

“UTTER HONESTY”: THE CLASSCIAL DIALECTIC
AND RHETORIC IN THE PUBLIC INTEREST

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“UTTER HONESTY”: THE CLASSCIAL DIALECTIC
AND RHETORIC IN THE PUBLIC INTEREST

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Abstract

This study addresses the modern-day infringements on scientific integrity and academic freedom present in the sciences that lead to censorship by omission. Such censorship injures and prevents the knowledge-process, a highly public process that is necessary in discovering “truth.” In some cases, this creates expensive public health problems and sets a dangerous precedent for potentially catastrophic public policymaking that denies the public the truth or the very opportunity to speak about the truth. Representative cases will be examined in this study to demonstrate the need for a new rhetoric and “language of dispute.” The “lost dispute language” of the classical dialectic, as developed by the early Greek sophists, Socrates, Plato, and Thomas Aquinas, provides this language in a way that prioritizes the public’s right to know and interact openly with truth-efforts. Further awareness and education of the “diction” of this “lost language” is necessary for the public’s interest.

Keywords: the classical dialectic, “utter honesty,” the public, censorship by omission, Plato, Aquinas, Socrates

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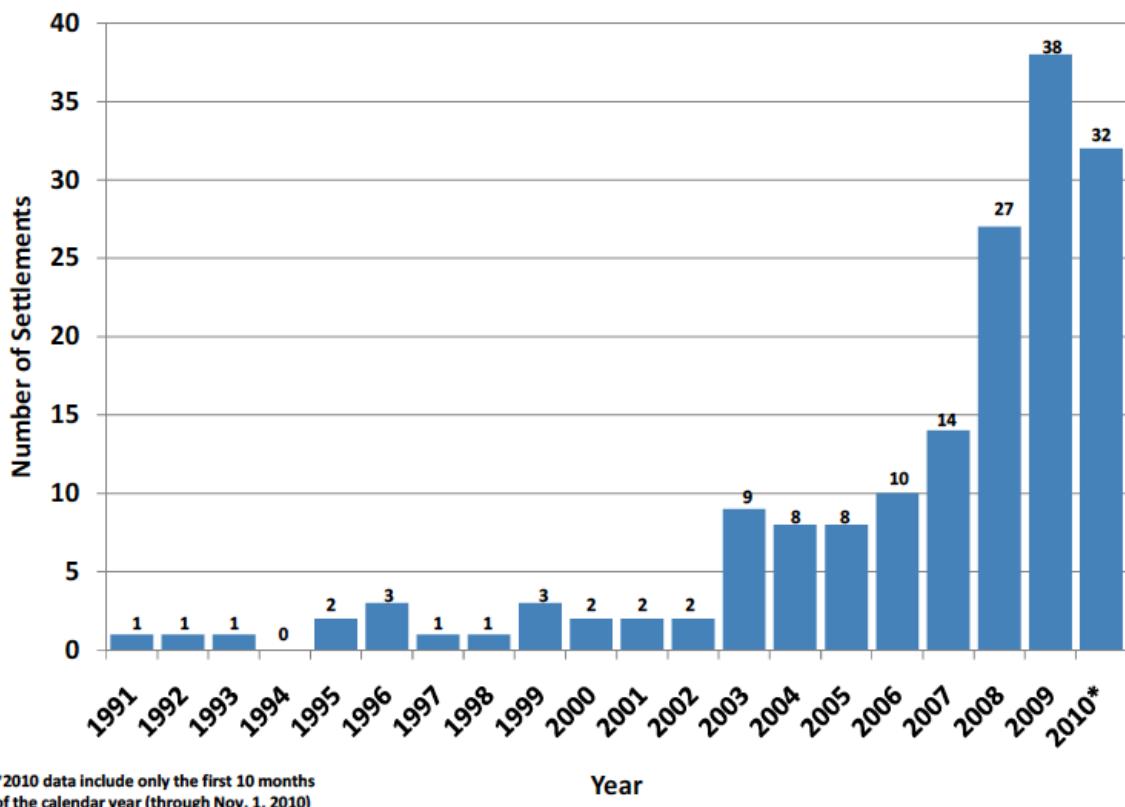
1. Tables and Graphs

Table 1. Types of Violations by Pharmaceutical Companies.

| Type of Violation | Description |
|---|---|
| Overcharging Government Health Programs | Inflating the average wholesale price (AWP) of products, failing to give the lowest market price to government health programs, or failing to pay required rebates to any government health program |
| Unlawful Promotion | Off-label promotion of drug products or other deceptive marketing practices (e.g., downplaying health risks of a product) |
| Monopoly Practices | Unlawfully attempting to keep monopoly patent pricing privileges on products, or collusion with other companies undertaken with the purpose of increasing the market share of a particular product |
| Kickbacks | Kickbacks (e.g., monetary payments) to providers, hospitals, or other parties to influence prescribing patterns in favor of the company |
| Concealing Study Findings | Concealing results of company-sponsored studies from either the federal or state governments |
| Poor Manufacturing Practices | Selling drug products that fail to meet FDA standards or specifications (e.g., contaminated or adulterated products, or products that fail to meet size or dosage specifications) |
| Environmental Violations | Clean Air Act and Clean Water Act violations, or failing to meet federal emissions standards |
| Financial Violations | Accounting or tax fraud, or insider trading |
| Illegal Distribution | Distributing an unapproved pharmaceutical product |

