

MA in Philosophy Dissertation:

Scientific Literacy and the Importance of Prior Knowledge in the Administration of Anglo-American Justice

Introduction

Although scientific enquiry by its most literal definition is simply the pursuit of knowledge, and a truth being true regardless of the society in which it operates, it is somewhat untrue and idealistic to suggest that science operates entirely independently from the society of the day. Societies evolve over time and these changes are mirrored in science. Perhaps the clearest example of this phenomenon can be found in the first half of the 20th century. With the world descended into conflict, strong motivations emerged amongst scientists to pursue research and develop technologies with functions aligned to the needs of wartime. Governments on both sides made funding available for these purposes, commandeered resources to support the manufacturing and as such, enquiry and development followed in this direction - culminating in the harnessing of thermonuclear reactions for this purpose. Today these forces are more economic in nature, with large corporations seeing opportunities for profit by financing scientific studies in drug development, biotechnology and agriculture - and reaping the subsequent rewards. Conversely, various charitable foundations have found motivation in unmet social needs, investing in scientists to meet a pantheon of challenges including energy production and climate warming. Science therefore, although fundamentally rooted in the pursuit of knowledge (an apolitical, steadfast commodity), is neither stationary nor passive but instead changes over time in a way that reflects the desires and needs of those around. The relationship, in sum, between science and citizens is a dynamic one in which both parties determine its the course. It is a relationship characterised by this symbiosis, in which the needs of people are not purely met by science but in some cases are defined by its advancement and as such, it becomes increasingly untenable to consider the rights and responsibilities of citizens without accounting for this exceptionally important contextual factor in which they operate and are often irretrievably bound.

However, although this process of respective moulding and steering between science and the citizen is long-standing and deeply ingrained in the relationship, a truly drastic upending of its terms has occurred in recent decades, arising primarily from two main phenomena: the exhaustion of natural

philosophy and the rising demands of the citizen to be possessed of scientific knowledge in order to fulfil their societal role. In respect of the latter of these two points, it is proposed by some (citation) that the subject of natural philosophy has given way to more formal scientific enquiry. One that is predicated on large amounts of specific training as well as requiring a degree of resourcing which places its practice beyond the reaches of the average person. If this degree of ever-compounding complexity, with knowledge harvested in areas beyond the reach of the average person being used to inform the pursuit of further study, its implications for the relationship between science and citizens is of the utmost significance and, one could argue, obliges government to significantly revise the expectations of its populace to exercise scientific literacy when required. However, in order to understand this transformation, we should first consider the successful practice of natural philosophy and acknowledge the profound heights of understanding to which its style of deductive reasoning carried figures such as Immanuel Kant who practiced it - drawing conclusions since verified by observational science.

Unlike prior or later disasters to afflict the region, the Lisbon earthquake was more than a local disaster. Instead, this convulsion rippled through and left lasting traces in European science, social life, religion and philosophy by drawing the eye of many great thinkers, and Immanuel Kant in particular, to how under-equipped the latter two of these were to describe the basis for the events. Its material effects were felt acutely and painfully across the continent, impacting the economy and upending the established viewpoints of how humans should think and act in a world where such events occurred. Following the earthquake, most of Kant's peers proposed that it was a reflection of God's anger but Kant used natural philosophy and natural science, as well as logical inferences to try to establish an earthly cause for what was otherwise subjected to the simultaneous elevation and dismissal that comes with being defined as a miracle by observers. Kant however, was unsatisfied by this approach and set his face against such a view in favour of the Kantian and natural science traditions and as such, began marshalling his talents in the task of exploring this phenomenon in what can broadly be considered scientific terms. Through this period Kant produced several articles on the subject of earthquakes and volcanic events and developed a carefully calibrated theory by way of explanation for the Lisbon earthquake and other seismic activity. In drawing comparisons to the average citizen of the modern day, it is important to note that Kant is held by few to none as 'average' in his ability to reason but also, and perhaps as a consequence, had the ability to draw on the output of the scientific community, with a significant portion of his findings based on his reading of the scientific literature available to him. Incorporating his *Allgemeine Naturgeschichte* of 1755, in which he sets forth his hypothesis on the nature and origin of the Earth's crust, he ultimately postulated that there are substantial caves beneath the planet's surface (and in particular beneath mountainous areas), and the collapse of these caves due to various speculated phenomena such as

the combustion of gases, gives rise to corresponding disastrous events for the populace on its surface. Although further investigation has proven Kant's supposition to be false, its adherence to the methodology and to the reasoning process is still greatly admired and his conclusion is not entirely without truthful components: earthquakes and volcanic eruptions do indeed originate beneath the Earth's surface for example. This moment in philosophical history may in fact prove to be the best article of impeachment that can be laid before traditions of natural philosophy and natural science as it shows a thinker of enormous stature, who can be trusted to possess a competent, if not a masterful, command of reason and to investigate the question at hand in such a way as to have his answer represent amongst the best of all his era's responses, and yet even in these, best of all circumstances, it returns a failed conjecture by the standards of modern science. Although no one has yet offered an alternative means by which Kant may have exploited the facts and tools at his disposal to arrive at the information now widely taught to and comprehended by children across the globe, this is the question before those seeking to vindicate the tradition of reasoning that allowed those without equipment, scientific training and appropriate resourcing to arrive at original and truthful scientific conclusions. However, if no answer is forthcoming, there may be an alternative explanation in the form of growing scientific complexity, with the discovery of new information and the development of new enquiring methods or technologies forming an exponential growth pattern where progress begets progress in a way that makes one's pursuit to be a problem-solver in the style of Kant near-untenable, if not explicitly so.

This complexity of science presents a significant barrier to the individual's successful engagement with both their responsibilities to a modern free democracy, as well as with the institutions and services afforded to them by that system. Over the course of this paper, we will pay singular heed to the citizen's engagement with the criminal justice system and in particular as a juror, however it should be noted that similar arguments can be applied to our engagement with democratic process as voters, healthcare recipients and as consumers in general and in the exercising of a myriad of other rights and responsibilities, such as in our ability to make adequately informed decisions when accessing healthcare. And yet at a time when politicians can be guaranteed to be accused of arrogance for proposing that voters may not understand the nuances of the issue at hand, the false presumption that the citizen is equipped, or even inclined, to access scientific information, comprehend it and incorporate it into their decision-making can appear to be a political phenomenon (and therefore a transient one) but in fact, this belief is codified in our laws and by so being lays an unmeetable burden at the feet of all those who are subject to them. Over the course of this dissertation, we will consider the relationship between the individual and science, the inequities of knowledge that prohibit the citizen from engaging with, and being treated fairly by, the criminal justice system. Predominantly the information will be scientific in its nature but the citizen's

absence of adequate knowledge need not be confined strictly to scientific information to be harmful to them and in particular, when one considers a situation of potential inequity of information between the government and the citizen (which we will treat as a wholly distinct, and opposing parties) this scope can also encompass legal knowledge and other forms of technical information, whose lacking in the average citizen's repertoire creates within this person a discernible disadvantage.

Firstly we will begin by reflecting on the nature of the law, with a view to somewhat undermining the conventional view of the relationship between the citizen and the body of laws to which they must adhere. Although not in itself the question we are addressing, it is arguably highly consequential when considering the detrimental effects of justifiable scientific ignorance on those who must rely on a trial by jury to achieve justice that the system of law abidance is not without its pitfalls, into which the citizen may fall and suffer as a consequence, but also that these pitfalls are also grounded in the idea of justifiable ignorance. Having considered a selected sample of the body of literature on this topic, as well as some colourful examples drawn from the Anglo-American legal codes, from this we will turn our attentions to the presumption of knowledge that is increasingly made by those civic institutions with whom individuals interact, and how a lack of adequate knowledge of the criminal justice system in particular

Presumption of Knowledge

An established principle of both the American and European legal systems, the doctrine of *ignorantia legis neminem excusat* ("ignorance of the law excuses not") is amongst that rare category of legal principles to have attained in the public psyche. With the average citizen, if not aware of its origins or of its full implications, knowing that they cannot seek to rely on their ignorance of the law when found to be breach of it. Although Aristotle's phrasing is often employed in the legal system of European nations (Wieacker and Bodenheimer, 1990), iterations of this idea are found disparately scattered across a wide variety famous philosophers from an equally wide variety of traditions, but its underlying jurisprudence is perhaps best summarised in the conversations of Socrates.

