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What's Special about *Scientific* Freedom?

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Introduction

It is fashionable to consider scientific inquiry as something that is in itself due particular privilege; to claim that there is special reason to protect scientific freedom. At the same time, it is common in arguments that consider whether any fetters should be placed on scientific activity to note that something at least approximating a 'public interest' test suggests that some limits to scientific freedom are legitimate. This chapter explores these questions with a view to understanding how protagonists might seek to defend scientific freedom in a morally diverse, politically ordered society. It begins by examining the nature of scientific freedom as conceived within the bounded territory of science itself. This permits a view of 'science ethics', but also shows how it is not something that can be presumed necessarily to be intrinsically good. It then considers arguments for why scientific inquiry might be subject to external control or limitation. This provides the context for an analysis of scientific freedom as a political claim for the protection or assurance of the conditions in which science may be undertaken. Following a discussion of the role of moral theory in political philosophy, it moves to an assessment of whether champions of scientific inquiry should be concerned to see it protected in a right to scientific freedom. In a context where science is valued in large part according to the benefits to which it can lead, subject to legitimate restriction in so far as it may lead to harms, and in a situation where it can rightly compete with alternative goods, the essay concludes with an argument that whilst scientific inquiry should be a priority, it is appropriately protected without recourse to a specific right to scientific freedom. This approach affords due consideration to alternative concerns, and guarantees a wider base for protecting the distinct matters that we might wish to protect under the broad heading of science.

Science ethics and general morality

Values in science

Neutrality, openness, and scientific uncertainty may be considered the hallmarks of good science. It is adherence to these that sustains a clear commitment to advancing knowledge and understanding. Whatever the specific methods or parameters of particular branches of scientific inquiry, common to them all is a dedication to establishing truth. In this sense, it is possible to recognise a straightforward 'science ethics'; a code intrinsic to science itself. Hans Jonas alludes to this in his seminal analysis of scientific freedom:

What are the points of contact between science and morals? At first glance there seems to be none, beyond the internal morality of keeping faith with the standards of science itself. Its sole value is truth, its sole aim the knowledge of truth, its sole business the pursuit of knowledge. This, to be sure, imposes its own code of conduct which can be called the territorial morals of the scientific realm[.]¹

Jonas accordingly describes the familiar facets of this 'internal morality', stressing how science ethics retains its 'territorial' nature; noting how *within* science there are virtues and imperatives that allow us to judge good science and good scientists on (as it were) science's own terms. These things are exemplified by a scientist's:

[A]biding by the rules of evidence and method, not cheating oneself and others, for example, by sloppy reasoning or experiment, let alone falsifying the latter's outcome... . [This of itself] implies no extrascientific commitment. The same is true for personal virtues of dedication, persistence, discipline, and the strength to resist one's own prejudices—again simply conditions of success within the vocation, if also praiseworthy qualities in general. Finally, [there is] the duty of sharing one's results and evidence with the scientific community...²

Jonas stresses how all of these ethical demands and constraints exist purely within, and are implied by, science itself: the morality remains bounded; 'territorial'. It 'stipulates no obligation of the scientific fraternity beyond itself'.³ Although any of the virtues and practices listed may obtain elsewhere, they are found as particular instances contained by science.

If, as seems reasonable, we accept this point, and conceive of science as bounded by its own self-defining codes, *this* is no affront to the idea of scientific freedom. It does, of course, imply restrictions on what scientists can do *qua* scientists. However, just as a philosophical anarchist need not be morally anarchic – he can find restraints in morality even as he shuns the idea of prescriptive codes beyond those contained within morality itself, and thus shuns the idea of externally imposed laws⁴ – a scientist does not have an unfettered licence to act or reason in any way he might choose: to act morally, an agent is required to conform with the intrinsic demands of morality; to act scientifically, an agent is required to conform with the intrinsic demands of science.