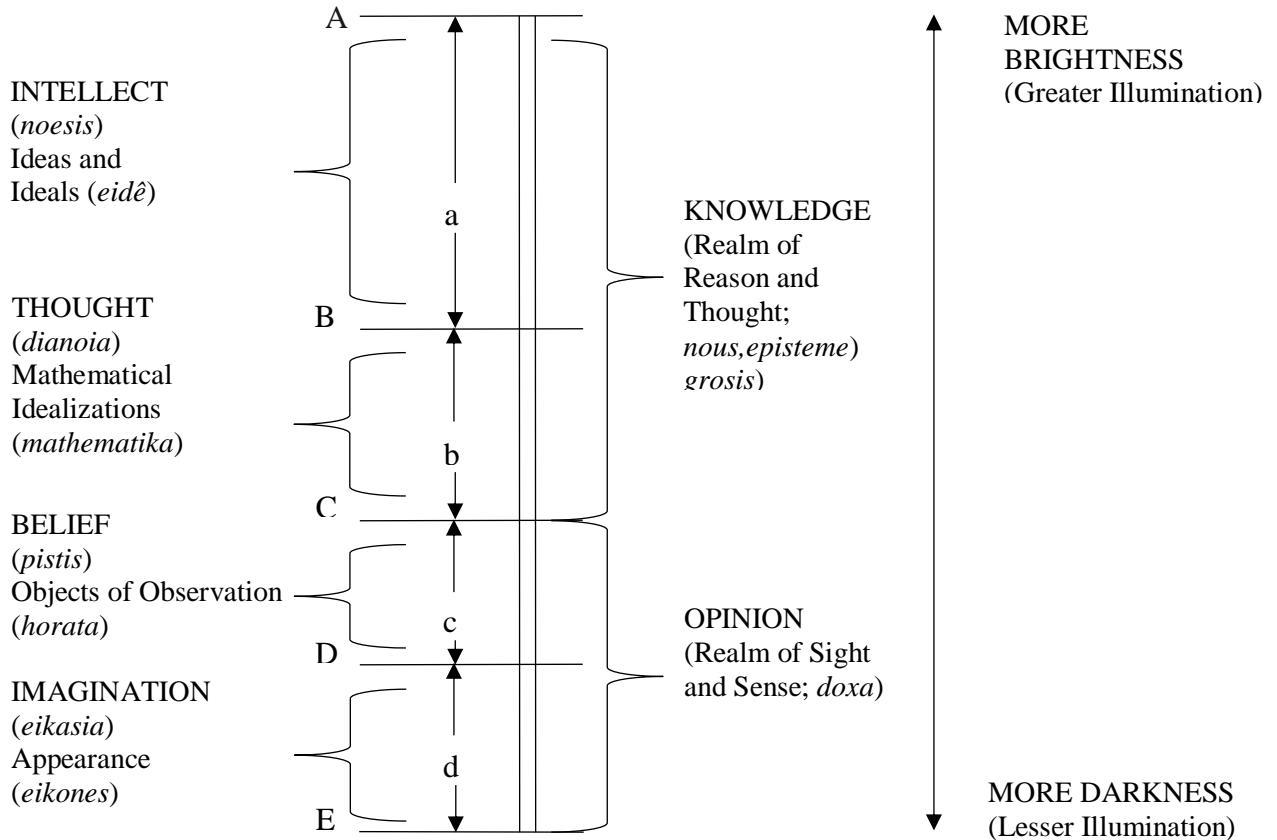
Almashat, Sammy, et al. Public Citizen's Health Group, 2010.

Figure 1. Number of Pharmaceutical Industry Settlements, 1991-2010



Almashat, Sammy, et al. Public Citizen's Health Group, 2010.

Figure 2
Plato's Divided Line



Rescher, Nicolas. Pp. 141. (2014). On the epistemology of the Divided Line. Retrieved from <http://logos-and-episteme.acadiasi.ro/wp-content/uploads/2014/12/ON-THE-EPISTEMOLOGY-OF-PLATO'S-DIVIDED-LINE.pdf>

Table 2. *Basic Structure of a Scholastic Quaestio*

- Question: p or not- p ? (Then, supporting that the answer that will be proposed is not- p : -)
- A: Assertion of p , preceded by *Videtur quod...* ('It seems that...')
- B: A series of arguments (*rationes*), based on authority or reason, in favour of p
- C: A brief statement, usually from an authority, that not- p , preceded by *Sed contra* ('But against [this]...')
- D: A reasoned explanation by the author of why it is the case that not- p (This is often called the 'body' of the *quaestio*.)
- E: Counter-arguments (*solutiones*) to each of the arguments proposed in B, explaining why they do not give grounds for believing that p
-

Source: Marenbon, John, *The Cambridge Companion to the Summa Theologiae*, Method, 2016, table 1.

2. Introduction

Nowadays, debate often amounts to the attrition of one's lungs. Who can overpower the other by sheer force of volume, all while only publicly showing enough of your hand to convince? Seldom is the goal a coming-together of mutually learned minds for the sole pleasure of acquiring knowledge as a collective. This illness extends from within the halls of the academy and in language often inaccessible to the laymen to the very doorsteps of the public debate arena. It is the second of these groups that this study targets. The current public debate climate over scientific truth exemplifies an alarming and frightening trend that has been present in public debate and perceptions of scientific validity for the past several decades. It stifles and curtails public debate through the withholding of information. The act of acquiring knowledge as a collective entity has been usurped in the modern day by a far more sobering agenda: corporate pursuits of gain, convenience, and opportunity over a pursuit of scientific integrity and the pure science interest. Acts such as these signal a malady that demands a cure. Individuals who pursue corporate gain, organizational fame, or knowledge convenience with an attitude of aggressive apathy, and at times open hostility, to differing evidence, hypotheses, and conclusions play a dangerous game. They deny the actively cooperative nature of the dual-core of public truth-seeking efforts: scientific integrity and academic freedom. Even more fundamentally, they injure the public's right to know.

