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# Science and the Public Sphere: Philip Kitcher on Science, Ethics and Democracy

**Isaac Nevo**

*Department of Philosophy, Ben-Gurion University, Beer Sheva, Israel*

***Corresponding author:** Isaac Nevo, Department of Philosophy, Ben-Gurion University, Beer Sheva, Israel

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***Abstract***

*In Science in a Democratic Society and other writings, Philip Kitcher describes scientific practice as a public arena within which decision making should be governed by ethical and democratic considerations. He offers an idealized model for such decision making which he calls "well-ordered science," and goes on to support it with wide ranging ethical and political theories.*

*Along the way he questions traditional scientific and academic values, particularly scientific autonomy, the intrinsic value of knowledge, and even the constitutive place of truth in defining the aims of scientific practice. According to Kitcher, these should all be examined with a view to the distributive social consequences of accepting them. In this paper I examine Kitcher's conception of well-ordered science as a public sphere, and some of the theoretical assumptions that Kitcher develops, particularly, his theories of the ethical project as a naturalized social contract theory in ethics, his proposals for "renewing" the ethical project on a global basis incorporating a (hypothetical) pan-human discussion intended to mimic pre-historic conditions, and the application of these theories to well-ordered science.*

## Scientific Decision-Making: Autonomy and Public Interest

In *The conflict of the Faculties* (1979[1798]), I. Kant distinguished, as was customary in his time, between the "lower," or "philosophical," (university) faculty, whose interest is confined to science and truth as such, and the higher, professional, faculties – theology, law, and medicine – the teachings of which are to be applied in public, and in which the sovereign ruler – specifically, the Prussian monarch, Friedrich Wilhelm the II – might have a legitimate interest in so far as these teachings impinge on public welfare.

Whereas the teachings of the philosophical faculty are to be governed by reason alone, thereby inheriting reason's autonomy as not being capable of accepting any commands as truths, the teachings in the higher faculties are subject to political scrutiny. Kant's argument is a brief for the autonomy of the lower faculty in relation to governmental intervention, as necessary for the pursuit of truth.

"It is absolutely essential that the learned community at the university also contain a faculty that is independent of the government's commands with regard to its teachings; one that, having no commands to give, is free to evaluate everything, and concern itself with the interests of the sciences, that is, with truth: one in which reason is authorized to speak out publicly. For without a faculty of this kind, the truth would not come to light (and this would be to the government's own detriment); but reason is by its nature free and admits of no command to hold something as true (no imperative "Believe!" but only a free "I believe") (Kant, 1979: pp. 27,29)".

Kant's argument points to a tension between the scientific and the public spheres that has been greatly intensified in our own democratic and technological times. The tension is between, on the one hand, the practical implications of knowledge, scientific or otherwise, which cannot fail to be of serious concern to public institutions, and, on the other, the objective status of knowledge, namely, its relation to truth, which is enhanced (so it is believed) by autonomous processes of investigation and evaluation (even though it may not be precisely true that without such autonomy "the truth would not come to light").

Kant attempts to resolve the tension by means of a functional division. The philosophical/scientific faculty will be autonomous and academically free (including the right to express itself in public on matters pertaining to pure knowledge), provided that it refrains from giving direct "orders," or professional guidance, in the public sphere. By contrast, the professional faculties will take upon themselves the responsibility of guiding the public in their respective fields, but they will become subject to governmental regulation regarding their teachings.

Kant's division of labor presupposes that truth as such, rather than any application of it, is definitive of the "interests of science" and constitutes its ultimate end. In this assumption, Kant rests on a much older tradition, which stems from Aristotle's claim in his Metaphysics, (Bk. I, 980a) that "All men by nature desire to know," making knowledge an intrinsically valuable, rather than an instrumental, human goal.

The practical benefits of science, which any government would do well to recognize, remain secondary, and could be safely relegated to the "higher" faculties, where the public, here under the aspect of the Prussian monarch, is free to intervene. It also presupposes that reason, being "by nature" free, is independent of material interests, and is thus best suited to serve the interests of truth alone. In short, Kant secures the autonomy of science, as required by a teleological-rationalist view of its aims, by placing it in an ivory tower, while separating it from its practical, publicly regulated applications.

A contemporary defender of these principles, J. Habermas, arguing on behalf of the whole university, rather than just the "lower" faculty, still claims that: "The scientific and scholarly disciplines were constituted within specialized internal public spheres, and they can maintain their vitality only within these structures" (1989: p. 124). For Habermas, too, the point is inseparable from the essential nexus of truth and (communicative) rationality as embedded in autonomous institutions.

It goes without saying that this Kantian view of science reflects a by-gone era, where science could be mostly isolated within the confines of an ivory tower. By contrast, ours is a techno-scientific age where such isolation is no longer conceivable, and where the autonomy of science, or the intrinsic value of knowledge, could well conflict not merely with public prejudice or ignorance, but also with vital public concerns. In these conditions, the old division of labor, largely leaving science to academic scientists while trusting the autonomy of science to enhance the discovery of applicable truth, could well be questioned, while the Kantian concern for autonomy and truth may face dramatic new challenges.

The latter division of labor found modern expression, as well as a highly utilitarian justification, in Vannevar Bush's (1945) well-known report: "Science: The Endless frontier", in which the case was made for public expenditure of basic research under autonomous scientific and academic institutions. However, the expanded role and impact of science clearly invites democratic oversight of its conduct, and thereby (indirectly) its content, and the limits of such public oversight, so that it will not completely derail scientific autonomy where it really matters, particularly, regarding the cognitive-epistemic autonomy of scientists, may well need some redrawing. The growing place of science in society expands also the place of society in science, and both directions of change require considerable rethinking.