Thus to be engaged in the very process of 'doing science', compliance with a code is necessary. Failure to conform with its norms renders something as not scientific. So the free scientist is not anarchic. It is important to make this point as some observers point to the apparent paradox in the idea of a free moral agent; we at once conceptualize something as free and yet define and understand the strength of its freedom by its capacity to obey moral 'laws'. This is no paradox and nor is it a paradox to suggest that free scientific inquiry is only this when it conforms with the norms entailed in the very concept of science.

However, while concepts of science, scientific method, and scientific inquiry may imply particular and identifiable standards, which we may label 'science ethics', they do not in themselves give a means of *evaluating* the moral quality of science ethics. In other words, whilst we can envisage science ethics in the sense of the internal code described by Jonas, this does not necessarily provide a *good* or *defensible* code other than on its own terms. Simply given science ethics, we have no reason automatically to believe that 'good science' is ethically defensible or otherwise valuable. This issue is reflective of a similar problem that John Gray identifies in relation to evaluations of political liberalism: the *internal* measures implicit in a theory can not be used as *external* judgements of it.⁵ So we can conceive of science as pursuit of truth and we can investigate what this entails, and from there understand various norms intrinsic to scientific inquiry. However we do not know *ex ante* or by simple reference to science that the end (pursuit of truth) and the norms that are conducive to this (abiding by rules of evidence, *etc.*) are good or worthy things. So, we can understand what free science requires, but we need more before we can judge whether scientists should be free to 'do' science.

This issue perhaps comes to the fore most clearly when we follow Harvey Brooks and distinguish judgements of science's utility and judgements of scientific merit.⁶ Considering the problem of how to assess the relative values of distinct scientific endeavours, Brooks notes that:

Priorities in science cannot be set without bringing in considerations external to science itself, especially if the projects compared are only distantly related. There is nothing inherent in scientific logic which can say that molecular biology is more important than elementary particle physics, or cosmology more important than evolutionary biology, although some distinctions can be made on criteria such as degree of generality, philosophical implications, or elegance and simplicity. These, however, are primarily aesthetic rather than rational criteria.⁷

Brooks' evaluation is useful because it stresses the complexities of assessment when different questions are raised both about whether science should be supported in a specific instance, and about how priorities between different scientific endeavours should be judged. As he says, 'the complementarity between usefulness and scientific merit is not complete.'⁸ We know that sometimes science that receives support because of its probable utility can also lead to important advances in knowledge, and that 'blue-skies research' can

sometimes lead to unforeseen applications or advances of high utility.⁹ However the distinction between assessments based on scientific merit and those based on the utility of science help us to view the possible bases on which we might assess what is special about scientific freedom, and explore whether scientific inquiry should be privileged. It leads us to the question of how and why we (members of human societies) should value science in the first place, to how we can establish what obligations we owe to each other in regard to supporting science, and what constraints might be imposed on scientific inquiry.

Valuing science

The argument in the previous section suggests that a person may be considered to be acting freely as a scientist only when he respects the various constraints demanded by a commitment to a pursuit of the truth. In this sense, science ethics allows us to judge whether something is 'good science', or if someone is a 'good scientist', but we have seen too that this gives us no indication in and of itself that science is good other than on its own terms, or that scientists deserve special treatment. Yet where we are entreated to respect scientific freedom, this is not generally meant as a claim against scientists urging their conformity with science ethics (though this will surely be its own form of concern).¹⁰ A demand for scientific freedom is not widely thought of as a plea to recognise and follow the internal codes of science. It is normally a claim made by or on behalf of scientists that *the conditions* should be provided to allow them to direct their scientific inquiry without restraints *external* to 'science ethics'. This is evident across various definitions of scientific freedom: for example, Mary Cheh's definition of scientific freedom as 'the freedom to think, to learn, to conduct research, and to report one's findings';¹¹ and Lewis Mainzer's, which says that '[s]cientific freedom is usefully conceived as discretion for the scientist in making decisions respecting his research'.¹²

