to exercise this oversight without knowing about the specific objects of this science, namely good and evil, Critias relents. His new science, he confesses, “won’t be any use at all” (175a). However, Socrates has only outlined a problem for the science of science. It is possible that by translating products into outcomes this science discovers a new universal idea of goodness that belongs to its own empty subject matter and that would secure knowledge of its own utility. We begin to see what is involved in the realization of this possibility if we reflect on the role of “prosperity” in the science of management.

Craftsmanship cannot finally know that it brings about the good because its intelligence runs out at the world of conventional uses it enables through its products. As Socrates underlines in the *Apology*, the wisdom of the craftsmen comes up short before the great and important question of how to fashion a life. We notice immediately that managerial science knows no such limit. The dissolution of the teleological link between work and its product also dissolves the distinction between preparing things to take their rightful places in the world and making use of things available in the world. The framework of effort, motion and output applies equally in each case. In both Critias’ vision and Taylor’s program, the new science first proves its mettle in relation to the crafts because their occult knowledges make them especially resistant to incorporation. However, Taylor’s managerial science applies to “all kinds of human activities.” Critias, too, endorses Socrates’ description of his new science as governing “every household” and “every city,” thereby enabling human beings to “fare admirably and well in all their doings” (172a). If there is an answer to the question of what efficiency is good for, it is an answer for all action.

The true interest of the true craftsman, according to Socrates’ strict account, is the product. It is for the sake of the product that he does whatever he does (*Republic* 342d, 343b). Under a regime in which work is applied management, one

might expect that the worker no longer has any "true interest" prescribed by his work. He is someone who just happens to work, and the reasons why he does what he does depend upon his psychological make up. When Taylor assumes that what the worker qua worker "most wants" is "high wages" (2014, 1), he seems to confirm this expectation. Wages facilitate the fulfilment of any desire. When Socrates chides Thrasymachus for overlooking the specific intelligence of craftsmanship, he accuses him of mistaking craftsmen for "money-makers" in this sense (345c), as if they worked for the sake of some desirable thing unrelated to their proper objects. However, it is also possible that the interest in wages reflects a discipline of a certain sort that makes the worker of management what he is qua worker, a man in the image of the science he applies (*Charmides* 169e). As is amply illustrated by Socrates' reflections on the oligarchic constitution in *Republic*, the interest in money can facilitate a definite psychological order over and above the desire for whatever one might like to purchase. Wages represent the output of the worker's effortful actions in the idiom of his own well-being. In working for the sake of wages, he may already be doing well in the way appropriate to his being a managed worker, not like a potter who happens to be happy drinking wine (*Republic* 420d).

That the worker's true interest in wages reflects the character of the managerial regime becomes clearer once we realize that management, who are truly interested in low labor costs, ultimately want the same thing as the workers. Taylor writes that "scientific management...has for its very foundation the firm conviction that the true interests of the two [workers and management] are one and the same" (2014, 1). He treats this conviction as an economic claim about the relationships between productivity, profit and wages (2). But Taylor assumes that the true interests of worker and manager are "one and the same" at a more profound level. What everyone participating in the work of scientific management wants is "prosperity." This commonality of interest underlies the practical problem of how "to arrange their mutual relations" so that it becomes transparent that the prosperity of each party implies that of the other. Taylor is no sentimentalist about the "friendly help" (10) or "kindly cooperation" (34) that workers receive from management. Workers and management are friends because, to the extent that they have understood their roles, they want the same thing.

Taylor is right that his conviction about true interests is "foundational" to the whole of scientific management. Efficiency, so the argument goes, results in higher wages and lower labor costs. Higher wages and lower labor costs, in turn, are good because they promote prosperity. One pursues "the highest state of efficiency" in order that "the greatest prosperity can exist" (2014, 2). It is the promotion of prosperity, then, that provides moral justification for the entire scientific-

managerial project, including the displacement of work into the frame of motion, effort and output. Whether scientific management actually promotes prosperity is an empirical question. In extending the Platonic critique, the primary issue is what prosperity must be if scientific management can know about it and endeavor to promote it.

The prosperity known by scientific management and the worker it develops must pertain to motions and outcomes, not movements and products. The temperate craftsman encounters the limit of his conscious good-doing because he recognizes that he does not know how to bring something worthy to completion in the world he helps stand up. Here, he lacks special knowledge and is no different from the layperson. But under the regime of management, the good does not appear as something brought to completion through an action responsive to objective standards. The good is whatever results from successful use, where use is effort and motion. And about successful use, managerial science knows better universally. There simply is no special knowledge that could define *what* a good outcome is. While the compossibility and maximization of outcomes is a proper object of knowledge, the quality of the outcomes themselves, their goodness or badness, is not. Which outcomes are worth the effort of achieving them is determined by the traditional lifeways that supply management with its raw materials. The helmsman who wonders whether he has really benefitted any of his passengers by bringing them safely to port asks an idle, philosophical question. Scientific management is a pedestrian from of expertise. Everywhere, it optimizes the coordination and attainment of ends about which no one knows anything special.

The money-form of the compensation for the sake of which workers and managers work is significant because it is the knowable form of success in general: whatever benefit is a measurable correlate of efficiently organized effort and motion. Marx writes of the alienated worker that work is not part of his life, which only begins for him when work has ceased “at the table, at the tavern seat, in bed” (1933, 19). But there are best practices here too, which managerial knowledge discovers through the displacement of dietary and household traditions. The distinction between work and life can be overcome in many ways. One is for both work and life to become spheres for the application of management. When he is done with work, the worker can regain the initiative, and assume ultimate responsibility for what he does. This autonomy, though, can also take the form of self-management. Self-experimentation and observation in view of designing and operating machines, assessing oneself in view of outcomes, and optimizing again—this is a way of living well that knows no limit.

REFERENCES

- Marx, Karl. (1933) *Wage-Labour and Capital & Value, Price and Profit*. New York: International Publishers.
- Plato (1997) *Plato: Complete Works*. Edited by J.M. Cooper. Indianapolis: Hackett.
- Taylor, Frederick Winslow (2014) *The Principles of Scientific Management*. Mansfield Centre: Martino Publishing.