In *Science in a Democratic Society* (2011a), Philip Kitcher attempts precisely that, namely, a new balance between science and public decision-making suitable for a democratic society in an expanding global economy. In his words, the question is how expertise and democratic requirements are to be integrated in making socially consequential scientific decisions, and his efforts at such integration involve revisionist conceptions of both science and democracy, placing both under ethical constraints among which considerations of justice are paramount.

The trouble, on his account, is that science and the public sphere pervade one another, while at the same time reflecting very different priorities. While science, in pursuit of knowledge, must fend off populist obstructions and "vulgar" democratic interventions, the public sphere demands democratic decision-making, and cannot accept an elitist rule of experts in matters pertaining to public welfare. These antithetical principles of decision-making conflict wherever the scientific pursuit of knowledge involves significant social consequences, as it normally does in modern conditions.

Unlike Kant, Kitcher does not believe the conflict can be resolved simply by assuming that science aims at truth, and that the autonomy of scientists best guarantees its approach to that noble goal. He also does not hold that direct political control, even in the form of majoritarian ("vulgar") democracy, can be the answer. The problem is deep, and both science and democracy -- facts and values -- and the balance between them, must be reconceived.

Kitcher argues that various social ills, particularly, an erosion of scientific authority in populist public opinion, on the one hand, and the formation of self-serving technocratic expert cultures, on the other, stem from a lack of integration between scientific expertise and democratic values. The erosion of scientific authority can clearly be seen, with ominous consequences, in public resistance to scientific consensus in such areas of research as the history of life, the acceptability of bio-medical technologies, the safety of genetically modified foods, or climate change.

The ill-effects of scientific and technocratic elitism can equally clearly be observed in the grossly unequal distribution of the benefits of science, particularly in such areas as bio-medical research, where most research and development are conducted with the interests of the affluent world in mind. A better integration between science and the public sphere requires, so Kitcher argues, a newly conceived division of epistemic labor, where public deference to experts will not come at the expense of democratic equality.

Lacking an adequate division of epistemic labor, as between science and the lay public, we find ourselves suspended, with ominous political consequences, between anti-scientific populism and anti-democratic elitism. Kitcher offers a new division of epistemic labor which cuts both ways. It legitimizes the expanded role of science in modern society on democratic principles,

but also provides for the infusion of democratic (and ethical) values into scientific practice itself.

Thus, a theory of the place of science in a democratic society is also a theory of the place of democracy in science, or as Kitcher puts it, of "how the system of public knowledge… should be shaped to promote democratic ideals" (2011a: p. 63). For Kitcher, this new balance of science and democracy transcends the Kantian distinction between autonomous reason and public interest, between facts and values, and between neutrality and involvement, and replaces them with scientifically informed ethical considerations.

Outside the ivory tower, scientific decision-making cannot avoid value judgments, and not just regarding intra-scientific (cognitive or probative) values, but also values belonging to our broad scheme of ethical and political concerns. Unfortunately, the principle of scientific autonomy in making such decisions "arrogates to the expert community a judgment about values it is unqualified to make" (2011a: p.113).. The remedy Kitcher offers is not to buttress scientific autonomy by insisting on an impossible separation of facts from values, but rather to subordinate scientific decision-making to fully explicit ethical considerations. These considerations underlie a view of democracy, which thus enters scientific decision-making, not through direct majoritarian control but rather in the form of an ideal which science could be expected to approach.

Kitcher's argument is a concerted attack of the Kantian principle of scientific autonomy. Underlying that principle is an implicit division of epistemic labor, one in which scientific decision-making is monopolized by experts, while the public is barred from making any contribution (other than paying the bill). The democratic deficit of such a system can be significant. Kitcher dismisses the background Aristotelian-Kantian concerns for knowledge as an intrinsic good and for scientific autonomy as necessary for the discovery of truth. Mockingly, he describes the view of science as primarily an intellectual affair, justified by means of its intrinsic value, as a gentlemen's club view of scientific decision-making, a view of science as the exclusive provenance of an elite cast of experts, or "gentlemen, free and unconfine'd" as members of the early Royal Society tended to view themselves. He points out that such a conception takes the satisfaction of curiosity – an essentially private concern – to be the primary benefit of science to the exclusion of urgent social concerns.

Even if there is a utilitarian argument for the place of such curiosity as leading, through basic research, to applicable and beneficial knowledge that would not have been generated otherwise, that argument does not take notice of the social distribution of these benefits world-wide which remains grossly unequal. As to the case for scientific autonomy, namely, that it is necessary for "bringing truth to light," Kitcher questions the empirical basis of any such claim, arguing that we have no statistically adequate evidence regarding the supposed ill-effects of (democratically) planned science. He also argues that truth as such, or the whole of truth, cannot be accepted as definitive of the goals of science, as Kant presupposes.

While truth is definitive of knowledge, there simply are too many (trivial) truths that are of no interest to science, and some truths that are physically beyond human reach (e.g., regarding facts beyond our light-cone). Hence, truth "as such," or "the whole of truth," cannot be constitutive of the aims of science; a more pragmatic orientation to science, defining its aims (extrinsically) in terms of its over-all benefits rather than in terms of some intrinsic telos, is in order. Rather than truth (or knowledge) itself, a socially significant selection of truths should become central to the aims of science and constitute its goal.