The natural inclination here is to raise an interrogatory eyebrow. Scientific integrity and academic freedom are assumed values of an American society that simultaneously claims free speech and a dedicated pursuit of truth in its public science. Why, then, need they be targeted? They demand targeting because they are systematically being refused to practitioners whose duty

is to the truth. The result is endemic censorship,¹ both willingly and otherwise. Censorship stands antithetical to truth because truth relies on the open collection, dissemination, formulation, and discussion of data. The last is of first importance. Civil discussion by peers, who may be of the same mind or not, refines truth through the ongoing process of an utterly honest attitude to truth. The current atmosphere surrounding the consideration of academic freedom and scientific integrity is, at best, turbulent. It is rife with censorship by omission and instances of public discourse failure. Censorship both willfully and through academic freedom and scientific integrity infringements is a trend that is very rapidly becoming a pernicious habit. This is a trend that not only merely injures scientific integrity and academic freedom publicly, but intentionally manipulates public reaction to scientific findings. In some cases, this creates expensive public health problems and sets a dangerous precedent for potentially catastrophic public policymaking that denies the public the truth or the very opportunity to speak about the truth.

2.1 The Current Climate of Public-Oriented Science

1991-2010: Pharmaceutical Censorship, Criminal and Civil

On December 16th, 2010, four scientists working with the Public Citizen's Health Research Group published a longitudinal study of the drastically increasing rates of court settlements by American pharmaceutical companies. Titled "Rapidly Increasing Criminal and Civil Monetary Penalties Against the Pharmaceutical Industry: 1991 to 2010," the study made

¹ The term 'censorship' in this study will include the following: censorship by omission, the interference or hindering of research or publication by any party public, governmental, or commercial, and any other forms of willful or coerced hiding of data.

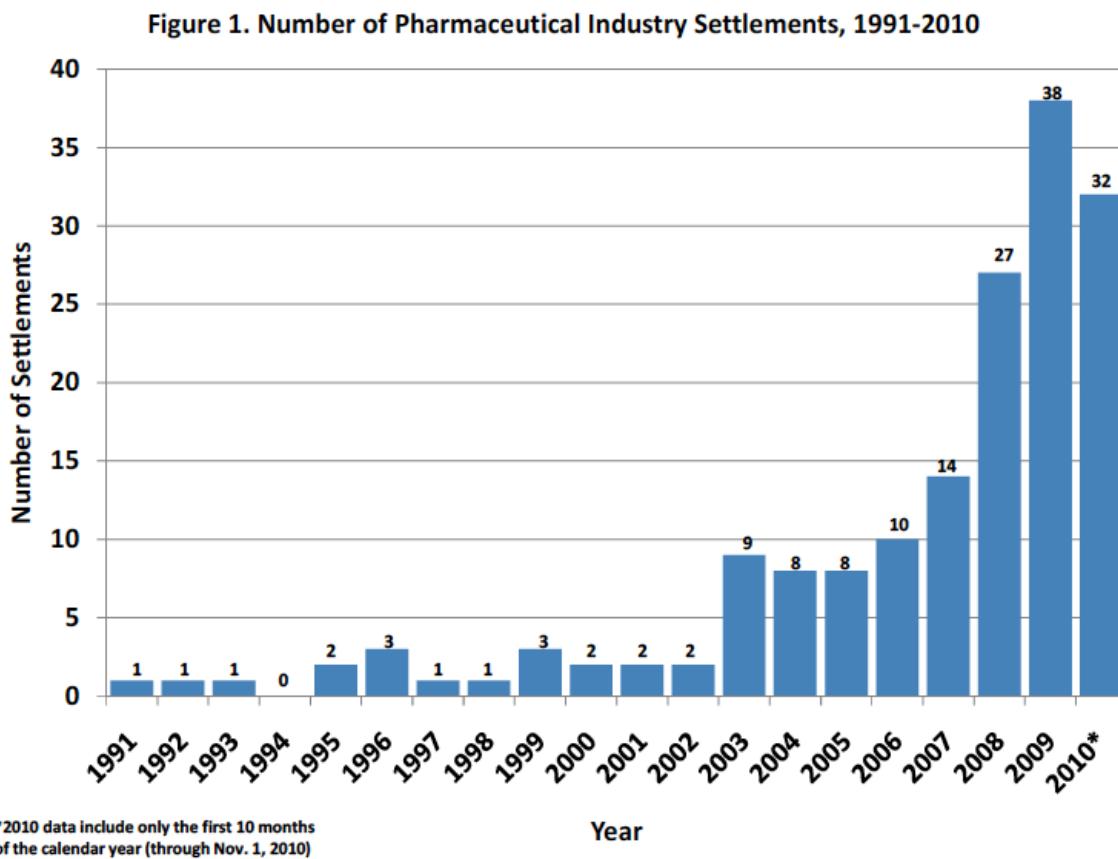
several shocking conclusions. United States spending on prescription drugs rose exponentially from 1990 (\$40 billion) to 2008 (\$234 billion), though this was not largely reported (Almashat, Preston, Waterman, Wolfe 2). In the twenty-year interval examined by the study, the authors identified 165 settlements comprising \$19.8 billion dollars in penalties for various illegal activities across the entire industry (2). These activities include judicial action against four major pharmaceutical companies, GlaxoSmithKline, Pfizer, Eli Lilly, and Schering-Plough, for “illegal off-label promotion of pharmaceuticals,” “fraud payments,” “deliberately overcharging state health programs,” and other illegal violations, notably “concealing study findings” (3-4). The authors make note of the increasing presence of aggression by companies to maximize the sales of their products and profit margins, at the cost of public safety through off-label promotion, which is the promotion of pharmaceutical products for purposes not approved by the Food and Drug Administration. Such promotion obfuscates the research done for these products, as drugs only become FDA-approved after extensive investigation. Cases of settlement were included under several bases: if the settlement exceeded \$1 million dollars, and if the companies violated either the False Claims Act (targeting fraud) and the Food, Drug, and Cosmetic Act (targeting off-label promotion) (4-6). The various types of violation are represented below by Table 1. Many of the violations are forms of willful censorship. See the language used in the description of corporate behavior: “inflating,” “failing to give,” “collusion,” and “concealing.”