A demand for the protection of scientific freedom, then, is a claim for the protection or assurance of the conditions in which science may be practised. It is clearly possible in principle to respect the various liberties that fall under the heading 'scientific freedom' by maximally assuring such conditions, but why should anyone give such respect? Several authors who have considered this question note that frequently it is answered by reference to the benefits that are *consequent* to scientific inquiry, as opposed to the intrinsic good of scientific inquiry itself. That is to say, whilst some may point to the pursuit of knowledge as a particularly important end in itself, widely science is valued (and 'sold') as a means to the potential benefits to which it will give rise (or denial of such potential benefits is threatened against a failure to support scientific inquiry). However, where the consequent benefits of science become *its* value, divisions between thought and action, and between science and technology, become unclear, or even rendered otiose. Even if in theory it remains possible to

distinguish science and application,¹³ the relevant issues to consider are more than just allowing a particular mode of critical thought or dissemination of knowledge. The practical implications, both of conducting scientific research, and of its results, provide the practical context of any normative evaluation of science. Jonas therefore argues that it is disingenuous to deny that theory and practice ‘are now fused in the very heart of science itself,’ giving the lie to ‘the ancient alibi of pure theory and with it the moral immunity it provided’.¹⁴ He considers it essential to stress that pro-science arguments largely rest on claims about utility, putting the point in strong terms:

Sincere as this homage to disinterested knowledge may often be, it would be hypocritical to deny that in fact the emphasis in the case for science has heavily shifted to its practical benefits.¹⁵

Where science is valued because of the good it leads to, Jonas argues, we need to ask questions about its effect, wary too of the *bad* it might result in:

For whatever of human doing impinges on the real world and thus on the welfare of others is subject to moral assessment. As soon as there is power and its use, morality is involved. The very praise of the benefits of science exposes science to the question of whether *all* of its works are beneficial. It is then no longer a question of good or bad science, but of good or ill effects of science (and only “good science” can be effectual at all). Clearly, taking credit for the benefits means also taking blame for the damages; it would be better for science to do neither, but this option may be [and, according to Jonas’ argument, is] closed.¹⁶

Valuing science according to its effects, rather than because of some pure commitment to its intrinsic value, necessarily produces reasons to doubt its being something that should always be prized. Peter Singer, who also makes this point, demonstrates how easy it is to argue in favour of side-constraints on scientific freedom, even in regard to research whose scientific merit and social utility would be great, where these will cause harms to persons or (more controversially, on some counts) animals.¹⁷ For Singer, the important ethical question is therefore not *whether* limits should be put on scientists’ freedom, but *when* and *why* they should be. Science poses risks, and causes harms. These must be accounted for, and may disvalue scientific inquiry in some instances.

In similar vein, Heather Douglas urges that analysts distinguish scientists’ ‘role responsibilities’ (their responsibilities within the territory of science ethics) and their ‘general responsibilities’ (their responsibilities assumed by virtue of their membership of society; i.e. given social ethics).¹⁸ Her argument makes clear how an assessment of scientists’ responsibilities can not be exhausted by mere examination of their duties *qua* scientists. They assume relevant moral identities that extend beyond their roles as scientists. ‘If the primary goal of science,’ she argues, ‘is to develop knowledge about the world, then the role responsibilities of scientists should be structured around this goal.’¹⁹ However, she goes on, before we accept this bounded commitment, derived from science’s

internal norms, we need to ask whether it 'obliterates other responsibilities scientists have as human beings and capable moral agents'.²⁰ Douglas rebuts the view that scientists' pursuit of knowledge or truth can be considered a paramount value that should be unhindered. Most forcefully she appeals to a widely acceptable point about the *relative* value of science:

[K]nowledge (or the pursuit of truth) does not trump all other values. If it did, we would happily submit our children to scientists who wished to use them for biochemical testing and no moral limits on methodologies would be in play. But truth is not so valuable to us that we are willing to do this, despite the fact the controlled human testing would be the best and perhaps only way to fully understand the full biological impacts of chemical substances, for example. That there are prices we are not willing to pay for knowledge, or the search for truth, means it is not an ultimate value existing on a plane above all others. The categorical pursuit of truth is unacceptable. This does not mean that the pursuit of truth is not valuable, or that it is not one of the preeminent values of our society. It simply means that, in general, other values deserve to be considered as well.²¹