Placing social concerns at the center of the mission of science as a system of public knowledge, delivers scientific decision-making to the public arena and away from the hands of the experts (who retain a more limited role). Kitcher's specific project is to fit scientific decision-making, given its social significance, to democratic standards and requirements, though in his account democratic principles, too, undergo a serious revision. The traditional alternative of trusting scientific experts with such socially important decisions, as the principle of scientific autonomy suggests, is (according to Kitcher) reminiscent of Plato's Kallipolis, where the highly educated guardians are entrusted with all the crucial decisions – an obviously undemocratic option.

As we shall see, Kitcher does not suggest subordinating scientific decision-making to democratic procedures in any straightforward fashion. He agrees that "vulgar", i.e., simple majoritarian democracy, would be inimical to good scientific practice, and might well constitute a "scientific Gulag." To that extent, he does agree with the Kantian point. Indeed, he defends an expert-dominated division of labor against populist pressures regarding climate science, even to the extent of questioning the efficacy, claimed by the likes of Mill and Milton, of free and open discussion in advancing truth over public error, where such free and open discussion is demanded on behalf of a populist agenda. At some point, he says, further discussion of settled scientific opinion should be blocked, if it doesn't add fresh argument and only reflects a distortion of public discussion by moneyed interests or religious dogma. Rather, he offers an ideal framework called "well-ordered science" to deal with the public dimension of scientific decision-making along democratic principles (as an alternative to the ideal of autonomy).

Well-ordered science incorporates scientific deliberation and decision-making within "public knowledge" – the body of knowledge the public produces, publishes, certifies, and implements – into an evolving framework of ethical deliberation – the "ethical project" – whose roots stretch back to pre-historic beginnings, and which now calls for renewal on a global basis along democratic principles. Tailoring well-ordered science to fit ethical requirements, Kitcher brings together scientific, ethical, and democratic considerations, all bearing on decision making regarding the various functions of public knowledge, within an ideal "conversation" whose outcome could be seen as constituting a norm of scientific significance and propriety. As Kitcher points out, this amounts to an infusion of ethical considerations into the practice of science, overcoming scientists' "allergy" to making value-judgments, while refraining from the “vulgar" politicization of actual decision making in science. The whole edifice constitutes an application to questions of public science of an ethical and political system that could be understood as a naturalization of traditional social contract theories, so the answer to any specific question regarding scientific practice would depend on what the presumed parties to the contract, here styled as

an ideal conversation within the renewed ethical project, would happen to agree on.

Nevertheless, the ideal of scientific autonomy cannot be easily dismissed. First, as Kitcher might concede, it remains valid in relation to populist pressures within "vulgar" democracy. The kernel of truth in Kant's claim, namely, that scientific autonomy vis-à-vis the State is at least conducive to the successful pursuit of truth, or the promotion of good scientific practice, is not entirely dismissed. Secondly, replacing the ideal of autonomy, and with it the acceptance of truth as the ultimate goal of scientific inquiry, with an alternative, ethically inspired ideal, raises a question as to the applicability of the latter ideal.

Autonomy is an ideal that can only be partially implemented, but a long history of struggles with Church and State, and nowadays with large business corporations, clearly shows that it is not an empty ideal. Kitcher's ethical ideal of well-ordered science may well be even further removed from implementation, in which case replacing one ideal for the other may leave us with a less viable tool to confront the real-life challenges of populism and vulgar, or non-liberal democracy. Kitcher does offer, in addition to the ideal, practical measures that could be taken in approximating it.

Thus, if the ideal requires a pan-human conversation of appropriately tutored, mutually engaged (altruistic) decision makers regarding questions of investigation and certification, the practical approximations involve manageable tasks such as creating an "atlas" of scientific relevance, educating the public as to which problems are socially important, and forming bodies of concerned citizens who will be invited to educate themselves as to various scientific projects and serve as mediators between the scientific community and the public at large. These and other practical proposals are wise and helpful, but they could be implemented without overturning the principle of autonomy, despite Kitcher’s challenges, and well within an epistemic division of labor that respects it while recommending alternatives to be considered.

In what follows, my aim is to defend the traditional (Kantian) view of scientific autonomy and the requisite science/society (epistemic) division of labor, while taking account of Kitcher's powerful considerations of social justice in scientific decision-making. Finding Kitcher's ideal of well-ordered science almost nearly empty (if taken literally), I still take both his critique of contemporary "public knowledge" as democratically deficient, and his more practical proposals regarding ways of approximating the ideal, to be well-taken, and worthy of serious consideration.

I shall defend scientific autonomy against his arguments, arguing further that the ideal of well-ordered science could be accepted as a set of recommendations rather than an over-arching determination of "scientific significance," and that practical approximations, of the kind he suggests, need not be taken to over-ride the more traditional, but less empty, ideal of scientific autonomy. Along the way, I shall take a critical look at theoretical aspects of Kitcher's approach, particularly his notions of scientific significance, well ordered science, renewing the ethical project, and the ethical project itself.

In short, while Kitcher's critique of contemporary science in terms of its democratic status and distributive effects is well taken, his own proposals would not be cost-free, if ever implemented, in terms of their (expected) impact on both science and society, and possibly a less utopian re-ordering of scientific decision making, one which remains more faithful to traditional standards of academic autonomy, could be conceived.