Table 1. Types of Violations by Pharmaceutical Companies.

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| Environmental Violations | Clean Air Act and Clean Water Act violations, or failing to meet federal emissions standards |
| Financial Violations | Accounting or tax fraud, or insider trading |
| Illegal Distribution | Distributing an unapproved pharmaceutical product |

Almashat, Sammy, et al. Public Citizen's Health Group, 2010.

Also from the report comes a graph detailing the steep increase in settlements, shown in Figure 1. It deserves particular attention in light of the escalating tendency towards potentially harmful and willfully fraudulent violations of the pharmaceutical industry.



Almashat, Sammy, et al. Public Citizen's Health Group, 2010.

Trudo Lemmens, in his article for the *Journal of Law, Medicine and Ethics* titled “Pharmaceutical Knowledge Governance: A Human Rights Perspective,” examines the pharmaceutical industry’s 2000-2013 “hiding of data” and the “misrepresentation of scientific data in some of the most influential medical journals” through off-label promotion and other methods as a human rights issue (163). Lemmens emphasizes that we as humans have a right to the truth, a right to knowledge, and a right to safety through properly acquired knowledge. The exponential rise in litigation against the companies, for reasons consistent with scientific integrity and academic freedom violations as well as willful suppression of findings, denotes a

systematic failure in the current system of public discourse in the face of scientific findings. In the words of Almashat et al, “the current system is not working” (21).

1999-2014: Gun Violence Research

Gun violence and firearm control is an oft-debated contemporary issue. My study of the current climate of scientific censorship by omission seeks only to emphasize representative case histories of concealment of scientific findings found in its history. Any claims on the validity of either side above the other lies outside the scope of this thesis. The history of gun violence-related research is pertinent to the discussion at hand. In 1996, Congress “threatened to strip funding from the Centers for Disease Control and Prevention unless it stopped funding research into firearm injuries and deaths” (Frankel 1), in light of the CDC’s interest in the topic after several shootings. The National Rifle Association, in like turn, accused the CDC of efforts at gun-control. As a result, Congress instituted a ban on federal firearm research on the CDC to cease gun-related violence research, which “had chilling effect far beyond the agency, drying up money for almost all public health studies of the issue nationwide” (Frankel 1). A major proponent of the ban was Jay Dickey, an Arkansas Republican congressman. He, supported by the NRA, prompted the passing of the Dickey Amendment in 1996, which legislatively disallows the CDC from gun-related violence research (104th Congress). The Dickey Amendment has been upheld by Congress every year since its inception. Quite tellingly, Dickey, prior to his death, recanted and expressed regret in his ban: “We need to turn this over to science and take it away from politics” (Frankel 1).

The history of gun violence-related research provides a case study on the systemic omissions examined in this thesis. For example, in 2016 the American Medical Association mobilized to express concern over the Dickey Amendment, legislative action they claimed prevented research on a “public health crisis” (AMA June 14 2016 Press Release), one that “[scientists] are not actually doing sufficient research on” (Schumaker 1). While the amendment targeted anti-gun advocacy research, it actualized the near-complete cessation of all federal gun violence research (Schumaker 1). During this same year, Jay Dickey restated his regret regarding the Dickey Amendment: “I wish we had started the proper research and kept it going all this time. I have regrets...Research could have been continued on gun violence without infringing on the rights of gun owners, in the same fashion that the highway industry continued its research without eliminating the automobile” (Schumaker 1). The NRA’s involvement in passing the Dickey Amendment and coordinating the stripping of funding from the CDC in 1996 carried with it long-lasting effects.

One such effect, Michael Hiltzik of the *Los Angeles Times* writes, is the continued “succession of pusillanimous CDC directors, who decided that the safest course bureaucratically was simply to zero out the whole field” (1). In the presence of censorship and the lack of a true public discourse stage, organization like the AMA and CDC confront what Hiltzik labels “worse than terrorism...it’s fatalism. How many people are dead whose deaths might have been prevented if we had been able to find answers to the problem?” (1). The trend of censorship and scientific harassment in the late-1990s resulted in a sustained habit of silence that extends well into the modern day. The improper strike-and-jab of the NRA, CDC, AMA, and Congress tells a

singular story: the current methods of scientific discourse and academic freedom in the public sphere fall drastically short of an acceptable standard for scientific integrity.²

2002³-2017: Coca-Cola's "Actionable Misrepresentation"

Coca-Cola, beginning in the early 2000s, began an aggressive campaign to "protect profits" by "flooding the market with countervailing representations that obscure [the link between sugar-sweetened beverages and obesity]" (*Coates, Lamar et al.*). Coca-Cola, to divert attention from the role of sugar in obesity, spent much on research emphasizing solely exercise as a factor. Contrary to the scientific claims of the times, Coca-Cola and the American Beverage Association (ABA) held that their findings represented the objective science in its entirety. In 2017, the Center for Science in the Public Interest (begun in 1971), the Public Health Advocacy Institute, Katz Marshall & Banks, LLP, and Reese LLP acted as counsel for the plaintiffs, The Praxis Project and pastors Delman L. Coates and William H. Lamar IV, in a judicial injunction brought against The Coca-Cola beverage company "for their deceptive marketing, labeling, and sale of Coca-Cola's sugar-sweetened beverages" (*Coates, Lamar et al.*). The Coca-Cola beverage company's omissions, the injunction reads, represent "actionable misrepresentations" of the District of Columbia Consumer Protection Procedures Act (4). Coca-Cola also engaged in a campaign to label their beverages a "healthful source of hydration for most consumers," which, the injunction states, is a deceptive and false representation in light of the growing scientific