Douglas reinforces her concern by reference also to the nature and presentation of knowledge consequent to scientific research. The social and ethical impact of advances of new knowledge has potential implications quite apart from any technological development. Scientists, she argues, have epistemic responsibilities from *without* science to be careful with their choice of research, and the presentation of its findings.²²

Finally here we might consider the way that Sissela Bok frames the point.²³ As in the arguments of Douglas, Singer, and Jonas, Bok stakes her position by contextualising scientific inquiry in a social context that is not narrowly bounded by science's internal norms, and notes the potential effects of science. She too finds the crux of moral concerns regarding acceptable scientific inquiry to be at the point of causing or risking harms to others. Her analysis is wide-ranging, and demonstrates clearly why it is too simplistic, and thus wrong, to accept a generalized postulation that scientific research poses no risk to anyone. Rather some clearly will, some will clearly not, and there is a central cluster of hard cases where careful value judgments need to be made. Where there are risks, Bok argues that there is no reason to treat them as less problematic simply because they are posed in pursuit of science as opposed to some other end.

In common with the other authors cited in this section, Bok presents a complex situation for practical philosophy: whilst there is widespread – possibly universal – recognition that pursuit of knowledge is not consistently the supreme end, there is widespread disagreement about when and why brakes should be placed on scientific freedom. So if we are persuaded by these authors, we come to the view that scientific freedom, conceived as protection and assurance of the conditions in which science can 'happen', is only *special* in so far as science itself is valuable in a given situation. And how special science ever is is a contextual question, to be judged by its (possible and probable)

consequences. The principled questions surrounding the estimation of scientific freedoms' value are perhaps most acute where legal or political constraints are placed on scientists' freedom; where there is not simple statement of moral obligation, but the institution of policy to enforce the exercise of particular responsibilities. It is to these questions that we now turn.

Valuing science and values beyond science

Many theorists, including those discussed in the previous section, make clear cases that scientific inquiry is not a supreme value, and that it is therefore right both that external constraints should (in some instances) be placed on scientists' freedom, and that where there is competition between science and another value, science will not always win. Things become complicated, however, when we move from these generally acceptable propositions to specific arguments about placing fetters on, and estimating the relative value of, scientific inquiry. This is principally because whilst their conclusions are similar, different theorists at times employ radically distinct reasoning to reach them. Furthermore, the weight and scope of specific values are the subject of disagreement. 'We' may all agree that science is important, but 'we' do not all agree on why, on how important it is, or on what else is or is not important. Furthermore, 'science' is an umbrella term that encapsulates a vast range of methodologies and can concern an enormous diversity of matters that might be researched, and there is fundamental disagreement too on the value of specific things that might be the subject of scientific inquiry (think, for example, of the human embryo, or knowledge of the moons of Jupiter). There is not, therefore, a straightforward move (theoretical or practical) from the general proposition that science is important but not the highest end, to specific conclusions on when the conditions that allow a specific instance of scientific inquiry should be provided. A large body of the academic literature treats this question as essentially a public interest issue; in other words, this becomes an evaluation in political philosophy. It is useful therefore to separate purely moral arguments about what people should do given some framework of reasoning, and approaches to the development of policy that provides for institutionally protected freedoms and obligations that people have.²⁴

We saw how the previous section prompts us to address two distinct sources of norms. First, we have the duties and virtues implicit within the bounded concept of science ethics. Second, we have the wider demands of morality, and an apparent consensus that once this is appropriately understood, the freedom to act in accordance with science ethics is subject to limitation by the higher demands of general morality: as Singer puts it, 'science is properly regarded as subordinate to ethics'.²⁵ We now need to confront two more questions. How do we recognise the content and demands of general morality, and what do we do about people who will fail to meet their moral responsibilities, either

through error, ignorance, or intentional wrong-doing? Bok is fiercely opposed to the idea that 'political clout will have to determine the outcome'²⁶ of the value-judgements under scrutiny here. Yet there will not be any substantive consensus on these matters, even within single jurisdictions, less still globally. In reality, there is a great plurality of competing, contradictory, exclusive moral theories, each of which presents different pictures of general morality. Furthermore, even according to any particular theory, myriad contradictory practical conclusions can be met on what should be done in a given instance. It is therefore inescapable that whilst a rationally coherent, comprehensive, general moral theory may be developed, its practical upshot will be curtailed by the realities of human society.