## The Ethical Project

Let us first consider the ethical basis of Kitcher's conception of well-ordered science. Kitcher supplies a comprehensive ethical theory, one that begins with the evolutionary roots of human (and pre-human) socially co-operative behavior, aided by the development of explicit normative guidance and ethical codes designed to overcome the weaknesses of such co-operative behavior [2-4]. Kitcher's account turns to a normative theory which takes a page from the pre-historical phenomenon in question and moves to "renew" the project in modern democratic and global conditions.

The normative theory is further supported by means of meta-ethical considerations that are "pragmatist" in philosophical inspiration, besides being naturalistic in metaphysical perspective. Rejecting super-naturalistic "spooks," or assumptions regarding divine will or independently existing values of any kind, Kitcher describes ethics as an on-going human enterprise, whose sole authority rests with the agreements and decisions of its participants in their social setting. In addition, Kitcher supplies a revisionist theory of democracy, going well beyond both majoritarian and liberal-democratic requirements, in which the ethical considerations he adduces are center-stage, subordinating a "vulgar," i.e., majoritarian, "will of all" to an ethically constructed "general will."

In *The Ethical project*, Kitcher develops this theory in detail, which I cannot enter here. On this account, human evolution throws up a capacity for psychological altruism. By this, Kitcher means not just biologically altruistic behavior, e.g., the tendency of some members of a herd to expose themselves to predators while warning other members, which could be accounted for by models of kin-selection.

Nor does he mean by that mere "behavioral" altruism, namely, behavior that appears to be altruistically motivated but is actually motivated by self-regarding considerations, calculated to be best satisfied through social co-operation. Rather, the capacity in question is a psychological capacity to take note of, and have sympathy for, the interests of others, subordinating one’s "solitary" desires to a "social" desire which gives weight to the solitary desires of others. Kitcher describes the extent, the scope, the intensity, and other features of such psychological altruism, and following primatological accounts he finds it to characterize not merely human behavior but also the behavior of primates.

Unfortunately, this altruistic tendency is not strong enough to exclusively determine human (or primate) behavior, and other, non-altruistic, forms of behavior often prevail at some social costs. Early human bands (of the Paleolithic age) have thus been plagued by the prevalence of "altruism failures” and had to develop means of preventing or overcoming such functional disturbances, restoring peace when these failures resulted in social strife. This fundamental type of tension has not, of course, disappeared in contemporary society, which still must resort to the

same kind of remedies as these have evolved since early human development.

The instrument found useful for these purposes had been "normative guidance", i.e., the establishment, within human groups, of rules, codes, legal systems, etc. by means of reaching agreements between members of the group through continuous conversations. Kitcher believes such communication had to involve "mutual engagement" through "extended mirroring" between members of the group, i.e., an understanding of the interests of others, and the consequences of one's actions for those interests, and a sympathetic tendency to place the interests of others on a par with one's own interests.

Kitcher also believes that processes of deliberation over such altruism failures had to be egalitarian from the very beginning, since agreed-upon codes applied to everyone, and all had to pull together. The ethical project characteristic of humanity is this egalitarian and mutually altruistic discussion over altruism failures through which normative guidance became established as fixed rules or codes.

Gradually, the discussion progressed from the distribution of basic necessities and the prevention of violence to more developed codes that determine a richer conception of the good life, or the good society, and the virtues required by these. The discussion also expanded to larger and larger human groups and societies, according to the larger and larger spheres of causal interaction that gave rise to altruism failures. With each new development in normative guidance, a new social structure had been formed which served to overcome a range of altruism failures, and each such social arrangement produced further opportunities for altruism failure, not previously dealt with, and new social functions that had to be scrutinized in terms of their overall beneficence.

At each stage, the ethical project had to be renewed, with larger groups, more complex social structures, and greater varieties of goods to be distributed. Not only basic needs counted, but more refined ones as well, such as liberties, social roles, intellectual satisfactions and many others. Along with these developments, regressive phenomena also developed: political hierarchy, social classes, gender differences, national groupings, racial biases, and so on.

These call for further renewal of the project to overcome the altruism failures contained in them. In contemporary application the relevant extension of the ethical project still fails to incorporate a fully global, pan-human discussion, to address what appear to be large-scale altruism failures in the global political and economic system. The hope for this level of egalitarianism rests on renewing the rudimentary, in-group egalitarianism that Kitcher finds to be a feature of the evolving ethical project. At any rate, "we are born into the ethical project, equipped from the start with a mix of beliefs about facts and values" (Kitcher, 2014: 257), and the agreements reached within it are our only source of authority in matters of ethics [4].

Ethics, in short, is accounted for as a naturally evolved social instrument. Its validity is derived not from the prior truth of its pronouncements, but from its serviceability in addressing a social predicament that is rooted in human evolution. Its "progress" to better and better solutions, in larger and more complex societies, is not progress towards some independent value but rather progress from the rudimentary conflicts it helped resolve. In Kitcher's words, such progress is described as follows:
There are areas of human endeavor in which we conceive progress independently of attaining truth: technological progress consists in introducing and refining devices that help us to overcome practical problems. Ethics can be approached in similar fashion, viewed as a social technology that liberates us from the difficulties of a human predicament. Our limited capacities for psychological altruism make a particular type of social existence possible for us, but the limitations of those capacities interfere with the smooth pursuit of that form of life. The original function of ethics was to solve the problems caused by the incompleteness and unreliability of our altruistic tendencies (2011a: p. 47).