Summarised in Plato's *Minos*, in one conversation Socrates and his companion seek to establish the commonality of differing societies, making reference to concepts such as the weight of objects by way of demonstration that as human sensation binds people, even from different townships, their experiences (and the perspectives refined in them as a result of those experiences) are bound to have some commonality. However, one could argue that this mode of thought is strained beyond its true

limitations when Socrates, having discussed the shared aspects of human nature concludes: “Noble things, it would seem, are everywhere considered noble.” In this statement, Socrates summarises a time when criminal provisions were more closely aligned with the public morality, however this is outdated. The list of identifiable offences has grown significantly and presents a challenge to the would-be law-abiding citizen through its complexity. However, even when operating within the confines of the shared understanding of goodness that Socrates proposes all men can be presumed to agree, it is still all too easy to demonstrate how a citizen may still find themselves subject to criminal punishment. In this sense, we may view the above quotation as the basis for a test of various actions, and as a prompt to consider whether an average citizen should be relied upon in law to know their actions are not noble, as Socrates would have it. For example, have yourself or someone you know ever kept an additional sum of money, having received it incorrectly as change? This action hardly strikes the impartial observer as noble and when confronted on the matter, it seems broadly agreeable that the offending party would share in this premise. However, when viewed in the context of the events surrounding it, for many this would at least appear to be an understandable lapse in one’s moral principles - a permissible deviation from the ideal. The law however makes no such discretion and under UK statute, this offence is identified as theft and is punishable by up to 6 months in prison and a £5000 fine. One could argue that Socrates presumes on the existence of a truly injured victim in defining an ignoble act: a party who is undoubtedly left physically, emotionally or fiscally worse by the actions of another. In the act of retaining change, this party (however minimally their disenfranchisement might be) is undoubtedly visible but what can be said for instances this where this quality is missing or much more opaque. For example, many individuals who work in so-called ‘desk jobs’ are equipped with a telephone with which to do their work. It can be assumed that at least some of that number fail to differentiate between their personal telephone calls and those conducted during the course of their work. Unlike the above instance, whether the employer can be truly considered an injured party seems much less clear in this example and yet, again, the law fails to adjust for this nuance. “Dishonestly abstracting electricity” as it is so defined in the UK criminal statute books also carries a potential maximum penalty of a £5000 fine and up to 6 months imprisonment. For this, a disparity that has emerged between morality and legality, the citizen’s ignorance of the law is arguably far more understandable and commonplace than many are aware as they go about their lives subject to these laws.

In advancing these lines of argument I will strive to focus primarily on Anglo-American states and rulings, in which there are many examples of a significant burden being placed upon the citizen to be familiar with their own domestic legislation and, in some extreme cases, there may even be a requirement for the citizen who is seeking to conduct themselves lawfully to be aware of the

restrictions placed in other jurisdictions, under punishment of being prosecuted not in those foreign territories, but in their own nation under a statute such as:

"It is unlawful for any person ... to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken, possessed, transported, or sold in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law or regulation of any State **or any foreign law.**"

(Lacey Act, Title 16 of the United States Code)

People have faced prosecutions and been convicted (citation) in the U.S. under this law, having returned from a holiday in Honduras with a specimen of the Bony Fish (a large species popular with trophy fisherman) because Honduran law forbids possession of a Bony Fish, and Honduran law on this subject is incorporated into the American statute books under the above piece of legislation. Likewise, American citizens have in the past fallen foul of the so called 'Short Lobster' laws which (subject to the particular State that a person is acting in - for example the rule is 5 inches in Maine but 3 inches in Florida) prevents the dealing in lobsters which do not comply with the relevant sizing criteria. These examples and a great many others are made exceptionally effective use of by Professor James Duane of Regent University in his contention that the extensive body of law surpasses the arguably desirable test of thoroughness or robustness to the point of being cumbersome and a hindrance. However, Duane goes further than critiquing the body of law to which the citizen must adhere and takes aim at enforcement also, drawing on his many years of experience as a criminal defence attorney to propose that the idea of justifiable ignorance can be extended to police procedure. Leaving the citizen vulnerable not just to a potentially unwitting violation of the law but also unequipped to defend their rights when under investigation for that potential offence. Although anecdotal, Duane summarises his view on many occasions throughout his commentary as being that the public ought to be privy to how they can protect their freedoms in that way that, according to Duane, the children of police officers are well counselled in (Duane, 2016).

This is significant for two reasons. Firstly, these prohibitions represent a sample of many such laws and customs of government that presumes on the citizen a degree of scientific literacy, but also as it shows the enormous disparity in power between governments and their citizens. When one begins to consider the totality of all domestic and foreign law that the citizen must have familiarity with; the ability to guide one's actions so as not to fall foul of any criminal punishment, at first a seemingly innocuous and simple task, suddenly becomes an almost insurmountable challenge. It is in part for this reason that it has been reported that the majority of both UK and US citizens break

the law in some form on a daily basis (Silverglate, 2011). Although the bony fish, or short lobsters, are somewhat quaint examples of interactions between jurisdictions and of this enormous burden of knowledge, one need not tell the story in a whimsical way. Sometimes this burden arises through extradition agreements, as in 2002 when the Scottish-born Gary McKinnon (a man diagnosed with Autism) was indicted in the US State of Virginia by a grand jury on seven counts of hacking - predominantly targeted at NASA as McKinnon sought to disprove the country's 1969 moon landing (Batty, 2009). Ultimately, McKinnon was not extradited but when considered in their fullest form, McKinnon's case exemplifies, at least in principle, the exact same justifiable ignorance in the above examples that are favoured by Duane. A Scottish citizen, performing an activity in Glasgow (as he was) may ultimately be brought before a US court meaning that had he been possessed of law abiding intentions and a desire to make his own appraisal of whether his actions might result in criminal liability, McKinnon must have understood the concept of devolution and that criminal law is so devolved (with the caveat of parliamentary sovereignty), understood the body of law to which he might be held accountable domestically and further more, which international agreements, such as extradition treaties, might leave him answerable to the justice of another nation - and of course the legality of the prospective action in that nation also. Returning from the abstract to the factual, McKinnon's psychiatric health posed real questions as to whether it was reasonable to impose the burden of criminal liability upon him, this argument concerning those in the lower tiers of mental competence or even those belonging to the lower percentiles of the healthy intelligence range is readily analogous with the examples of patient-doctor interactions, consumer choice and voting, as well as jury duty, which we will soon consider in greater length, but in fact poses the far wider question: is it fair to impose this obligation on anyone? Must the citizen expect to be governed by laws they cannot reasonably know the scope of? Although the question at hand compels us more to consider how science sways the implementation of justice, the concept of justifiable ignorance we have characterised it is at the heart of this argument also. Simply put, people cannot possibly know everything and as such the law cannot reasonably assume that they do. Before turning to the practice of jury trials and the intersection of forensic science with these concepts, it is important to first be fundamentally disturbed and logically disprove, and I hope certainly to have done so, an assumption that is made by many - that a citizen of reasonable competence who seeks to do so can easily avoid trespassing on the law and therefore of suffering the consequences. As we turn to consider the inequities of science in our courtrooms, we should remain mindful of this.

However, knowledge need not only be weaponised against the citizen in this way, exploiting the justifiable ignorance of some citizens to leave them vulnerable to their government but the distinction between the public at large and experts can also be a powerful tool for shirking government accountability. Appealing to scientific deference has been conspicuously visible during

the COVID-19 outbreak, with the phrase “led by the science” appearing very frequently in government communications (Peck, 2020), showing that such a motivation can not just be something that organically emerges from the citizen but actually, in certain circumstances, can be used to appeal to the public and encourage compliance whilst minimising accountability by suggesting the true decision-making is attributable to others. This is perhaps best summarised by recalling when the present Chancellor of the Duchy, Michael Gove MP, famously proposed that the British public “have had enough of experts”, aptly demonstrating how those with political authority may interact, not just with experts, but with the wider concept of expertise to empower or disempower the electorate as appropriate. Although largely treated by the press as a free-standing incident, this was in fact part of a long-standing campaign by the MP for Surrey Heath against the conventional, perhaps even the colloquial, understanding of expertise - a conflict that was however narrated by various political philosophy scholars. Although addressing Gove directly, who even serves as an eponymous character for the article, the conclusions put forward by the University of Warwick’s Matthew Watson now some years hence serve as compelling evidence that Mr Gove’s view, or potentially a mere political tactic, has spread prolifically beyond him. Watson contends that the dismissal of knowledge as valuable currency, perhaps by forging an association with ideas of eliteness, tyranny or the poor moral standing that comes in a somewhat rigidly class-structured society like Britain of claiming superiority over another, facilitates a ‘self-elevation to expert status’ and reduces what might otherwise be an objective fact-driven enquiry to ‘merely one opinion against another’ (Watson, 2019). Despite having the importance and validity of knowledge at its nucleus, it seems unduly charitable to refer to this clash of world views as an increasing debate as to what constitutes an expert opinion. The advantage it confers upon those whose worldview differs unjustifiably from the consensus amongst those who are most informed in any given field, or whose value systems may underpin their public-facing philosophies but cannot themselves be exposed to the open air reveals the rejection of expert authority, even in cases where it is sincerely held, to be incredibly expedient as a persuasive tool. Although, even if not a true debate, the weakening consensus as to who constitutes an expert presents substantial problems for juries who, if not equipped to weigh the facts, might otherwise have sought to weigh the credentials - rightly or wrongly - of those asserting them.