In exploring the accommodation of moral concerns in a political context, we therefore do well to draw from the general criticisms that Raymond Geuss makes of elisions of moral and political philosophy, using the specific example of John Rawls' presentation of his theory of justice.²⁷ Geuss presents and defends a view of political philosophy that suggests that political theorists should concern themselves with questions of history and anthropology, of understanding human power relations in a framework of political realism rather than by reference to idealized claims about the co-existence of abstract moral agents.²⁸ Although Geuss' resignation to real politics may seem pessimistic (he would argue it is simply realistic), he is surely right to question the universal acceptability of Rawls' theory, and the sort of understanding it can afford in practical philosophy. Whilst it, like other soundly constructed moral theories, is *in principle* universally acceptable, it is not *in fact* universally accepted. Geuss is forthright:

To whom is the "we" supposed to refer in Rawls's claim that "we" have the intuitive conviction of the absolute primacy of justice? Does "we" mean "all empirical human beings"? Then the claim that "we" think justice has priority is certainly simply false. Does "we" in a Kantian mode purport to refer to "all rational creatures..."? To believe that Rawls's claim about "our" intuitions concerning the priority of justice in this sense is to subscribe to an extremely strong, and highly implausible—that is to say, almost certainly false—thesis about the universal structures of human rationality.²⁹

Geuss' cynicism of the project of mainstream approaches in political philosophy provides healthy reason to recognize the limitations of an inquiry into (for example) scientific freedom from the perspective of some ideal type theory. I could attempt to present here a defence of Rawlsian justice, and then in its light try to provide an analysis of the rightful scope of scientific freedom. However, the theoretical upshot would not easily 'map on to' practical reality, and would clearly meet resistance from people committed to distinct concerns to Rawlsian justice. Nevertheless, Geuss does not give an entirely compelling argument for ignoring normative theory. He highlights the inadequacy of ideal-type political philosophy as a means of *understanding* human action, or

mechanisms that would change the world. However, this does not preclude its potential to evaluate conduct or policy, or obstruct petitions to change policy for the better given concerns about, for example, Rawlsian justice. So we do well to heed Geuss' point, but approach the question of the proper scope of scientific freedom in the spirit advocated by Jonathan Wolff, who says:

It would be absurd to argue that there is no place for speculation about ideals – of course this is necessary, otherwise there would be nothing to inspire or direct change. However, speculation about ideals is the start, not the finish, and if philosophers want to have an influence on the direction policy takes, then there is no alternative to accepting that the status quo does have a privileged position in the debate.³⁰

According to this view, there is considerable merit in approaching and exploring questions such as the moral value of scientific inquiry. A moral philosopher such as John Harris will provide arguments about a background moral theory, and then seek to persuade his readers of the practical implications of this for their moral responsibilities in relation to science.³¹ Other theorists will do the same, but on the back of competing understandings and defences of general morality, and the individual reader will have to choose between them.³² However if we want such arguments to take effect within the relevant social or political forum, it is not sufficient simply to create a robust critical theory; it must also be addressed to the people and institutions that can allow it to find practical influence.

I do not propose to advance or defend any specific moral theory here. Instead, I want to focus on the move from a context where we find bald moral claims – which in essence serve as a means of entreating people (including scientists) to act in certain ways – and seek to advance them as political claims.³³ I therefore speak to a situation where we do not wish merely to make moral claims about the world and describe their implications, but where we seek to affect the practical, protected freedoms and obligations that exist within politically organized society. In this sense, we are not just interested in questions of whether, why, and how science is special; we are concerned with questions of enforcing a view of its importance on others *regardless* of their own evaluation of the matter. We are interested in science as an issue that is of concern politically, and protected and constrained in accordance with the public interest.