In line with this account, Kitcher takes truth in ethics to be pragmatically defined in terms of ethical progress in satisfying the basic function of remedying altruism failures. If William James characterized truth, in general, as the "good in the way of belief", (James, 1991: p. 36), Kitcher describes truth in ethics as the progressive in the way of human co-operation. More specifically, an ethical judgment is true to the extent that it formulates a progressive social technology, a rule, or a code, likely to be retained in all further developments of the code. Despite its origins in variable social practices, ethics is no relativistic set of conventions but an orderly system of improvements in the implementation of a basic human function which supports judgments of progress and truth.

By way of renewing the project, Kitcher defends a package of three proposals designed to mimic Paleolithic conditions. First, the unit of ethical discussion should be the whole of humanity, since all are mutually impacted by modern conditions. Secondly, the discussants should be appropriately altruistic, satisfying the conditions of mutual altruism. Thirdly, the agreements reached should aim at achieving an equal opportunity of having a good life. In addition, Kitcher offers his own interpretation of what such a good life consists of. As we shall see below, his conception of the Good is also inspired by the centrality of altruism. Good is defined in terms of beneficence to others, not independently of such inter-personal relations, so other (non-social) goods, or values, can only be viewed as instrumental to the good of making a (positive) difference to others. Viewing non-social goods as intrinsically valuable, e.g., liberties, aesthetic impressions, cognitive accomplishments, etc., would be immediately suspected as an altruism failure of a special kind, hedonist, individualist, or elitist.

While Kitcher's descriptive and explanatory framework is powerful and highly plausible, his attempt to fix its lessons within a normative theory whose principles are judged to be progressive is more problematic. On Kitcher's account authority in ethics rests exclusively with the results of a human conversation that mimics, and renews, the conditions of the ethical project. However, the extremely ideal status of that conversation, the fact that it cannot be conducted except in the imagination of single deliberators, undermines its authority.

After all, its agreements are merely imagined agreements among imaginary participants. Taken literally, the ideal conversation

through which the ethical project is renewed, and which Kitcher incorporates into his further ideal of well-ordered science, is almost entirely empty, since it cannot be practically implemented. Its more down to earth versions, recommending taking a variety of points of view into consideration, getting rid of factual errors such as religious belief, and altruistically identifying with the plight of others, are all well taken, but they are compatible with more than one set of proposals, more than one conception of the good, or the good life, and more than one way of mutually engaging with others. As we shall see below, in the case of well-ordered science, the more practical proposals are compatible with a view of scientific value and conduct that the ideal version dismisses out of hand.

As noted, the ethical project, as it is incorporated into well-ordered science, is a description of the evolution of ethics from its sources in human (and pre-human) altruistic motivations, or at least of how possibly it could have evolved. The ethical project itself could not be seen as a biological adaptation – Kitcher does not offer a socio-biological reduction of ethics to biology – though its basis in the capacities of human sociability is indeed such an adaptation.

The biological story has to be supplemented by a historical account of a transition "from there to here," where "there" is a pre-ethical state, a "state of nature" the predicaments of which are solved "here," i.e., in the subsequent "civilized" condition. Thus, the ethical project could be seen as belonging to a family of ethical hypotheses known as social contract theories. Kitcher's variations on this theme involves, first, a naturalization of this scheme of thought, drawing on an evolutionary perspective regarding the state of nature rather than on a priori assumptions regarding the species' pre-ethical condition.

On his description the transition from the state of nature is not one from (rational) egoism to social cooperation, but rather from an already cooperative condition marked by fragile forms of altruism to a codified practice of normative guidance aimed at preventing altruism failures. Secondly, the historical transition, on Kitcher's account, is not a one-time "contract," but an on-going, socially embedded process of deliberation, which aims at preventing those failures by institutionalizing mutual engagement within an ever-expanding social group with the aim of benefitting all. Thirdly, because the process is on-going and ever in need of renewal, while the social conditions no longer make possible any actual process of deliberation involving all participants in mutual engagement, its continued relevance depend on idealization rather than naturalization.

Expanding the unit of deliberation, ultimately to include the whole of humanity, turns the project from an actual conversation, assumed to have taken place within each Paleolithic band, with obviously varying results, to a hypothetical conversation, one that can only take place in the imagination of a moral theorist. And quite obviously, this changes the nature of the "conversation" and the moral status of its outcome. It goes without saying that a hypothetical conversation is not a conversation. It does not really have multiple voices. It only has imagined voices within the arena of one person's mind (or at most a few). The conversation thus imagined becomes a theoretical tool at the hands of the ethicists, a "device of representation," to use Rawls's term, not unlike Rawls's own original position, though one that differs from it in details and ethical perspective [7].

Let us, then, compare Rawls's ethical contractarianism with Kitcher's. As Noted, Both Kitcher and Rawls employ a hypothetical decision procedure as a device of representation to articulate normative principles. Rawls's original position is an entirely hypothetical device, constraining decision-making within it to ensure the fairness of the outcome. Kitcher's device is more complex. It aims at mimicking the conditions of the pre-historical ethical project, as described by socio-biological, ethological, anthropological, and historical speculation. Rawls confines the attention of participants in the original position to what he calls "the basic structure of society," and constructs the device of representation to yield a definite result, his two principles of justice, namely the principle of the most extensive equal liberty and the difference principle.

Kitcher's scheme is much wider in scope. His participants are meant to discuss ethical questions generally, and their discussion touches on very specific issues such as the proper organization of public knowledge. But Kitcher offers no set of substantive principles as the outcome of the procedure. For him, anything that would come out of the hypothetical conversation (and decision procedure) would be binding. There is no other source of authority in ethical matters to which one can appeal in assessing the outcome of the ethical project. On the other hand, at any stage of normative guidance and ethical codification, new problems, or altruism failures, might be generated, alongside those that were already solved.