Jury of Our Peers: The Underlying Rationale

A beloved but vulnerable constitutional tradition

There are very few aspects of the British, and to a similar extent the American, constitutional model that can be relied upon to evoke such a strong level of affection than that of the right to trial by jury. Perhaps driven forward by a seemingly unrelenting stream of both real and fictitious courtroom drama, there is doubtlessly a self-justifying romanticism bound up in the idea that when the

individual citizen finds themselves in jeopardy by virtue of their being accused of a crime by the authorities, their fate is dictated not by this authority in its own right but instead rests on the outcome of an adversarial debate whereby each party seeks the consent of a representative cross-section of society in the form of twelve ordinary citizens. In this chapter we will consider firstly the origins of the this legal tradition, existing complications or threats to its status as a wholly fair and unbiased system, concluding with some remarks on the practice of forensics in an attempt to see the burden of proof requirements, amongst others, set forth below. In order to fully understand the centrality and historic role of jurors in our justice system, let us explore an increasingly disseminated idea that was once a tightly held a legal secret and the understanding of which on the part of a prospective juror can still act as a barrier to selection and serving, a concept known as ‘jury nullification’.

The trial by jury has two broadly recognised uses, core tenants of the their responsibilities, that are consistently recognised by scholars who have sought to quantify the practice: the jury is collectively, and each juror individually, is responsible for assessing both the crime itself, or more precisely the action or lack of action that the State proposes to meet the definition of ‘criminal’ but also to judge the law. This is to say that jurors are tasked with interpreting the nature, bounds and applicability of the law in question and interestingly these two responsibilities (to judge both the event and the law at hand) in combination, give rise to what is in effect, although rarely described as such by judges or lawmakers, a right. A right which potentially encapsulates the true power bestowed to jurors, albeit inadvertently, the term perverse verdicts (which a jury may delivery) is known more commonly as ‘jury nullification’; outside of the United Kingdom. A jury nullification event occurs when the jury returns a "Not Guilty" verdict (or plausibly a “Not Proven” verdict in jurisdictions such as Scotland) despite their true belief being that the defendant is in fact guilty of the crime of which they are being accused. In this sense, one could argue that the jury rules not against the individual on trial but on the fairness, or just applicability, of the law itself. However, rather than being a codified or official component of either the US or UK legal systems, jury nullification challenges the assumption that the jury must serve solely to apply the facts of the case to the existing battery of applicable law in existence by asserting that they may also examine and assess the law itself, independently deciding whether the law is just and whether they ought to give it force and effect. As a consequence, an avenue of action reveals itself to the independently-minded juror whereby they may decide that despite the doubtless guilt of the party at hand, they can find in favour of their innocence and in doing so create a state of affairs wherein the accused is deemed innocent in law and crucially with no consequences for themselves as jurors. The jury has therefore in practice nullified a law that it holds as morally troublesome, either in general or in the circumstance before them, to uphold against the defendant whose charges they are tasked with ruling upon, despite the

fact that these verdict are indistinguishable from true findings of innocence and do not in and of themselves instigate any process by which the law is changed. Although recurring instances of a jury failing to uphold a particular law might, one could imagine, seize the attention of lawmakers and give them cause to reconsider the offending statute. Resting on the two aspects on which the jury has the opportunity to rule (the facts and the applicability of law), the opportunity to exercise nullification emerges from a conflict in two principles inherent to the practice of trial by jury. Firstly, the double jeopardy principle, which states that a defendant cannot be tried twice for the same crime, and secondly that jurors cannot be punished in any form for the reaching of a supposedly 'wrong verdict'. Although modern examples have germinated from the rather draconian practice of 'mandatory minimums' in US drug laws and sentencing practice, juries historically exercised their power of nullification in the context of human chattel slavery. In particular, juries assembled in the northern states frequently refused to enforce the fugitive slave laws, finding slaves who had escaped across state lines not guilty of those charges. However, that which empowers the populace as a whole empowers all fronts of an argument and many white defendants rightly accused of crimes against black individuals, and other minorities, have seen themselves unjustly acquitted by all-white juries, often in contempt of irrefutable evidence (Conrad, 1998)

This is not only of great consequence to us as, notwithstanding being an interesting by-product of conducting trials by jury, it also establishes the true role of jurors in our justice system and places an even greater onus on the need for the tradition to be a competent means of applying justice. Juries do not only apply the law, they can also, for all practical purposes, make it. Given that, let us consider how equipped a jury may be to exercise this substantial power bestowed to them and indeed, how we may wish to equip them.

The 10 Questions: What qualifies a layman to be a layman juror?

Although arguably among the far more minor of British political scandals, in 2013 Vicky Price, the then-wife of then-Secretary of State for Energy Chris Huhne, found herself in the unenviable position of being charged under various criminal statutes, for the act of falsely confessing to a motor vehicle speeding offence that the prosecution proposed had in fact occurred whilst her husband, the Liberal Democrat MP for Eastleigh, was in control of the car. Herself being an accomplished economist (jointly heading up the UK Government Economic Service), as well as the wife of a government minister, the British press took a significant interest in the case not solely on these merits, but also as her husband was presently facing an investigation into claims of fraud, claims which had in fact come to light after an aggrieved Vicky Pryce herself leaked them to the press in an act of revenge for her husband's extramarital relations. It has often been said that when it comes to

the Great British political scandal, with the Conservatives it all comes down to sex and with Labour it all comes down to money - a true centrist, the Liberal MP provided the public with both, and the jury was assembled. This, however, meant that an adequate podium had been erected when the trial would ultimately come to exemplify a crucial defect in the current justice system and the press, to their lasting credit, reported widely on this also.

Following a 15 hour period of deliberation, the jury foreman approached the judge with a now-infamous list of 10 questions, intended to rectify what the High Court Justice described as ‘absolutely fundamental deficits in understanding’ on the subject of criminal justice and the trial process of which they are, I submit at any rate, doubtlessly the most crucial part. Some instances of these questions, it could be argued, were meritorious and may potentially have led the jury to a more nuanced understanding of the relevant statute they were being asked to apply and thereby lead them to the a more sophisticated enforcement of the law than they might have produced in the absence of the judge’s reply. Others, however, cannot be justified in this way and included: a request for help in defining the concept of ‘reasonable doubt’, whether the defendant had an obligation in law to present a defence, clarification as to whether they are able to make inferences on the basis of evidence (to which they were told they could), or failing this to simply speculate (from which they were, unsurprisingly, asked to refrain). Although the jurors failed to distinguish this concept from speculation, on which they had already sought help, question 5 took the form: “Can a juror come to a verdict based on a reason that was not presented in court and has no facts or evidence to support it either from the prosecution or defence?”

As we have explored earlier when considering jury nullification, much of the substance of any response to this enquiry would focus primarily on the word ‘can’, nevertheless the court’s response was a firm prohibition against. One could argue that this reaffirms the decision to treat, for the purposes of this small consideration, if not in fact more widely, the individual and the authority as non-overlapping in their interests and, perhaps even further, as combatting forces punctuated by momentary opportunities for harmony in the style of Hobbes’ social contract theory or the writings of US Founding Father James Madison in his Federalist Paper No. 51. Of course, they jurors could do so, including on the grounds of injustice that would amount to nullification, but it is widely believed that the citizen ought not to know that right, even to the extent of arresting those who have disseminated this information within the radius of a courthouse (Mitchell, 2017). The totality of the jurors’ questions, about which there is nothing to suggest that they represent an anomaly of the process as it exists at large is to fundamentally shake the faith of anyone who is forced to trust in the reason of their fellow citizens in determining their fate up to, in some jurisdictions, their life. Although largely neglected in the literature, the moral hazard that arises from the disconnect

between the juror and the defendant in any legal proceedings must surely live very acutely in the mind of those whose lives hang in the balance in such situations - there are after all no repercussions for a careless or disinterested juror. Perhaps, although one sincerely hopes not, the frailest point in this modest treatise, which really only seeks to persuade you of a need for change and the existence of options, is that the juror is truly minded to digest the relevant pool of knowledge that would allow them to undertake their responsibility as effectively as those in hazard would surely wish. In England Wales, this process is attributable to the Magna Carta, which established the principle as follows:

“No free man shall be captured, and or imprisoned, or disseised of his freehold, and or of his liberties, or of his free customs, or be outlawed, or exiled, or in any way destroyed, nor will we proceed against him by force or proceed against him by arms, but by the lawful judgment of his peers, or by the law of the land.

For a trivial offence, a free man shall be fined only in proportion to the degree of his offence, and for a serious offence correspondingly, but not so heavily as to deprive him of his livelihood. In the same way, a merchant shall be spared his merchandise, and a husbandman the implements of his husbandry, if they fall upon the mercy of a royal court. None of these fines shall be imposed except by the assessment on oath of reputable men of the neighbourhood.”