Where we are to approach political disagreements through reasoning based on ideals, we need to confront two distinct perspectives on the nature of political liberalism. According to the first perspective, morality obtains in a singular, unitary system. In this sense, provided there are no flaws in knowledge or reasoning, all moral agents would converge on the same answer about what is right or best in a given situation. This may be cast as the 'rational consensus' view of morality.³⁴ Its implications for politics are that we should pursue an understanding of the one moral truth, and guide our political associations best

to reflect and respect this. The second perspective holds that there is a range of equally true or worthy, but mutually contradictory and exclusive moralities, all of which deserve equal respect. This is cast as demanding a politics of *modus vivendi*.³⁵ In this sense, the project of political society is not to establish *the* moral truth, and direct policy towards it. Rather, it is to allow harmonious co-existence between people who wish to live according to distinct ways of life. Elsewhere I have presented a defence of the second of these perspectives, which I will not reproduce here.³⁶ Suffice to say, regardless of the truth or *in se* desirability of each perspective, it is a 'practical truth' that we live in societies where people are free (within limits) to choose to live in accordance with their own distinct values, and in which there are no cast iron ways of demonstrating that some ways of life are 'right' to the rational exclusion of alternatives. There are also clear reasons for resisting state imposition of particular ways of life; well rehearsed arguments against the desirability of totalitarian, authoritarian systems, even where these are the product of benign government. Scientific practices – potential and actual – are therefore best viewed in a context where rational moral argument has a role, but in a context too where this will not account for everything. Concerns about the centralisation of power through non-state actors (for example large institutions such as business, religion, the media) suggest the desirability of regulatory interference to allow alternative perspectives to thrive. In this sense, we might find the basis of arguments in favour of creating the conditions in which scientific inquiry may take place, notwithstanding high-profile dissent against it. It should however be seen that similarly the liberal systems that permit this will sometimes justifiably also privilege the position of those whose views are antithetical to arguably reasonable claims in favour of an instance of scientific inquiry. This chapter is not intended to present substantive moral arguments in favour of a preferred weighting of scientific freedom. Instead, in the remainder I explore what it means to conceive of scientific freedom as a political category of concern, and how its protection may best be mediated through law.

Protecting scientific freedom

Scientific freedom, I have suggested, is most importantly conceived as a political claim to the conditions in which science can take place. Its merits in any given instance are thus to be assessed by reference to the public interest. Cheh expresses a view that may be taken as a caution against arguments in the name of the public interest (she refers to 'national security'): they can erroneously and even cynically lead to wrongful curbs on scientific freedom. As she puts it:

The hard truth is that issues of national security cannot be resolved in the abstract. Suppression of ideas or scientific research to protect national security requires

a case-by-case, fact-specific analysis to answer questions such as: what specific harms to national security are implicated; are these harms grave and imminent or only slight and speculative; are the particular controls thought necessary narrowly tailored to the harms alleged or are they broad prohibitions which compromise other, equally important interests. But, case-by-case analysis is hard work, and it is far easier to invoke national security as a blanket justification.³⁷

The point Cheh makes here is important and persuasive: she is right to caution against the unthinking citation of national security as a reason to forestall scientific inquiry (and her argument applies with equal force to unthinking citation of the public interest). She is right too to hint at the way such a justification can become a dogma, which can then be deployed cynically. Whilst being persuaded by Cheh, however, it is crucial to note that the same manner of concern would apply if we exchanged the term ‘national security’ with ‘scientific freedom’, and reordered the specific concerns to apply to that case. Unthinking acceptance of national security claims is problematic and insidious, but so too would be unthinking acceptance of claims about scientific freedom and *its* apparent claim to trump other concerns. In *both* cases we should avoid the dogma, and instead make case-by-case analyses. We must accept that concerns about cynical use of apparently benign terms is as applicable to grandiose claims based on scientific freedom as it is to ones based on the public interest or national security. Thus we need to ask, if scientific freedom is not always of compelling importance, should we translate it from an analytic political concept into a formalized, justiciable one: should we enshrine an explicit right to scientific freedom in law?