New forms of social collaboration arise that rest on previous ethical regulations which tend to generate their own difficulties, all reflecting the basic human predicament of harmonizing egoistic and altruistic tendencies. Thus, "renewing" the project is a constant requirement, and for that purpose its various outcomes should constantly be judged in terms of the "progress" they make in fulfilling the basic function of the project. Ethics is, thus, understood as a social technology, progressing not towards some pre-established goal, but from its origins in the development of human sociability.

There is an important point of difference between these two updates of the social contract scheme in ethics. As Rawls has it, the outcome of the hypothetical contract must be tested independently. It must fit the prior authority of "our" considered judgments, and where it does not fit, it has to be brought into some reflective equilibrium with them. Kitcher recognizes no such prior authority. Mimicking the conditions of the historical ethical project, the hypothetical discussion in which the project is renewed is the sole ethical authority ever to be recognized, and while it is not a one-time contract but an on-going, quasi-legislative process that can yield a plurality of outcomes, no prior judgments are accepted as binding.

Indeed, Kitcher dismisses some such judgments, e.g., regarding scientific autonomy, or the intrinsic value of knowledge, as attempts to cut the ethical project short for purposes that are less than ethical. But at this point, a distinction is in order. Barring super-natural authorities or abstract moral entities, the ethical project must be viewed, in its entirety, as the sole moral author-

ity. However, its renewal by way of a merely hypothetical, or ideal, discussion, does not necessarily share this feature (namely, exclusive moral authority). This is so, because the renewal of the project under these conditions lacks the feature that makes the ethical project authoritative, namely, its status as an actual, socially embedded endeavor, incorporating all relevant points of view within a multi-perspectival discussion.

The renewal cannot be both comprehensive to the same degree and actual; it is, as noted, merely hypothetical. In effect, it is a device of representation whose deliverances are not those of any actual participants, let alone all of them, and must be judged independently. But Kitcher does not provide for any such independent consideration.

### The Ethical Project Renewed: Well-Ordered Science

As noted, Kitcher subordinates scientific decision-making to (idealized) democratic considerations gleaned from ethics. Being a central component of contemporary public knowledge – the knowledge generated, processed, disseminated and applied through public means – scientific knowledge is first and foremost a societal concern, taken up for its social pertinence. As such, it is fundamentally value (and interest) laden and cannot be conducted in abstraction from various levels of value judgments.

The recurring attempts to turn science into a value-neutral scheme, for the purpose of securing a contemplative notion of objectivity, separate science from its social function, thereby encouraging a technocratic rule of experts and an unequal distribution of the benefits of scientific research. Kitcher's way out of the dilemma between a (democratic) mob-rule in science and a (technocratic) rule-of-experts under the guise of objectivity is to refine democratic principles along ethical guidelines (thereby subordinating majoritarian and liberal democracy to an ethical ideal of the common good; of the "will of all" to an ethical "general will"), and to reorganize scientific decision-making within an ethically planned scheme described as "well-ordered science." An ethical-democratic ideal of planned science replaces the more traditional ideal of scientific autonomy, as social pertinence replaces a more traditional epistemic significance, or truth as such, as the ultimate mission of science.

Kitcher rejects rationalist and teleological views of the aims of science in terms of the pursuit of truth. He offers an account of modern science as a major component of public knowledge and describes the latter as the information processed in public systems of communication and interaction. Such knowledge is primarily processed for its social significance, or pertinence, not for its precise relation to truth. By analogy, the dances of bees transmit vital information within members of a beehive, but such "public knowledge" is only passed around due to its social utility, not any other value. More advanced systems of public knowledge share this feature.

Their significance is primarily social, not private or intellectual, though the more advanced varieties involve more sophisticated means of investigation, certification and application, and they develop distinctions of quality regarding the accuracy of the information processed, and a clearer distinction between truth and error. In this sense, Kitcher's view of science is thoroughly pragmatic. Science is not a contemplative spectator's viewpoint separated from earthly concerns, to be justified by the intellectual satisfaction it yields.

Rather it is a social practice, a component of public knowledge, thoroughly in the service of societal concerns that determine the appropriate division of epistemic labor as between the experts and the lay public. These concerns, and the division of labor they produce, should be regulated by democratic principles and by more general ethical considerations, not by the idle pursuit of truth for its own sake on the part of autonomous, and elitist, experts.

Pulling these threads together, Kitcher describes the process of evaluating scientific significance as an ideal procedure of public deliberation that aims at reaching a decision as to which lines of investigation, and what standards of certification, should be taken up. In this ideal deliberative process, decisions are made regarding relative scientific significance by means of finding a consensus among (imagined) representatives of all human points of view, who are assumed to operate under the constraints of altruistic mutual engagement, with the aim of achieving the common good, namely, a worthwhile life for all.

The representatives are given scientific instruction regarding the theoretical and technical issues under consideration, by experts who, presumably, suppress their own scientific preferences – namely, their own notion of scientific significance -- for the purpose of playing this role. Thus, the ideal of well-ordered science involves cognitive and motivational constraints designed to fend off both vulgar democracy and scientific technocracy.