In American law the right to trial by jury arises from Article III of the US constitution and applies to any criminal charge for which the penalty exceeds a prison term of 6 months. A distinctive feature of the U.S. system is that guilty verdicts must, with few exceptions, be returned unanimously. Despite the obvious shortcomings that layman inclusion injects into the justice process, and the self-revealing argument in opposition to their participation that arise as a consequence, nevertheless the underlying philosophy of justice contains various compelling arguments in support of this form of civic participation. The very principle of a criminal justice system is banded together with widely treasured ideas of self-consciousness and self-organisation in civil society and therefore, one might argue, is fundamentally distinguishable (if not simply superior) from an austere exercising of authority by an industry and social class of professional judges. Confining members of the wider society to be foreign and unknown to the law, strangers to the mechanisms and language of justice is arguably a significant detractor of any proposed judicial reform that would seek to favour expertise in assigning power over procedures or rulings.

Amongst the most terse yet compelling summary of this in the subject's historical cannon is found in the German idealist philosopher Hegel's renowned Philosophy of Right:

“Owing to the character of the entire body of the laws, knowledge both of what is right and also of the course of legal proceedings may become, together with the capacity to prosecute an action at law, the property of a class which makes itself an exclusive clique by the use of a terminology like a foreign tongue to those whose rights are at issue. If this happens, the members of civil society [...] are kept strangers to the law, not only to those parts of it affecting their most personal and intimate affairs, but also to its substantive and rational basis, the right itself, and the result is that they become the wards, or even in a sense the bondsmen, of the legal profession”.

A highly influential figure in subjects as diverse as Kantian logic and religion, to matters of the state, in Philosophy of Right G. W. F. Hegel observes that professional courts, although a term used as a barb by many opposed to such institutions I at any rate find the word lacking in synonyms that do not in themselves undermine the intended insult - with ‘proficient’ or ‘experienced’ courts being most readily called to mind, where juries are absent nevertheless adjudicate perfectly well, as if unhindered by their training and professional interest in the law.

This notwithstanding, Hegel does identify an important and alarming potential pitfall in this practice of justice as he critiques it. Specifically, Hegel proposes that there is a risk of access to and understanding of justice stratifying across the social classes wherein *‘knowledge of right and of the course of court proceedings, as well as the ability to pursue one’s rights, may become the property of a class which makes itself exclusive even by the terminology it uses, in as much as this terminology is a foreign language to those whose rights are at stake.’* Building on this line of argument, Hegel scholars such as Durham Professor Law and Government such as Thom Brooks have proposed that this in itself constitutes a wholly persuasive case in itself for the upholding of our current system of trial by jury.

The more consequential layman participants are in the process of reaching a verdict, the more probable it is for that process to be a transparent and publicly accountable one. Brooks suggests that *‘if only nonprofessionals had a say in the verdict, their influence would be central to the administration of justice. Even if nonprofessional juries adjudicated less well, they would be preferable on grounds that they would best safeguard the transparency of judicial decision-making.’* (Brooks, 2004, p.204). Put simply, Professor Brooks dismisses the view that effective criminal justice reform depends primarily on increasing the professionalisation of the process, as well as its simplicity and therefore pace of progression. Instead Brooks argues that transparency is to be prized above all and that if a means of enforcing the law cannot also provoke discourse on procedural and moral aspects of the law, ultimately laws and rulings upon them will simply not be accepted as time progresses.

Proposed Solutions

The most prominent examples

With regards to criminal justice reform there are a significant number of proposed alternative systems and procedural augmentations that exist in the literature. In many cases condemned to the obscurity of philosophy or jurisprudence-focussed academic journals, many of these otherwise collegiate ideas are beginning to permeate outwards from the decades-long debate, having been catalysed by a growing number of prominent media personalities drawing attention to procedural irregularities in criminal trials, as well as a significant movement within the barrister and trial lawyer community to begin advocating for improved methods via their published works discussing their experiences in the pursuit of justice. Amongst the finest examples of these books include that authored by James Duane, of which we have already treated, as well as *Illusion of Justice* by Jerome Buting, a U.S. trial attorney, who has inherited a certain degree of celebrity through his advocacy. Trial reform can for the most part be clumsily divided into three broad categories: either you change the judge (or the role that the judge plays), you change the jury (or the role that the jury plays); or you change both. However, the arguments contained within these wide groupings and their respective merits are very numerous and high-detailed. As well as in many cases being passionately argued by those who offer them up for consideration in the existing body of literature and as such over the course of this brief evaluation I will confine our scope to three main propositions, including one that at present has gone largely overlooked and one personally alluring, novel approach that a highly-motivated government count undertake. However, first we will begin by considering one of the most widely-discussed courses of action that is available to us; that of scientifically trained judges.

Scientifically trained judges

Since the turn of the millennium a slow-moving but doubtlessly growing interest in the matter of scientifically trained judges has presented itself and although largely untouched by those Anglo-American authorities responsible for shaping the respective judicial systems, scholars of jurisprudence and philosophers of science having increasingly sought to address (and with very few exceptions to advance) the cause as an extension of the criminal justice reform movement. The position is founded on the readily comprehensible principle that is also at the core of this thesis; namely that ignorance of the pre-requisite knowledge required to fully understand the facts, and of the testimony made to the court, represents an insurmountable defect in the judicial process and a barrier to justice. Summarised aptly by Scott Brewer, a substantial advocate for this reform and a faculty member of the Harvard University Law School in the following manner:

“The only solution (actually, it is a family of solutions) I see requires that one and the same legal decision maker wear two hats, the hat of epistemic competence and the hat of practical legitimacy. That is, whether it is a scientifically trained judge[...] the same person who has legal authority must also have epistemic competence.”

(Brewer, 1998)

The positives of such a reform, should it prove effective, need no further expounding but the detractions are, if one examines the existing literature on the subject, arguably very neglected. A particularly interesting deficit in this body of work is a shortage of evidence that scientifically trained judges do in fact make better appraisals of evidence validity. In point of fact, where this stance is not offered as a pre-conceded assumption (as it often is) the majority of other citations are confined to two particular publications: the first being an article published in the year 2000, which asked scientifically trained judges and their correspondingly untrained colleagues to evaluate a variety of different pieces of forensic evidence and indicate whether they would be prepared to allow these conclusions to be aired in their own courts, which concluded that adequately knowledgeable judges often serve as effective gatekeepers against pseudo-scientific testimony (Kovera and McAuliff, 2000). The latter is a 2017 study of widely discredited forensic techniques including bite mark analysis, arson evidence and bullet lead comparisons, which served as a review article, summarising a wide range of lesser-known publications that had called these methodologies into question and details a number of the subsequent exonerations of those convicted at trials where the fruits of these approaches were used to prosecute the defendant. This study, authored by Paul Giannelli (2017), a professor emeritus at Case Western University Law School and member of former President Barack Obama’s National Commission on Forensic Science (a review subsequently disbanded by the successor to this office), leaves the impression of being charitable and understanding to members of the judiciary who, through the nature of their role, are left with no option but to draw conclusions as to validity but declines, one could argue, the opportunity to be caustic towards those in power by examining the extent to which they favour the assertions of the state when drawing these conclusions. The advantage of creating a new field is that one gets to enjoy the maintenance of a relatively minimal bibliography, however in the absence of evidence it seems self-evident that as a matter of public policy, one should also strictly confine and enthusiastically qualify any proposals for radical reform for fear of resulting well-intentioned harm. As we discussed earlier, the state’s role as author of most forensic testing as well as their physical custody of any artefacts on which it is performed yields for them a great deal of power at trial and is, amongst many other aspects of resourcing, a further imbalance of power between the citizen and the state in the arena of law. However, this in itself should not necessarily preclude the court from deciding independently the question of which pieces of evidence meet their requisite standard for

inclusion at trial - often assisted, we ought not to overlook, by expert witnesses (typically university academics or professional witnesses) who are on occasion sourced by defendants to call into question the merit of any evidence a judge is considering permitting to enter a trial. Giannelli offers little on the question of accountability and the assigning of blame, perhaps revealing himself to be as great a diplomat as he is a reformer, but instead argues that it was foolish to ever entrust the power of distinguishing reputable science from quackery (or at worse deliberate deceit) to legal professionals when these fields are piloted by two utterly different epistemologies. I would argue however that this failing, or at least the willingness to proceed with a conspicuously broken system, is not so readily excusable. Often where change has occurred it is the result of charitable advocacy by civil rights groups who must intervene to do the job of courts for them; namely to right the ship of the state and protect the individual citizen from its blunders. With one prominent example being a 2015 statement by the United States' Federal Bureau of Investigation acknowledging, after years of independently funded legal challenges to its validity, that its team of hair and fibre analysts had significantly embellished the certainty of their claims in almost every trial at which they had testified (FBI, 2015). Thus, even where reforms can be identified, it could be said that the judiciary acts more often as a by-stander and the courts' poor competence to audit scientific research remains extant.