² As of March 22 2018, Congress has voted to "open the door slightly" to gun research at CDC in the new budget bill. See https://www.washingtonpost.com/news/to-your-health/wp/2018/03/22/house-budget-says-cdc-can-study-gun-violence/?utm_term=.d78337b19dad

³ This is the earliest recorded date in the injunction. Coca-Cola's campaign of misdirection extends much further back.

consensus between sugar beverages and obesity (8). It also accuses Coca-Cola of untruthfully promoting a biased and subjective science. Six pages of the injunction are designated for “Established Science on the Characteristics of Sugar-Sweetened Beverages” (9-15) from sources such as the United States Department of Agriculture and United States Department of Health and Human Services. For purposes of length, I will merely reference them in passing. Coca-Cola’s efforts to manipulate the public’s perception of scientific data in their favor not only injures scientific integrity in their willful omission of contrary evidence, but poses a very tangible harm to the public. As of March 2017, the ABA’s website contained an extensive discussion de-emphasizing sugar’s role in obesity. It marks the current conversation on sugar’s role as “full of opinions and myths” (Coates, Lamar et al. v. Coca-Cola 20-21). Censorship-by-omission is perhaps the most prevalent type of censorship. It is one that is not only harmful to the public, but disallows the public from entering a truthful conversation with the omitting party. Conversation cannot begin, and any rational dispute language that might be used to arrive at the truth does not have an opportunity to be spoken. Coca-Cola is a timely example indicative of a sustained trend across time. The case against Coca-Cola remains pending as of the writing of my study.

2017-2018: The Trump Administration’s Climate Change Denial

Another brief note is prudent: to reiterate, my intention with this study is not to argue in favor or against any one issue in American politics, science, religion, or any other subject. My study makes no claims to verify the conclusions posited by either side of these debates; it purely concerns itself with the methods of scientific dispute involved. I urge my readers read into these

issues further themselves. There are, to be sure, myriad examples from all sides of many debates scattered across time of these types of censorship that injure the public's right to know.

One of President Donald Trump's first official acts of executive authority was to institute a gag order on the Environmental Protection Agency and the Department of Agriculture in January 2017. The gag order barred the EPA and the USDA from all communication with the public and press, and dissolved all active grants and contracts (Chen n.p.) These actions bear striking resemblance to the Bush administration's efforts to suppress climate research publications and funding. The Trump order prompted the American Association for the Advancement of Science, the world's leading scientific institution, to publicly caution the American government against "censorship and intimidation" (Johnston 1). Sam Hunt, the United States Director of the World Resources Institute think tank, predicted the act of halting the "free flow of information" to have "a chilling effect on staff" (Johnston 1). Any and all media communications, according to the order, must also be "screened" by government agents. Rush Holt, an AAA executive, summarized the role of scientific integrity policies:

Many federal agencies have existing scientific integrity policies that prohibit political interference in the public dissemination of scientific findings. As the AAAS Council stated in 2006: Censorship, intimidation, or other restriction on the freedom of scientists employed or funded by governmental organisations to communicate their unclassified scientific findings and assessments not only to each other but also to policymakers and to the public *is inimical to the advance of science and its appropriate application in the policy domain.* (Johnston 1; italics added)

The final sentence of his statement is among the most important aspects of scientific integrity and academic freedom. Scientists must be able to communicate findings with the public. Public communication and involvement is a necessity of scientific advancement. There exists a great need to educate the public on the importance of free-access and freely disseminated research, data, and conclusions. Censorship must not be found amongst our language when we speak of

truth, knowledge, scientific integrity, and academic freedom. This applies to the public's need of education into methods of dealing with scientific disputes and how humanity determines what is "true." The formal government programs and larger corporate entities are not the only parties who currently speak with a broken language. The public itself requires a new rhetoric.

2015-2017: Jeffrey Beall

Public instance of censorship outside corporations, and indeed inside the academy, do exist in the contemporary world. Mr. Jeffrey Beall, a University of Colorado academic librarian, took it upon himself from the years 2015-2017 to craft and maintain a detailed public journal of scientific sources he viewed as "unscrupulous" (Basken 1). "Unscrupulous," under Beall's criteria, denoted any ungoverned and unmonitored research, otherwise defined as lacking peer review. Operating as a "blacklist" of sorts, Beall's widely circulated digital catalog served to expose approximately a thousand false science publications. His five-year-long efforts to bring to light questionable scientific practices were hastily assaulted by his fellow librarians, his home university, individuals on the list, and the broader academic community as a collective (Basken 1). The pressure that became fatal to Beall's catalog came from a Swiss publisher who appeared on the list, Frontiers Media. They petitioned Beall's home university to act against Beall's, in their words, "dubious actions" that were "absurd" (Basken 1). Well-financed companies like Frontier Media and OMICS International (another company on Beall's list who published material sans-peer review and later threatened to sue him for one billion dollars) leveraged their influence to levy heavy pressure on Beall's employers. Beall had no recourse but to cease all public activity pertaining to his journal, considering, not only these attacks, but threats to

dissolve his tenure protection (Basken 2-3). Such censorship raises a fundamental consideration: “Universities still have a long way to go to create systems for researchers to share and collaborate with one another, evaluate one another’s work, and get credit for what really matters in research” (Basken 1).