Unlike a fellow pragmatist, Richard Rorty, who dismisses truth-as-an-end-of-inquiry by debunking truth itself as an unsustainable demand of correspondence, Kitcher does not debunk truth itself, and moves to dismiss truth-as-the-ultimate-goal-of-science, by criticizing a priori, teleological, conceptions of scientific practice [6]. Truth is not the ultimate aim of science because the aims of science, like those of other social practices, cannot be determined independently of the actual concerns of the practitioners. Kitcher's pragmatism is more modest than Rorty's; it rests on the view that science is a social practice, not on any deep skepticism regarding truth.

Nevertheless, it may still be too pragmatistic to be borne out by the practice of science, for it leaves that practice bereft of any internal point, or coherence, of its own. As if one tried to define a game such as basketball while leaving out that its aim is winning (by shooting more baskets than the rival team), and focusing instead on some of its external effects, e.g., drawing crowds, making money, etc. As Alasdair MacIntyre (1981: p. 175) suggests, practices have internal "goods" that impose boundaries and standards of excellence upon their practitioners, though the teleology in question need not be one of final causes, but only one which makes room for certain descriptions of those practices in terms of their form or meaning. In the case of science, it is hard to think of its pertinence, or significance, merely in social terms. Its more specific epistemic significance, its connection to knowledge, would appear to be lost, but as noted, Kitcher's view of the Good does not allow for practice-defining intrinsic goods that are not (merely) instrumental to a social value.

On Kitcher's view, "Scientific significance accrues to those problems that would be singled out under conditions of well-ordered science: science is well ordered when its specifications of the problems to be pursued would be endorsed by an ideal conversation embodying all human points of view, under conditions of mutual engagement." (2011a: p. 106). In other words, an ideal discussion must be imagined, the outcome of which would constitute a verdict of "scientific significance" for each scientific proposal. The whole question of such significance, namely, what issues are worthy of scientific investigation, is taken away from science, as an autonomous, predominantly epistemic domain, and turned over to ethics as an idealized form of deliberation aimed at enhancing altruism in society.

The (ideal) discussion proceeds in several stages. First the representatives assemble. They represent, as quoted, all human points of view, including those of future generations. Of course, there is no precise telling who these representatives are, how they are to be "elected," or how to weigh their votes given the relative sizes of the populations they represent. At the second stage they are instructed as to the scientific problems at hand. At this stage, scientific experts make the necessary explanations, implicitly drawing on some notion of scientific significance which is, presumably, epistemic rather than social.

At the next stage, the representatives specify their priorities, expressing the point of view they are representing, given the theoretical information they have gathered, but also taking account of the interests of other parties. Then they attempt to reach a consensus in a discussion which gives weight to each other's priorities as well as to cognitive constraints which serve to eliminate superstitions and prejudices. Ideally, they all agree on one set of priorities and choices. If that fails to materialize, they try to reach consensus on a single list of acceptable options, and if that, too, is not achievable they turn to majoritarian democratic voting.

The final decision constitutes the norm against which actual scientific decision-making should be evaluated. It goes without saying that Kitcher is not proposing that such a discussion could practically take place. It is clearly a hypothetical discussion presented as an ideal, but Kitcher believes that the ideal can inspire actual decision-making processes in science, and that some practical approximations to the ideal could be institutionalized.

Well-ordered science is, thus, an application to public knowledge, or more specifically to the issue of the division of epistemic labor, of principles gleaned from the task of renewing the ethical project in contemporary global society. These principles involve, besides taking the whole of humanity as the successor of the Paleolithic band, and besides imposing a strong form of altruism on the discussants, a conception of the good that the discussion is understood to be aiming at.

Being rooted in the fragile conditions of human altruism, the ethical project aims at achieving a good life to all members of a human band and identifies the good with a condition of sociability: "I suggest that relations with others are central to the good life. People whose lives go well typically, perhaps always, can view themselves as having made a difference to the lives of others" (2011a: p. 55).

It is, thus, an ethical mistake to project value upon non-social conditions such as autonomy or knowledge as such: "Refined theoretical contemplation has its place among the catalog of factors that promote the good life precisely because of its potential to promote the value of good lives. Consequently, the life of the priest or scientist, the doctor or nurse, the teacher or social organizer, the tireless participant in the maintenance of community and family, become valuable in similar ways, through the various human relationships the person's actions sustain (2011a: p. 55-6)".

While no doubt capturing an important ethical view, Kitcher's generalization of this altruistic perspective as the source of everything ethical is questionable. Notice that altruism – care for the good of another – cannot get going before some notion of the good, some value, is already in place. Before we care for the good of others, we must care for the good as such, and be able to distinguish between the good and the bad, most commonly in our own case.

Defining the good in terms of altruism is a way of putting the cart before the horses, and it runs the risk of dismissing aspects of the good that may be more, or no less, fundamental than altruistic care. One fundamental role of ethics is to specify the goods, to supply a catalogue of basic goods, which cannot but reflect an understanding of life, human and possibly pre-human as well. Some distinction between good and bad is, after all, relevant to an understanding of any life, of life as such, of anything that has an in-built program of development, growth, and procreation.

The phenomenon of altruism may have generated ethics in the way Kitcher describes, but that should not be understood as a reduction of the good to the social good. To understand even altruism, we need to have a prior understanding of the good, and that understanding may well have a place, independent of our care for others, for such things as individual liberty or the value of refined understanding.