The seeming imperviousness of the judicial profession from being adequately counselled on matters of science notwithstanding, scientifically trained judges may nevertheless not represent the solution. Arguments in favour often neglect the sheer fact, and in doing are almost proscribed from any possible validity, that science is in fact not a homogenous texture that can be branded 'science' and share that distinguished label with judges who have sought accreditation in this way. Instead the word contains a whole pantheon of categories and sub-genres, many of which are as far apart from their fellow scientific disciplines (and as rich in controversy over their accepted cannon of facts) as any two categories of knowledge can possibly be. This line of argument is made more persuasive still when one considers the increasing tendency to specialise in our higher education system. Many scholars, journalists and politicians in recent years have critiqued the present system, particularly in Britain, that encourages students to have narrowed the entirety of academia to a paltry selection, in the case of the present English A-Level system the convention is 3, by the ages of 16-18 as preparation to enter a higher education system that is increasingly attentive to its role as vocational preparation and as such, is also inclined to promote specialisation, arguably at the cost of creating well-rounded graduates. As such, the case could be made that rather than addressing the concerns raised here with regards to legal professionals and jurors being unequipped with the academic breadth to confidently confront the array of information that they can expect to encounter in their role, present education policies heighten the phenomenon.

Although the architects of our legal systems have paid great heed to the importance of legal competence and borne out of this appreciation has emerged a judicial hierarchy, with judges of increasing seniority and skill placed strategically in a tertiary structure up which they may escalate by virtue of their merits, the vast array of other competences that, as Brewer states must also be possessed by he who holds the power of decision-making, go overwhelmingly uncultivated in our courts. Those in power who make this oversight willingly must either be insufficiently motivated by the concept of informed rulings and the robust form of justice that obligates these rulings to be deliverable; or alternatively, save from being ignorant on the topic have in fact contemplated the advice of scholars in this area and found their proposed reforms (although doubtlessly effective in theory) to be practically undeliverable. The vast array of different technical disciplines, spread across biological, chemical and physical forensic specialities, mathematical and computational areas of expertise and a vast array of other categories of specialist knowledge, as well as the significant overlap or concurrent presence of this information at trial, makes the orderly introduction of scientifically trained judges a fundamentally undeliverable reform. Disregarding these practical considerations momentarily leaves another seismic obstacle to this widely proposed rehabilitation unaddressed. Those who would push for such a system, who are in many cases doubtlessly serious and pensive individuals, might reasonably retort that although a system of uniform scientific accreditation (or recognition of a modest sub-division of specialities) may not be a perfect system one must always be wary of making perfect the enemy of the good: wouldn't such changes represent a positive step forward? No - I would suggest not. The currently existing hierarchy of court of first instances, appellate and the supreme benches is, as discussed earlier, predicated on a system of increasing legal seniority, demonstrated academic understanding of law and a coveted experience of ruling from the benches of lower courts. If in reprioritising that which we as a society value in our judiciary we seek to chiefly match the recognised technical expertise of Brewer's authority figure with the given needs of a particular matter brought before the court, if not their legal seniority then on what better underlying authority do any higher courts the matter may ultimately be referred to claim an increased competence to augment a ruling or uphold a lower court's verdict? The practise of law necessitates that judges be generalists and although the legal system is a detached institution with its own traditions, character, skillsets and methods, its very purpose is to engage with the world that envelopes it and as such demands a broad degree of knowledge: with judges often acting as amateur economists, philosophers or psychologists. In by-gone years it has been argued that the most significant expertise mandated of the judiciary is that of history (Faigman, 2006), with the doctrine of original intent often leaving judges no recourse but to labour over vast quantities of obscure or orphaned historical documents, regardless of any prior training. Those who would object to placing this burden of understanding at the feet of judges must

surely possess the answer to the following question: Why ought members of the judiciary, a profession well-versed in the noble tradition of ‘have-a-go’ trespassing into neighbouring academic disciplines be permitted to stammer, and to shirk their duties, when confronted with scientific or mathematical questions in the course of their profession? Not least to the point of necessitating their widespread replacement with those more literate in this area? A permissible glazing over of the eyes in the face of the nuances of scientific claims might have been commonplace in the past but judges no longer have this luxury and instead must confront the reality - and understand it to be in the same tradition which calls on them as apprentice historians amongst many other roles - that their failure to become scientifically literate in an increasingly scientific, technical world is increasingly commensurate with a terminal, disqualifying defect to serving as professional judges. Having addressed the nature of this first proposition, let us now consider what adjustments may be made with regards to the juries themselves that might yield solutions to this dilemma.

Jury reformation and the problem of background knowledge

The subject of jury composition is a wearily debated, and in some employment settings a highly prized, subset of the legal profession. Known as *Voir Dire*, the process by which lawyers ‘rule in’ otherwise reject individual jurors (and also sometimes used to describe the vetting process of expert witnesses prior to presenting their testimony), this practice has a variety of interesting incentives built-in to itself, priorities which would strike many laymen as counter-intuitive. For example, it is common for legal knowledge (or any relevant expert knowledge in general) to prejudice any potential juror and lead to their not being selected. In 2004, when a senior barrister was in fact placed on a jury at the famous London Old Bailey, a judge ultimately dismissed him from his jury service, stating that he believed the lawyer’s expertise may obstruct the justice process (Verkaik, 2004). Given this peculiar state of affairs, before we can offer any meaningful answer as to whether augmenting the skillset of a juror might offer a tenable solution to the problem of miscomprehension, we must first consider what is required of a juror under our current iteration of the practise. A societal institution whose parentage, although of some academic dispute, can be traced back as early as ancient Greece (Tumanov et al., 2016), the precise contours of this mould into which could be poured the so-called ‘ideal juror’ is in fact still very much an ongoing scholarly debate.

That the decision be based purely on the evidence formally displayed to the jury at trial is a fundamental convention of the Anglo-American common law and prohibits a juror from grounding their decision in information obtained outside beyond this sole means. In many cases, substantial measures such as sequestration are taken in order to limit this risk and as such, one could reasonably

intuit that the optimal candidate for jury service brings with them no relevant information pertaining to the case, allowing their thoughts on the matter to be carved entirely by the arguments of the prosecution and defence, as marshalled by the supervising judge. However, this raises wider questions with regards to the relationship between the citizen and the state. It could be said that many jurors would find it not only demeaning to be told that they have been selected by virtue of their 'blankness' and unknowing status but furthermore it is, at least in my own view, highly undesirable for the perspective of a healthy citizen-state relationship, for those with authority to demean the citizen on this, an institutional scale. Many an opponent of capital punishment, particularly in the case of the abolition of the guillotine in France, coming much too late as it did in 1981, the incumbent Minister of Justice Robert Badinter argued against the death penalty on the grounds that it was the manifestation of a totalitarian relationship between the individual and their government, with many scholar since proposing that this reasoning represents an effective couching of this argument (Hood and Hoyle, 2009). Extending this philosophy to the institution of jury trials, it could be argued that it is fundamentally authoritarian to demean the citizen by the construction of a system wherein they, at their most moment vulnerable moment before the state (having been charged with a crime), must rely on their least-equipped and most uninformed peers in the pursuit of justice. An assertion that not only dismisses and devalues the peril of the accused but demeans, systemically, the community of citizens on whose collective wisdom the sovereignty of government, the right to govern those citizens (a widely recognised compromise in post-Enlightenment philosophy) and by extension the moral authority of the judiciary is intended to rest. As such, the process of selecting for ignorance when devising a jury is not only undesirable but is, in my submission, a bastardisation of the ideal relationship between the citizen and their authorities. Further to these objections, many academics have argued that such a standard (that of a *tabula rasa* juror) is not only unfeasible, it is also undesirable and that a more holistic view of the 'blank slate' trial and juror is required (Richards, 2002).