Science v. Faith: Various Cases

The conflict between science and religion in the current spheres of scientific endeavor and education is a potent example of the public’s lack of what I shall label a working “dispute language.” Several examples of censorship by omission within the debate: In October 2013, the Oxford, Cambridge, and RSA Board (OCR) investigated reports of exam malpractice on behalf of the Yesodey Hatorah Jewish Voluntary Aided girls’ secondary school in London, finding the school guilty of censoring various examination questions regarding the origin of the earth and its species (NSS 1). In total, four questions were stricken from the exams. An OCR spokesperson detailed that such acts violate “good exam practices,” injuring the process of knowledge attainment (NSS 1). Contrarily, in 2005 US District Court Judge Clarence Cooper had ruled against a Georgia school district which wished to print the following disclaimer inside science textbooks: “This textbook contains material on evolution. Evolution is a theory, not a fact, regarding the origin of living things. This material should be approached with an open mind, studied carefully, and critically considered” (Herbert 1). The presiding judge enacted his verdict claiming the disclaimer endorsed religion (Herbert 1). In 2014, a young professor of Ball State University in Indiana, Professor Eric Hedin, provided his students a reading list containing pieces on intelligent design, inclusive of arguments in the affirmative and negative, but was

rapidly barred from teaching his course. Indeed, he may yet still be barred from a career in teaching, by the Freedom from Religion Foundation (Klinghoffer 1). The Texas Board of Education has exhibited a lengthy history of censoring findings that neglect the mention of religion. In September, 1982, the Texas State Textbook Committee “refused to adopt the top-rated world geography textbook” (Schafersman 30), which stated “Biologists believe that human beings, as members of the animal kingdom, have adjusted to their environment through biological adaptation.” The textbook also made positive assertions regarding the ancient age of the earth and the Big Bang (Schafersman 30). The book was relegated to an educational black-list of sorts, never to be opened by Texas students. More recently (2009), the Texas Board of Education approved a science curriculum which intentionally constructed non-religious explanations for the origin and progression of life forms in such a way as to be objected to by religious ideology (Simon 1). Presenting differing explanations for the same observations is not the offense; the offense is that the scientific explanations were intentionally “worded to raise doubts about global warming and how the universe began” (Simon 1).

The above are but few of the instances of censorship by omission that target proponents on either side of the debate. All censorship of research pertaining for or against science or religion represents a denial on behalf of the censors to engage in fair discourse with the subject material. It demonstrates that the public lacks a unifying understanding of scientific integrity and a dispute “language” that ensures academic freedom. Attempts by those such as the Texas Education Board to straw-man opposing argumentation merely propagate an improper view of the issue at hand. Regardless of the true intent of the Georgia district textbook disclaimer, censoring a work that calls for its own critical consideration is little less than a blatant affront to truth acquisition doctrines. Furthermore, consigning research-based works to a “black list” not

only denies the freedom of the author to academically publish any data gathered through scientific examination, but injures scientific integrity. The truth is only as strong as its ability to withstand informed critique. If we as a nation deny the opportunity for fair critique, the truth may never evolve.

George Orwell: 1984

Until this point, I have contained my examples within the scientific realm. It may seem odd to find that I now reference a well-known work of fiction. George Orwell's *1984* is a fascinating case of censorship in this way: it spoke against a society run by censorship, and was rapidly censored itself. The reasons given included that it supported a pro-Communist government, and, simultaneously and paradoxically, that it condemned Joseph Stalin. The veiled reasons for its censorship, however, are equally as interesting. The issues my study confronts, the lack of a rhetorical "language" of truth-discussion, extends far past purely the sciences. In the words of author Michael Yoa, *1984* took "propaganda and surveillance to extreme limits: *total* surveillance and *total* propaganda" (1). These were the grounds of its censorship, and one cannot help but compare Orwell's Oceania society to our post-Edward Snowden and omnipotent media world. The censorship and blurring of findings with propaganda in Coca-Cola, Beall, and the pharmaceutical companies cases share sobering similarity. Orwell's world of manufactured truth and forced perspective is a stark warning of our future should we as a society forsake the value in scientific integrity and academic freedom. Without these principles, the most wealthy and powerful corporation, government, or individual can dictate truth to the public by depriving them of their right to know. It also in many cases, such as in the case of Coca-Cola and the

pharmaceutical companies, creates expensive public health, wellness, and catastrophic public policymaking problems. The results are anything but ephemeral; they are tangible, frightening, and present. If we, however, prioritize the public's right to know around scientific integrity and academic freedom and through the proper "language" of discourse, "truth" becomes a communal affair, not an individual one. A number of organizations have mobilized with this very goal in mind. It is at this moment of time in our society, where individuals distort rather than discuss, that the need to retrieve a "lost language" of dispute begins to emerge.

The Federation of American Scientists, Union of Concerned Scientists, and the Center for Science in the Public Interest

The Federation of American Scientists, founded November 1945 by atomic-era scientists who participated in the Manhattan Project, "is devoted to the belief that scientists, engineers, and other technically trained people have the ethical obligation to ensure that the technological fruits of their intellect and labor are applied to the benefit of humankind" (FAS 1). Once again, the importance of the public's interaction with "truth" is prioritized as an integral component of scientific integrity. This is an aspect lacking in many, if not all, of the cases examined in my study. The offenders did not prioritize and cherish the public's right to not only know, but to participate. In line with this mission, the FAS published in the "Secrecy and Security Library" webpage of their website an 81-page report on Bush Administration government secrecy in 2004, written by the United States House of Representatives Committee on Government Reform. The following quote from the report summarizes its primary finding: "laws that are designed to promote public access to information have been undermined, while laws that authorize the

government to withhold information or to operate in secret have repeatedly been expanded” (iii).

The FAS’ efforts to uphold scientific integrity and academic freedom and tether them to the public have, unfortunately, fallen on ears deaf to the language of disputation. Similar efforts to ensure that the public is included in the discussion, though often ignored, have been undertaken by the Center for Science in the Public Interest (CSPI) and the Union of Concerned Scientists (UCS).