As we have seen, arguments differ about the content and basis of the public interest. Nevertheless, however it is established, the public interest is foundational. Whether it is reflective of a singular moral theory or of a means of achieving harmony between distinct moral theories, it denotes the touchstone by which the legitimacy of policies, freedoms, and obligations will be assessed. Necessarily views on its substance will differ, and if the arguments of protagonists in public debates are to be given effect, they need to take place within the social and regulatory structures of given social and political systems. At times, it will make sense to petition the courts in order to amend or bolster the *status quo*, to assure freedoms or enforce obligations. At times change will come through petitioning regulatory authorities, or by appealing to private actors. The best strategy will depend on the specific context, and when assessing this it should be remembered that scientific freedom is not merely a ‘negative freedom’: the conditions that allow science to take place do not simply require that scientists be free from external interference; positive measures and actions are also needed in many instances, both to provide the necessary infrastructure and technology, and to support scientists, for example by paying their salaries. The sorts of needs this gives rise to exist in a complex social and political network. In part, this network involves the potential for legal claims against others; it is neither purely private, nor completely public.

When considering how best to protect scientific freedom in a particular instance, it is useful to reflect that just as scientific freedom is not fundamental as a general ethical concept, so it need not be as a legal one. Various authors have asked whether and how scientific freedom may be grounded as a fundamental or constitutional right. There may therefore be a sense amongst some that where scientific freedom is not enshrined in law, it will not receive the protection it is due. This view, however, is to be doubted, as James Nickel demonstrates in his examination of the relevant issues in an analysis of the legal protection of religious freedom.³⁸ He frames his inquiry in ‘the “basic liberties” approach to understanding liberty’,³⁹ wherein different areas of liberty are listed, and combine to represent the scope of a legally protected framework of rights, obligations, and freedoms (the European Convention on Human Rights (ECHR) is given as a good practical example). Such a framework is naturally implicated in an examination of putatively special but not comprehensive or unqualified freedoms: artistic freedom, religious freedom, scientific freedom, and so on. Within the framework, Nickel’s question is whether religious freedom should be treated as a fundamental right. In sum, he:

[E]xplores and defends the idea that we do not need freedom of religion as a separate enumerated liberty. [He] does not propose that freedom of religion should disappear as a distinctive category; but argues that it could do without much loss.⁴⁰

It is clear that at times a protagonist will wish to assure sufficient protection to scientists to conduct research in an area where there is considerable social, institutional, and even political pressure that bears against it. In parallel with Nickel’s approach, the important question to ask is whether the right level of protection can be given to science if the list of basic liberties does not include explicit reference to scientific freedom. He enumerates nine fundamental liberties, on which he argues other due freedoms, including scientific freedom and religious freedom, are based:

- 1 Freedom of belief, thought, and inquiry.
- 2 Freedom of communication and expression.
- 3 Freedom of association.
- 4 Freedom of peaceful assembly.
- 5 Freedom of political participation.
- 6 Freedom of movement.
- 7 Economic liberties.
- 8 Privacy and autonomy in the areas of home, family, sexuality, and reproduction.
- 9 Freedom to follow an ethic, plan of life, lifestyle, or traditional way of living.⁴¹

His argument is attractive not just because it suggests that advocates for scientific freedom need not worry if it is not explicitly enumerated in law (although his paper is about religious freedom, he applies it explicitly too to scientific freedom). It at once permits protection of issues for which we may legitimately be concerned, whilst not exaggerating their importance. Nickel lists five particular advantages to accepting his view in regard to religion, which speak equally well to scientific freedom.⁴² First, it affords due importance to some issues without precluding the importance of others. Second, it allows a broad scope to what might be protected; we do not face the danger of definitional or boundary problems of the concept under issue (i.e. we do not need to worry about finding a precise definition of science). Third, it avoids a narrow interpretation that would in practice *limit* scientific freedom, allowing recognition of its obtaining in, and highlighting the importance of, several quite distinct basic liberties. Scientific freedom need not be restrained by its finding a basis just on one of the liberties listed. Fourth, it grounds protection of scientific freedom in a way that is widely acceptable in a pluralistic society, rendering it more secure. Nickel says:

If nonbelievers dislike religion [and we might say here, “if some citizens disvalue science”] and have no desire to protect it as such, reflection will nevertheless reveal to them that undermining religious liberties would come at the cost of undermining their own liberties of thought, expression, association, assembly, and so on. Thus, religious freedom does not depend on positive attitudes towards religion or some religions.⁴³

And fifth, Nickel notes that deriving other special freedoms from the fundamental liberties guarantees their dual nature as freedoms both ‘to accept and to reject particular religious propositions.’⁴⁴ Such a paired liberty applies equally in regard to science; citizens remain free to accept or reject particular scientific propositions.

Beyond these advantages, Nickel also pre-empts concerns that people might have with his argument. Of particular salience, he shows that worries about special exemptions from general legal obligations would not be under threat.⁴⁵ Not only is it still possible to grant exemptions (for example to allow scientists to be in possession of controlled or illicit substances), if questions concerning scientific freedom are under litigation, the courts are afforded greater latitude in finding their basis, whilst also being in a position to protect competing claims where this would be appropriate. Ultimately, he stresses a point that is reflective of the argument that I have sought to emphasize in this essay. It is better that social norms be governed according to a wider freedom (political liberalism), rather than according to the internal ethics of science. Just as we would (I trust) reject a theocracy, so we would a political regime governed according to the internal prescriptions of science.

To be clear, a list of basic liberties (and we might choose an alternative list to Nickel’s) does not tell us each liberty’s specific content or relative weight.

That remains to be argued. The discussion here illustrates, however, that even if we are very concerned to protect scientific freedom, we need not conceive of it as a basic or enumerated legal right. It can be the subject of legal and regulatory protections within the frames provided, for example, by the ECHR. Furthermore, there are good reasons to suppose that a wider range of scientific issues will receive better protection if they can be treated individually, and potentially on different grounds: a right to scientific freedom may not secure the widest protection of scientific inquiry.

Conclusions

A claim for scientific freedom is well conceived as a demand for the protection or assurance of the conditions in which science can be practised. The value of respecting this freedom is often relative not to the intrinsic value of acquiring further knowledge, but to the benefits or harms that are (likely) consequent to an instance of scientific inquiry. A right to scientific inquiry can potentially have both 'positive' and 'negative' aspects to it; claims to the means to pursue scientific endeavours, and claims to be left alone to do it. In principle, neither sort of claim is above the possibility of restriction if the public interest so dictates. When considering whether regulatory protections of scientific freedom are required, or limitations to scientific inquiry are needed, many specific issues require evaluation. A responsible regulator can, in principle, place curbs on specific research without implicating scientists as morally complicit in the probable consequences of the science; it can quite reasonably and rationally prohibit research because it is concerned about what *others* will do with the knowledge it produces. However, it is clear that strong justification will be needed in any case before a legitimate decision can be made not to allow scientific inquiry, especially if the specific claim to scientific freedom is largely framed as a need to protect negative liberty. Furthermore, we can agree that science is subject to ethics without concluding that every ethically problematic or controversial form of scientific inquiry should be the subject of restrictive regulation. That the science touches an area on which there is substantial moral disagreement does not automatically suggest that it should be banned or restricted.

I have therefore argued that whilst scientific freedom may be considered a special form of liberty, from a policy perspective it only deserves special treatment in so far as it conduces to benefit, and in so far as there are no countervailing concerns about undesirable consequences. Like other contributors to this volume, I would be keen to emphasize the many goods are only achievable in a society where scientific inquiry is highly valued, and in which the conditions for scientists to work are assured. To protect such conditions, we do not need a specific, enumerated right to scientific freedom. Indeed the very importance of science and scientific freedom allows us to find it grounded firmly in the public

interest, and derivative of other fundamental freedoms enumerated in legal instruments such as the ECHR. We do not need to 'tie' scientific freedom to a specific, single right (such as the right to free expression), and would be wise not to do so. By understanding its breadth and diversity, we can see it securely founded on various grounds. These permit both curbs where this is necessary, but also as wide a protection as is desirable in a context where we value other things too.