Kitcher counts such pre-social sources of ethical evaluation, taken as ideals, or even as constraints on ethical theory, to be fundamental mistakes. Of these, he mentions three typical ones, the hedonist, the individualist, and the elitist mistakes. The traditional values of scientific autonomy and of valuing knowledge for its own sake fall within at least two of these, individualism and elitism (there is also a hint of hedonism in the idea that satisfying curiosity is itself a value). The following is Kitcher's account": "In sketching these few contours of the worthwhile life, I hope to forestall three types of major errors. The hedonist mistake is to decompose our lives into sequences of momentary experiences and to measure value by the balance of pleasures and pains. The individualist mistake, prominent is some religious traditions but also retained in some versions of secularism, proposes that some particular non-social condition of the individual – the receipt of divine grace, the making of great discoveries, the amassing of wealth -- is the major source of value. The elitist mistake, already evident in the ancients' restriction of the question to the male aristocrats of the polis, is to suppose that something very large and uncommon is a precondition of a life's going well" (2011a: p. 56).

By describing these alternative sources of valuation as mistakes, Kitcher forestalls any basis for evaluating the outcomes of his

ethical project, particularly the outcome of the renewal of the ethical project, on independent grounds. In particular, the value of knowledge itself ("making discoveries") is dismissed as an individualist fallacy. Similarly, the value of scientific autonomy is seen as a form of elitism, namely, of taking something grand and uncommon, shared by only the few, to override the common good.

Again, the opportunity to engage in reflective equilibrium, in this case, to allow scientific autonomy a role in well-ordered science, subordinating the deliverances of its procedure to the requirements of autonomy, goes entirely missing. But these values, evolving as they have from within the project of public knowledge as historically developed by science and the academy, should not be dismissed so easily, since they rest on an independent understanding of the good, in general, and of knowledge, in particular, which need not be subordinated to the question of altruism.

As noted, Kitcher cannot have it both ways. He cannot accept the outcome of the ethical discussion to be the sole moral authority, while turning the discussion itself into a purely hypothetical one. A hypothetical discussion must be tested independently, since it only takes place in someone's imagination. Such independent judgment is needed, most pertinently, regarding the conception of the good, its principles of distribution, the relative place of liberty and justice within such distributions, and so on.

On all these issues, Kitcher's renewal of the ethical project, particularly as incorporated in the ideal of well-ordered science, makes debatable judgments, but it will not do to say, as he does, that these various debates and judgments will have been considered in the ethically authoritative debate, if this debate is merely a hypothetical one. Another way of putting the matter is that Kitcher reduces ethics, the theory of the good and the right, to one of its branches, namely, the theory of justice. As a theory of justice, Kitcher's theory has much to recommend it. But as an overall ethical theory it is reductive in a way that makes it too one-sided, undermining any source of ethical consideration, any broader conception of the good that might be used to evaluate (as considered judgment in reflective equilibrium) its more specific proposals.

Kitcher holds that the planning of inquiry incorporated into his scheme of well-ordered science need not cause "scientific shudders," and will not lead to a "scientific Gulag." His point is that in well-ordered science scientific autonomy is not replaced by the deliverances of "vulgar" democracy, but rather by an alternative democratic ideal incorporated into scientific decision-making. There is, however, room to differ on this point. Supporters of scientific autonomy will tend to worry that once the principle of autonomy is given up, vulgar democracy, in the form of governmental bureaucracy, will be the ultimate winner, since Kitcher's notion of democracy is way too utopian to stand up to it.

On this point, another comparison with Rawls is in order. Unlike Rawls's principles of justice, which maintain a "lexical order" between liberties and distributions, granting civil liberties a priority over considerations of distributive justice, Kitcher's scheme subordinates liberties, particularly, scientific autonomy, to distributive principles, while dismissing Rawlsian priorities as the fallacy of elitism. As he puts it, "…the value of satisfying curiosity is one – like freedom – deserving attention to its distribution" (2011a: p. 125). Indeed, these priorities are in line with his view of democracy, which subordinates negative liberties to positive ones, viewed in terms of a Rousseau-type pursuit of a common good.

Some would view these priorities, indeed, Kitcher's view of democracy in general, as questionable in point of replacing a majoritarian "will of all" with an ethically inspired "general will," and certainly a cause for liberal shudders. Regarding well-ordered science, in particular, there is little sense in Kitcher that his notion of scientific significance may involve scientific, or epistemic, loss. Some scientific proposals, having been (neutrally?) explained to the deliberative body of representatives will not pass. These may be proposals that do not sufficiently satisfy societal concerns. Are they to be counted as devoid of scientific significance? This would surely be an overbearing constraint on free inquiry, and particularly on the prospects of science.

In sum, it is easy to agree with Kitcher that science, as it is actually practiced, is selective in its choice of problems and fields of inquiry. The "whole truth" is a goal too abstract to be pursued at any stage of scientific inquiry. But though science is selective, there is no criterion of selection that could be accepted as definitive of scientific interest, and any such criterion would be restrictive in the long run. Kitcher turns the whole question over to ethics, counting on the ideal nature of normative deliberation to calm the "shudders."

But that still leaves us with a truncated view of scientific significance. A more adequate view might be to distinguish between the epistemic dimension and the social dimension of scientific significance, while bringing them into a real, rather than imaginary, equilibrium. Kitcher's critique of the social impact of science, as currently practiced, could well be accepted, and much could be done to mitigate its ill-effects and flawed distributive outcomes. Indeed, his own concrete proposals for approximating his ideal in actual practice would go some way towards ameliorating those outcomes. But this need not be at the expense of scientific autonomy regarding the epistemic significance of science, much as ethical review of scientific ways and means, especially regarding experimentation of human subjects, is taken as a constraint upon, not a determinant of, scientific significance.

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