The CSPI began in 1971 with a sole goal: “CSPI has long sought to educate the public, advocate for government policies that are consistent with scientific evidence on health and environmental issues, and counter industry’s powerful influence on public opinion and public policies” (CSPI 1). We here again see the focus resting on the public’s right to free information unbound by outside influence by more powerful entities. This obligation is shared by the UCS, organized in 1969 during the nuclear ban era under a simple founding vision: “we share information, seek the truth, and let our findings guide our conclusions” (UCS 1). USC maintains an open letter to the Trump Administration and the 115th Congress urging the United States government to emphasize the policy makers and the public’s access to “high-quality scientific information to serve the public interest” (1). Their call to action is three-pronged: 1. Create a culture of open science and diverse individuals in the upper levels of governmental organization. 2. Ensure public health and environmental laws maintain their scientific foundation, and preserve the independence of those who provide outside scientific advice. 3. The government must adhere to high standards of scientific integrity and independence, and allow scientists to share findings free from censorship or manipulation (1). A consistent theme throughout the organizations committed to protecting the public’s right to know are the terms mentioned often in my study thus far: “scientific integrity” and “academic freedom.” Though these organizations are trying to

approach scientific discourse properly, they fail on a systemic level because all parties involved are not speaking with an identical “dispute language.” What do these terms mean, where do they get their power, and with what “dispute language” should we uphold them?

2.2 A “Lost Dispute Language”

The various cases examined in Section 1.1 all illuminate the same deficiency. They each involve the censorship by omission, voluntarily or involuntarily, of information that otherwise would have been presented to the public. I have consistently appealed to scientific integrity and academic freedom during this study as fundamental concepts in avoiding censorship and ensuring the public’s right to know. “Academic freedom” was aptly defined by the American Association of University Professors in its “1940 Statement on Principles on Academic Freedom and Tenure.” The AAUP defines academic freedom in three crucial ways. Academic freedom allows full freedom to research and publish, full freedom to discuss findings relevant to the subjects of investigation, and full freedom from institutional censorship and discipline (AAUP 1). Individuals during research, publication, and discussion, must show respect for the opinions of others and strive to be accurate in their words (AAUP 1). Academic freedom highly concerns not purely the teacher, scientist, or formal investigator, but the public as well. It protects the publication of research to the public, acquiescing to their right to know, which prompts further discussion also covered under academic freedom. This is the definition that my study takes for academic freedom.

“Scientific integrity” I distill from the renowned words of 1965 physics Nobel Prize winner Richard Feynman:

It's a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty—a kind of leaning over backwards. For example, if you're doing an experiment, you should report everything that you think might make it invalid—not only what you think is right about it: other causes that could possibly explain your results; and things you thought of that you've eliminated by some other experiment, and how they worked—to make sure the other fellow can tell they have been eliminated. Details that could throw doubt on your interpretation must be given, if you know them. You must do the best you can—if you know anything at all wrong, or possibly wrong—to explain it. If you make a theory, for example, and advertise it, or put it out, then you must also put down all the facts that disagree with it, as well as those that agree with it. There is also a more subtle problem. When you have put a lot of ideas together to make an elaborate theory, you want to make sure, when explaining what it fits, that those things it fits are not just the things that gave you the idea for the theory; but that the finished theory makes something else come out right, in addition. In summary, the idea is to try to give *all* of the information to help others to judge the value of your contribution; not just the information that leads to judgment in one particular direction or another. (1)

Feynman's Caltech commencement speech can be encapsulated in his phrase "utter honesty." "Utterly honest" science seeks several vital things. It seeks to pursue, publish, and report every conceivable line of thought for any given hypothesis, even those that may make it wrong. It seeks to explain anything and everything that pertains to your results for the purpose of peer-to-peer corroboration. Can the other scientists replicate or invalidate your result? If you know of doubts, give them; if you know of conditions that operate contrary to your wishes, express them. This prevents obfuscation, the type of dangerous censorship by omission that the Coca-Cola beverage company and others propagate. It compels us, as scientists, to maintain integrity in the face of experimentation, and to do so with the true end goal of "truth" firmly in mind, not company profits or executive agendas. An "utterly honest" science can be achieved precisely as Feynman urged: "give *all* of the information to help others to judge the value of your contribution; not just the information that leads to judgment in one particular direction or another." Within this is a focus planted firmly on the public. Scientific integrity is, as

knowledge-processes should be, a communal affair. Through open scientific discourse and interaction, we can ensure the “other fellow” is representing the issue in a way that is healthy to scientific progress. Also within Feynman’s scientific framework is his profoundly essential call to “not fool the laymen” (1). Simply put, this is a call to interact with the public without hindering their access to scientific findings. To use a familiar political phrase, one of scientific integrity’s functions is to act as a “checks and balance” system. As scientists, we must treat the public in a way that upholds their right to know and not manipulate the truth against their favor. This implies accurate representation of evidence and data, and fostering an awareness of that data and evidence to the public in the first place.

The Obama Administration issued a memorandum of understanding in 2009 attempting to codify at the federal level Feynman’s call for “utter honesty” nearly verbatim. President Obama’s “Memorandum For the Head of the Executive Department and Agencies” was authored by Dr. John P. Holdren, his science and technology director, and it reads,

The public must be able to trust the science and scientific process informing public policy decisions. Political officials should not suppress or alter scientific or technological findings and conclusions. If scientific and technological information is developed and used by the Federal Government, it should ordinarily be made available to the public. To the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking. The selection of scientists and technology professionals for positions in the executive branch should be based on their scientific and technological knowledge, credentials, experience, and integrity.

One can quite easily see Feynman’s address behind President Obama’s memorandum. Transparency and open, freeform science directed at and for the public’s right to know inform both Feynman and the Obama Administration’s words.