However the epistemology of general knowledge is a blunt instrument and fails to discriminate between jurors and the wider populace, who maintain a set of beliefs (some true and others not so) based on their recollections. They depend on this scaffold of personal background to devise their general knowledge about the world around them, and in the course of our justice system we permit the respective parties to assume that the jurors have some existing body of knowledge - not least because to do otherwise would reduce the average trial to a prolonged, potentially endless monologue of explanatory tedium. This knowledge is, I would argue, quite readily discernible from the prohibited category discussed above in that is neither sought out from an external source with a view to furthering the juror's comprehension of a trial to which they have been (or expect to be) assigned, and is instead honestly obtained before trial by the juror in the course of their life, and in

the pursuit of their passions; without which they would fail to meet the standard of a representative citizen, a peer of the accused, who shares with all of those around him a constant exposure to sensory input with which he constructs his background knowledge. Although no laws explicitly govern its use, this form of knowledge is nevertheless recognised in this area's body of philosophical and legal writings (Pardo, 2005). Perhaps the most notable contribution had been made by Professor John Mansfield, a now deceased member of the Harvard Law faculty, who described the system in practice as one in which jurors are entitled to take "notice" of their own personal familiarities with the facts in a similar manner to which a judge pays heed of any arising facts that cannot be reasonably quarrelled over. Writing in 'Jury Notice', Mansfield summarily proposes a test for what constitutes the permissible use of background knowledge by a juror:

"I have suggested there are four considerations relevant to the standard for jury notice - cost, fair notice, reliability, and political entitlement - and that all of these considerations perhaps can be satisfied by a requirement that a substantial number of people in the community have the information or hold the belief in question [...] This effort may reveal conflicts with what has been said, in connection with jury notice, about reliability and political entitlement. Also, further evidence of disagreement over the purposes of jury trial may be revealed. "

(Mansfield, 1985)

This article is one of a very small number, at least to my own personal awareness, to address the question of what kinds of information jurors may legitimately pull downwards from their background knowledge and subsequently use to inform their decision-making. Although it should be noted that despite its detailed arguments, no court has sought to implement Mansfield's criteria with critics deriding it as unworkable for a variety of reasons, the most conspicuous for our own purposes being that no juror will be without a belief or piece of knowledge that is unrepresentative of the wider public. A cynic might condemn the profession in suggesting that just as judges have been shown to sometimes shirk the growing demands on them to reliably police the science displayed in their court, likewise recklessly dismissing the fact that the reproducibility of the criteria with which jurors are selected and, of far greater import, of the reasoning process with which they should adhere is in fact a key foundation on which their success or failure in their entrusted duty depends. But where one might find a cynic in the confines of our justice system, in particular our criminal justice system, is a challenge as uncomplicated as it is distinct from the one we have at hand.

However, if seeking to base our reform on Mansfield's proposed standard for permissible background knowledge leads us to the interesting conclusion that a juror who is equipped with

specific information that is anticipated to be highly useful in the case may still be deemed unsuitable by virtue of the knowledge where it is not held by a substantial number of people in society. One could argue that Mansfield's test is more readily applicable beliefs, which in his treatise the academic treats of similarly to knowledge, often referring to both simultaneously, including when laying out the crucial elements of his test. The primary reason that one might take that view that Mansfield's test, in particular that a belief be held by a significant portion of the populace, is potentially more feasible for implementation than when extended to facts is that many may view a belief in this context to be tantamount to a bias - not a piece of information in which a person has a confidence but rather a perspective, a viewpoint, from which a person may see the facts presented and ultimately may be changed by exposure to those facts. Information however, particularly information that is held by the juror as a consequence of robust and reliable education in that field, is not shifted so readily and as such, one could argue, would require persuasive and informed arguments made in the courtroom to dislodge in the mind of the juror and change. In essence, due to the variety of unreliable means by which a belief, as opposed to information and the fruits of training, may arrive in the mind of the juror, it is unreasonable to expect a defendant's innocence to be established in a way that accounts for this belief where that belief is not widely held and therefore may act as a free radical in a system which seeks to facilitate the arrival at a conclusion, by jurors, in a reasoned and understandable manner. However, the lack of either requirement or opportunity on the part of jurors in the Anglo-American justice system to articulate their rationale for arriving at a particular conclusions means that, in effect, although the influence of background knowledge and held beliefs has been persuasively framed by Mansfield and other scholars as a key pre-requisite in the orchestration of a fair trial, no real checks or means of establishing whether these factors had a contributory effect on the eventual outcome of a given trial exist. Introducing such a requirement may ultimately, if considered properly in the context of the relevant public policy literature, prove to be a valuable means of escalating transparency in the jury process with minimal unintended negative consequences provided, for example, juror anonymity was retained in the collating of such information.

It should be noted that although this question is paramount to the underlying logic of jury trials, it is not only underserved in the academic literature but courts have also, with very few exceptions (Kirgis, 2002) declined the opportunity to intervene in cases where plaintiffs have sought to challenge a verdict via appeal on the basis that a juror's background knowledge had prejudicial consequences for their own decision-making process or that of another. The foremost reason that jury pools are mandated to be at least somewhat representative of the communities from which they are drawn is to allow the the collective views, and as we discussed earlier when considering prominent examples of jury nullification, the morality and ideals of our communities, to shape the

verdicts of the courts who oversee them. In this system of jury notice, an explicit rejection of, and appreciable resistance to, the Orwellian idea of a class of justice administrators, advantaged by the monopolised power to devise and enforce the law to a class who have justice delivered to them as a wholly external force, the power to exclude citizens from jury service on the grounds of what they know and how they might use that knowledge, despite the impression it leaves on some as being obscure and academic, is in fact commensurate with having overriding power over the machinery of jury notice altogether. It would, one might reasonably hope, eventually give rise to an appetite to determine precisely what we are enacting when a jury is convened and its members marshalled in this way - and presumably a corresponding increase in the number of judges inclined to hear appeals filed on the ground of undesirable juror knowledge. As a consequence, as frivolous as it may seem to say so, it is impossible to even begin dissecting how and in what circumstances the expertise of a jury might be artificially inflated to better match the needs of an intellectually demanding case when at present, the inclination of the courts have been to intervene on the side of limiting juror expertise against a backdrop of limited academic inquiry as to why and when this arbitration is necessary, or any widely known consensus as to what ends the process serves. Those who confront this topic must in turn accept the need to challenge the totems and taboos of an institution as long-standing as the Anglo-American legal system. As such it is entirely comprehensible that much of the debate is characterised by reverence for it, however a threat to positive change emerges when those tasked with driving it allow that veneration (however appropriate it may or may not be) to translate into a leniency in their expectations of those entrusted, and well compensated, to oversee that historic system.

Jury and Judicial Priming

When confronted with immediate problems such as the failures of justice described above, it is understandable that many people are inclined to revert to what they know best when crafting solutions. This way of thinking is perhaps born out of a sense of urgency, as although each new case that appears to have been contaminated by a lack of proper scientific understanding on behalf of its adjudicators only grows the body of evidence that the shortcomings are systemic and therefore demand foundational reforms of the justice system, so too does each individual who appears to have suffered in this way add an acute sense of urgency whose emotional appeal although doubtlessly a valuable fuel for activism, risks conflating the urgency of their unjust predicament with the value of speedy reforms. In this argument, one must be extremely cautious of conflating the putting right of those cases adversely effected by this phenomenon, and the salvaging of those individuals incarcerated as a consequence, with the reformation of our courtrooms such that these miscarriages of justice are not repeated. If such changes are to serve their purpose and therefore endure, this is a

task which one could argue rewards thoroughness over speed. An argument further bolstered in the mind of anyone who accepts that this prolonged ‘tinkering’ with justicial procedures is liable to undermine public confidence in the institution, rather than fulfil the objective of government and the judiciary of maintaining and increasing this trust.

However, any reasonable participant in this debate can agree that those with the means to do so ought to equip jurors in some way to best fulfil their duties. Attempts have existed, and in some cases still do, for the judiciary to fulfil this obligation at, quite literally, the final available opportunity. The usage of so-called jury primers, distributed documents intended to educate the jury predominantly in the area of trial procedure, has proven extremely controversial in the past and their usage remains a matter of some debate; primarily due to their potential to prejudice juries in favour, or in opposition to, the defending party if not worded with extreme care. For example, when the practice was implemented by members of the judiciary in the U.S. city of Chicago, the Illinois Supreme Court invalidated the use of the primer pamphlet because no precedent for educating jurors prior to their duties existed, in addition to the Court’s view that its contents were prejudicial to the defendant (Johnson, 1948). In comparing jurisdictions, although admittedly with a vast window of time having elapsed between the two instances, one is inclined to recall the ‘10 questions’ when considering that in their ruling the Illinois Supreme Court branded terms such as ‘alibi’ and ‘reasonable doubt’ as too controversial for inclusion in such a document. Had these questions been pre-empted by a ‘crash course’ civics lesson, in the form of a jury primer, there is certainly an conceivable outcome in which these questions need not be posed and the jury performs its function of delivering a verdict in that trial. This, I submit, constitutes a further argument in favour of my final considered reform, that of public education, to which we will later turn. However, the question remains that if jurors require this eleventh hour counselling in order to negate the need for questions that, in the assessment of the judge in question exposes an inability on the part of the jury to do their duty, why then cannot the judge simply respond the questions and in doing so provide the requisite counselling? It should be noted that the UK system of jury duty does entail a minor, modest introduction to the role, however this instruction (in the form of a video) focusses on the procedural details that one can expect having been selected to serve.

Scholars who are critical of the use of jury primers in certain localities (including in the UK, where an instructional video, as priorly stated, outlining the role of the juror and other parties in court is shown and complemented by case-specific instruction afterwards) propose that it is inappropriate to educate jurors within the confines of the court in this generic fashion as to do so risks potential misunderstanding or, as in the Illinois case of *People v Schoos* discussed above, prejudicing jurors against one particular party in our adversarial system. Although our own line of enquiry here is

rather poorly served by the extremely sparse literature that exists on the prospect of expanding the scope of these briefings beyond the civics of serving as a juror to include some form of scientific briefing, these arguments are explored by proxy by those who advocate for, or critique, the practice of creating scientific primers for distribution not to jurors, but to judges. This debate, although not materially dissimilar to that of the pre-trial scientific training of jurors, is arguably more advanced than its companion topic due to the abrupt introduction of these documents in UK courts in 2017, having been produced by the Royal Society. This introduction was not foreshadowed by the kind of robust public debate, which for the purposes of public scrutiny and comprehension, I would propose to be desirable before the introduction of a substantial reform of the equivalent scale to the founding of the UK Supreme Court in 2009. Whose member Supreme Court Justice Lord Anthony Hughes said of the primers:

"I am confident that the primers will enable a judge in advance of the hearing to read up on the science [...] to ensure that evidence which is not helpful is excluded and evidence which is helpful is presented in a way in which a jury will understand and which will advance the understanding of the issues in the case generally."

(Hughes, XXXX)

<https://www.bbc.co.uk/news/science-environment-42057009>

Although an undoubtedly comforting resource to have for any judge (or equally, any juror) who is uneasy with their existing knowledge base but is forced to make rulings on the subject matters of these primer documents, one must not conflate the peace of mind of a judge or juror when exercising their duties with the optimal mode of justice. A system which maximises the former is only of any utility to the society which it serves if indeed it also maximises the fairness, transparency and reliability of evidence used in court. The Forensic Institute (TFI), an international network of academic expertise available for consult as well as of tangible forensic services, is amongst the small number of voices seeking to put forward the contrary argument - insisting that many topics (the study of statistics in particular) are simply too complex to be meaningfully distilled down in this way. Although their own interests, being as it were an 'active participant' in the forensic industry should not be entirely disregarded, in their response to the Royal Society's announcement TFI rightly prompts the question: when a trained scientist offers testimony that in some way conflicts with a judge's understanding of a primer, when and in what way will it be beneficial for the judge to intervene? (The Forensic Institute, 2017). Despite the fact that interventions are not within the scope of a juror's role, and as such the practice of 'priming' a juror in a similar manner would not risk the interruption of any conflicting expert testimony, problems from this practice would still be sure to arise. Might a juror for example not reasonably ask a judge

to arbitrate the conflict between the ‘official’ documents and the expert witness? And if so then on what authority would that judge credibly do so? Furthermore, although juries are regularly reminded that a core tenant of adversarial justice systems is that they must assess the case purely on the evidence presented to them from each side, this tectonic shift in procedure can now see judges study in private, information that may not be offered as evidence in the case. Creating an understandable motivation to do likewise in the mind of any juror who has noted a conflict between their pre-trial priming and the evidence later presented. Although in their presentation at the Royal Society of Edinburgh it was expressly stated that such instructional documents, introduced in the UK we must remember solely for the benefit of judges, were a form of academic tutoring and not to be displayed before the court as citable authorities, within a matter of weeks examples had emerged of prosecutions doing precisely that in offering in their arguments before the court. However, if we are to disregard the harm caused by the presence of a canonical interpretation of the science, intended for private, professional consumption but now occasionally within the view of jurors, the underlying justification for these documents still does not steady itself and remain upright. In fact, the mere existence alone of an ‘official’ or in some way authoritative account of the science or technical subjects, sanctioned by the government or the court, could in itself prove severely problematic. Studies of verbal testimony have shown that the citizen’s deference to authority is carried with them into the role of juror and often manifests as bias in favour of prosecution witnesses and of police officers in particular, prompting specific instructions not do so in some jurisdictions (Johnson, 2017). Interestingly, a division in this phenomenon has been observed along racial lines and is given particularly compelling form in an article by Elissa Krauss and Martha Schulman (1997) in which, despite it being a somewhat dated piece of work will strike a reader minded of current affairs as in no way antiquated in the topic that it addresses: racial bias in the criminal justice system and in the jury trial specifically. Krauss and Schulman draw upon their experience as statistical compilers of juror statistics and particular, observe that over the course of their then-twenty years of assessing juror attitudes, a consistently high (15-45%) of juror-eligible participants presume guilt on the part of those brought to stand trial and an even grater number place a burden of proof with regards to innocence on the defendant. Each of which bolster further the need for our final considered public policy redress, public education, to which we will soon turn. However, although the differing outcomes in racially diverse trials that have been observed historically have continued well into the twenty-first century, with the standard of evidence required to convict black and white defendants being comparable in cases where black participants are included in the jury pool and a plethora of insipid and unpalatable biases revealing themselves along racial lines that can broadly be described as the readily-condemnation of the other (Anwar, Bayer and Hjalmarsson, 2012). However, when viewed through Krauss and Schulman’s philosophy as advanced in their article, one finds that at least a portion of this difference is attributable to a

reasonable and experience-derived mistrust for authority on the part of black citizen when conscripted to a jury. The authors assert that any mistrust of a black juror by legal professionals, specifically by overestimating their inclination towards nullification of the law (a concept of which we have already treated), is in fact simply a racial prejudice that insults black jurors for exerting the scrutiny of evidence and vigilance with regards to protecting innocent defendants that is the heart of Anglo-American jurisprudence and is in fact a reflection of a self-congratulation on the part of law enforcement and prosecutions, who are, in the authors' view, presuming upon their own abilities to the point of believing that the jury is convened solely to convict. A difficult, and presently-heightened concept that leaves one hoping the severe tone with which it must be handled will one day leave these words feeling anarchic and distant to a reader, it is clearly when we consider the phenomenon on race in the context of jury trials that a juror's relationship with authority can prove greatly consequential. Manifesting either as an increased sense of autonomy as a juror and willingness to reject the authoritative account (that of the prosecution) or indeed potentially rising to the level of a direct conflict and enthusiastic dismissal of the authoritative account, not borne out of a sense of allegiance to the principles of a fair trial but out of a sense of mistrust for the legal process. It should be noted that the current legal protections for non-white jurors, which can be broadly described as prohibitions against racial discrimination in the juror selection process, in reality represent no true safeguard against this phenomenon. This shortcoming is best described by one of its keen exploiters, former Philadelphia Assistant District Attorney Jack McMahon who articulates a perverted form of the above theory in a historic training video by characterising black female jurors as "downtrodden in two areas so they somehow want to take it out on somebody discourages the selection" and to offer a very attainable way of attaining an all-white jury during the selection process by encouraging colleagues to "ask more questions so it gives you more ammunition to make an articulable reason as to why you're striking them not for race" (The New York Times, 1997). As a consequence of such easy workarounds, the present system of jury trials facilitates a process in which subsets of the population who exhibit independent mindedness and skepticism, precisely the qualities that one aspires to find in a juror confronted with technical, scientific testimony, are readily excluded by bad-faith actors keen to purge the process of these virtues, if not of the black or ethnic perspective entirely.

Although few philosophical theorists after Thomas Hobbes and Hume have proposed that there exists a generic and universal duty to adhere to the law on the grounds that the political authority from which it is derived is generally legitimate (Hobbes, 1668; Hume, 1965), if the accounts of scholars documenting the independent-mindedness of jurors are to be believed, many juries still seemingly behave in adherence with Hobbes' and Humes' theses. However, this is not to say that this behaviour is not without any potential justification. The philosophy of authority is a large and

complex issue, far too much so to be meaningful summarised within the confines of this modest commentary, however it might suffice to say that many jurors, rather than being inclined to favour the facts provided in a priming document due to their affinity for authority figures but instead because of their rejection of autonomy as a fundamental duty. This, the instrumentalist view of authority, may see a juror argue that it is frequently immoral to independently consider the facts and act autonomously when by doing so one might in fact actually perform more poorly and yield a worse result as a consequence of of this critical reflection when compared to the authority figure. This intrinsic conflict between the moral duty to act on one's own assessment of right and wrong and the duty of conforming to those with democratically-derived societal authority is set out Robert Paul Wolff (1970) and although this abdication of authority by a juror runs contrary to the core principles of justice, and may even appear somewhat sinister it is, if jury priming were implemented very defensibly the best course of action in the mind of anyone who accepts that the average juror is ill-equipped to meaningfully rebut the pamphlet provided to them. It is on this basis that I would assert that the practice of jury priming would create an authoritative account of the facts in the mind of many jurors and in doing so would undermine the basis of adversarial justice, which demands a level playing field between all accounts from which to derive an equal opportunity to arrange those facts so as to persuade the jury of the legitimacy of their respective claims. This serves as a further iteration of the critiques regarding the conception of expertise in politics, advanced by Watson (2019), and as a consequence leaves the public vulnerable to those with power through the discrediting and devaluing of expert instruction.

In spite of this I do not see any logical need to reject the idea of juror education. It is I think one of few universally agreed upon tenants, on which all right-minded contributors to this field would surely agree, that competent and suitably informed judges and jurors are to the benefit of our respective justice systems. This view need not necessarily conflict either with theorists such as Kirgis (2002) and Michael B. Mushlin, a professor at NYU's Pace University, who wrote an extensive thesis (2007) on the manifestation of potentially harmful background knowledge in the case of jurors in particular professions, who assert that jurors who bring expertise in a particular discipline are therefore liable to be invested in a particular outcome for the simple reason that in order to educate jurors in fashion that improves their ability to fulfil this role one does not need to necessarily educate them in the enormous range of complex scientific matters that they may encounter as to do so would be both untenable and indeed may risk prejudicing their views. It is for this reason that a systemic societal reform is suitable to address this shortcoming by educating jurors not in their capacity as jurors, post-selection, but in fact as citizens when progressing through the education system. Although many of the problems discussed over the course of this paper have emerged, as is argued, by a lack of adequate specialist knowledge amongst those with power in the

justice system, it could be likewise be asserted that many of the problems (particularly those manifested through the use of juries) in fact come from the subtle distinction that exists between a lack of knowledge and a lack of understanding.

Educational Reform

A great many societal issues have been addressed through reformations to the school educational curriculum. Indeed, when one traces the historic motivation for kindergarten (or ‘nursery school’ as it is known in the United Kingdom), the stated aim in its earliest examples, such as in early Prussia, was to induce a sense of national unity by offering instruction in a national language at an appropriate stage in the child’s development. Amongst the most famous, and successful, contemporary examples is the introduction of mandatory sexual health education in both developed and developing countries in order to counteract increasing levels of unwanted pregnancy and transmission of sexual transmitted infections. One could argue that utilising the public education system in this way many societies have implicitly acknowledged both the effectiveness of, and a willingness to, reform the wider society through the modifying of the public education curriculum in a way that could reasonably be extended to the problem that is central to our discussion. It is of course futile on the surface of the argument to propose that in reforming the education system, any society could produce a generation suitable of engaging in parity with the scientific experts that they may one day later face as jurors. This argument falls even further when one considers the vast array of scientific disciplines, as discussed above in our early considerations. However, this need not necessarily be the stated aim. In constructing public policy with a view to reforming school-aged instruction such that students, as adults, are better equipped to engage with scientific information, it might be said that one really only need stress the importance of independent-mindedness, as well as to equip them with some key, fundamental scientific information (arguably more true to ‘scientific literacy’ as opposed to scientific instruction) as well as imbuing the training received by students with information that is in fact not scientific at all. For example, in our discussion we have stressed at many points the adversarial nature of the justice system and, either implicitly or directly, acknowledged that in many ways the mindset of the average juror is liable to fall short of a true appreciation of adversarial justice by favouring those parties in a position of authority. As such, civics instructions may substantially improve their performance, specifically in the context of jurors, not by improving their scientific knowledge but by improving their appreciation for the respective parties involved in the delivery justice and their obligations to the justice process. Although now an abolished office within the confines of the Catholic Church, it could be argued that the functionary nature (despite its derogatory connotations) of the prosecution and defending legal professionals, as well as the employees (including expert witnesses) engaged by those

respective factions operates in the tradition of the *advocatus diaboli* - the devil's advocate. The obligation enforced upon lawyers and barristers in both the American and British jurisdictions to provide effective counsel, when viewed from this perspective, amounts to an obligation to present one's best arguments and to marshal the facts as they exist such that they provide the most persuasive arguments, and ultimately deliver the most favourable outcome, for their respective interests. If the average citizen is instructed in the the nature of adversarial justice, there is no need that they approach this system with unproductive cynicism but rather, it could be argued, see the machinery of the courtroom as promoting (if not requiring) a skeptical mindset on the part of the juror - with respect to all of the evidence presented to them. I would assert that this appreciation is difficult to instil in the context of a jury primer document or a courtroom instruction. This is because it is not a communicable fact, analogous to an instruction that, for example, 'your lunch break will last for 1 hour' or 'you may not communicate with either the defence or prosecution in private' but rather the promotion of a mindset and a call to do what, as we have established above, for many is counter-intuitive: to be evenly distributing in their mistrust.

The treatment of children as citizens-in-waiting, as this proposal undoubtedly does, is entirely congruent with a number of key education philosophers such as Jean-Jacques Rousseau, who held that there exists a single, intrinsic developmental process shared by all humans that was driven above all by the underlying behaviour of curiosity although the consistency of his theories across the totality of his work has been brought into question (Collins, 1976) but indeed, aligns very highly with the philosophy of education advanced by John Locke, both summarised and applied to the nature of our question in the following quotation:

"The business of education is not, as I think, to make them [children] perfect in any one of the sciences, but so to open and dispose their minds as may best make them capable of any, when they shall apply themselves to it."

(Locke, 1764, p.44)

Locke goes on in his treatise to argue that public education need not only focus on expanding the collection of information, which its beneficiaries possess, but rather proposes that a willingness and ability to tackle new information ought to serve as its overriding ambition and recognises the liberty of self-guided enquiry, the freedom to think, as being a natural extension of a good public education. As such, any critique of the practice of expert witnesses and forensic science in the context of jury trials, if it were to pay heed to Locke's argument, must break the binary nature of considering if the citizen knows or does not - ought to know or ought to not. Instead it must expand its horizons to consider not just what information the citizen brings with them to the courtroom, but

whether the citizen is capable, or can be made capable, of improving their performance not by improving their knowledge but by improving their ability to process knowledge in a courtroom setting; the kind of internal application of reason of the sort of that pre-occupied Locke as the pioneer of mind and introspective style.

To treat educational intervention on the part of the state in this way is, one might propose, more harmonious with the initial ambitions of early years education in so far as that the aim is to define a civic duty to rebel against one's initial instincts in the bias of a courtroom, to be readily vigilant of one's ignorances and to understand them as justifiable, but not the business of the state to reconcile with any 'official' version of the facts presented before them or a state-sanctioned interpretation of their underlying science. Much as prior cultures have sought to bring about social unity, amongst its other aims, through the dissemination of a shared language, so too might a shared philosophy and understanding of the justice system give rise to such unity and a sense of kinship grounded in the view that citizen owes a skeptical mind when confronted with the scientific claims of those in power not because of the advantage it might confer upon their own self, but because of that which it offers their fellow citizens.

Conclusion

Lay participation in the criminal trial is undoubtedly an important concept in justice and it is, at least on the surface, something broadly agreeable to anyone who grants that transparency and fairness are key perquisites for the individual's pursuit of justice. However, this otherwise noble aim is predicated upon the state of affairs wherein the assembled jury are capable of exercising that collective wisdom, unhindered by a lack of material understanding of the evidence before them. The presence of scientific, or technical information in the context of an ongoing trial is something unheard of in the Anglo-American courtroom, or any courtroom, until the Twentieth-century. The process of lay participation is an extremely old and yet arguably very contemporary concept: at once a gifted legacy of sorts from those with entrenched, unjust power and influence to those without, whilst also being fundamentally democratic and inarguably highly important, at a time when many have come to deride the democratic mode of organisation and in particular, its ability to be of any true relevance to the average person. It is also undoubtedly an expensive approach to the delivering of justice at a time when for many citizens the optimal designs for government are those which prioritise systemic efficiency above all and demands a great deal of the citizen who is called to serve. Although on the surface this may be a populist observation, it is however entirely reconcilable with the priorities of those scholars cited above, who rely heavily upon the democratic qualities of jury trials, as well the protections they afford against a hypothetical tyranny of a ruling

class capable exerting a monopoly over law-making and its enforcement, as core justifications for their continued use.

Although not a phenomenon confined solely to the realm of scientific information, as we discussed earlier when considering the complexity of the statute books themselves and the substantial legal knowledge that is demanded of the citizen, science in the context of courtrooms is a particularly arresting example and ought to be considered a fundamental danger to the trial process. As we treated of above, although a certain degree of consideration and modest reform is occurring in this area, the core question has yet to be addressed: is a trial legitimate if the jury, or the judge, did not understand the nature of the evidence presented of them? In seizing my own voice I would submit not and moreover that this is implicitly conceded by those who advocate for judicial primers or other reforms directed towards maximising scientific understanding on the part of decision-makers. In proposing various remedies one must surely be recognising ill-health in the system to which those repairs are to occur.

However, although I hope to have been robustly persuasive in my arguments that the gap between understanding and deciding in the mind of a juror, or even a professional trained judge, creates a corresponding rift between a verdict and justice, I am far less ambitious with regards to my own consideration of public policy reform. It is undoubtedly true that the institution of trial justice is a historic, long-standing one and as mentioned previously any adventurous, brash adjustments to such a system risk upending the public confidence from which it derives the moral authority to operate.

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