Scientific integrity and academic freedom serve as the “principles to be upheld” in my study, or its aim. Their power originates from their intersection with the public. Each have at their core an honest character of freedom. Academic freedom gives us the freedom to compile and publish results, while scientific integrity guides how we go about that. The public, in both cases, is the target. Whether it be the “public” community of scientists, the “public” community of laymen, or otherwise, the clichés here are quite apt. No man or woman is an island, and many hands make quick work. Nowhere is this more evident than in truth acquisition. However, we are currently speaking with a broken “dispute language,” or indeed, not one at all, making scientific integrity and academic freedom a vehicle without gas.

I have mentioned in passing this “dispute language,” but what does it mean? There are at play in our lives various “languages.” How we go about discussing our relationships with loved ones, how we interact with our professional superiors as opposed to our close acquaintances, how we speak to strangers—all are fueled by language strategies. Often, we are unaware of them. For the stranger, it is the language of cordiality that prevents us, hopefully, from commenting negatively on an aspect of their person. For the close acquaintance, it is the elements of fondness that allow us to do just that, sometimes to our secret enjoyment. These strategies, or rhetoric, are leveled at a particular goal: the favorable first impression, or the growth of a relationship. They are, in many ways, subconscious. Nevertheless, they are persuasive. What language do we use, then, to confront disagreement, which lies at the heart of scientific integrity and academic freedom infringements? It is, as seen in Section 1.1, a lost language, one that is not inherently subconscious among many members of the communities in question. We must bring it back into the forefront of our consciousness. We have, as a human community dependent upon science, sacrificed to time the “dispute language” once routinely

used by the Greeks, of the dialectic rhetorical strategy for public discourse. Our public would be well served by more knowledge and training in the ancient classical methods of civil dispute to understand why civil dispute and “utterly honest” argument are necessary to arrive at what is “true.” The current methods are like pails riddled with holes; they fail to remove the water that is sinking the ship of scientific integrity and academic freedom. Concealment of scientific findings, or excluding the public from the lost “dispute language,” is a violation of both scientific integrity and human rights. It is high time that we abandon our insistence on unthinkingly turning the page forward and, instead, mindfully flip a few pages back.

3. The Classical Dialectic

The phrase “Greek classical dialectic” may cause groans of philosophic boredom and drudgery. It is a term not often spoken of in science in the contemporary day. It is, however, eternally important in ensuring the publication of findings, furthering healthy scientific criticism, and avoiding censorship by omission. It, as a “lost dispute language,” provides words and verbal strategies needed to properly engage in scientific debate for the public’s interest. What if the public understands that they have a human right to question what is true and interact directly with that process? The historical rhetoric of dialectics maintained throughout philosophic history is predicated on the open dissemination and propagation of knowledge efforts. This is a theme that will consistently rear its epistemic head, “epistemic” here meaning the study of knowledge. As science is decidedly epistemic, the term will appear occasionally in my study.

3.1 The Classic Dialectic: An Ancient-Era Dispute Language

Dialectic, as defined by the online *Oxford English Dictionary*, is “the art of investigating or discussing the truth of opinions” (*OED*). It is important to clarify this study’s consideration of an invaluable component of dialectics. “Truth” references “the fact or facts; the actual state of the case; the matter or circumstance as it really is” (*OED* 435 Volume XI). “Truth” is a product of cooperation, rather than coercion, and may encompass the religious, the scientific, the concrete, and the abstract. This distinction is crucial for my study’s consideration of the classical dialectics. Turning to the past to assert a much-needed and often forsaken language of truth-acquisition gives oars to the scientific integrity and academic freedom vessels. While it does indeed find root in ancient Greek philosophy, which defined dialectics by discursive methods of reason (debate), dialectics can be defined efficiently as a global presence: cooperative, truth-focused discussion. Discussion implies several qualifications. Perhaps paramount is that it be fostered without barriers, which censorship disallows. Professor Sir Geoffrey Lloyd, who stands high in the field of historic philosophy and was knighted for his contributions, has exhausted much paper on the subject.

Among G.E.R. Lloyd’s twenty-two publications, *The Ideals of Inquiry: An Ancient History* provides a fine exploration of dialectics. In examining the “advancement of inquiry” in the history of philosophy, Lloyd expresses two dialectic ideals, “transparency and accountability” (Lloyd 3). However, these ideals often were not in the ancients’ minds, insofar as the public masses were concerned. Lloyd writes, “The speakers may have claimed to prove their points: but all they were good for was persuasion... Their aim is to persuade the crowd, not to instruct them” (Lloyd 7).

This study's definition of dialectics is not the Greek public's definition, but rather the definition of the thinkers and movers of the day: the sophists (notably Protagoras), Socrates, and Plato. Socrates and Plato formed the crux of the initial dialectical theory following the footsteps of the early sophists, again notably Protagoras. The “sophists” were a group of fifth century BCE intellectual professionals who educated others on public speaking and structural strategies of argumentation for the betterment of their lives (Taylor and Lee 1). The word “sophist” originates from the Greek noun *sophia* meaning “wisdom” or “learning.” It also, more generally, means “one who exercises wisdom or learning” (Taylor and Lee 1). The sophists prioritized the art of persuasion (or rhetoric) and successful argumentation in many topics, from religion to poetry. They were the first formalized public debaters. As an interesting aside, the English word “sophistication” emerges entomologically from the sophists. The first to claim himself a sophist and teacher of the people, Protagoras formed the key concept that Socrates and Plato would later expand: the *dissoi logoi*.

Protagoras never recorded any of his own work, and if he did, it has not survived time. Therefore, we must turn to Plato,⁴ his contemporary, for an account of the man. Plato's *Protagoras* and *Lesser Hippias*, and Diogenes Laertius' self-titled piece, are where history finds much of Protagoras' teaching. In *Protagoras*, Protagoras is recorded as speaking the fundamental idea behind not only rhetoric, but science as a whole: “justifying one's criticism is a very important part of education” (338e-339a). This is awfully similar to Feynman's “don't fool the laymen” and call for a communal scientific process. The process of justifying our conclusions, through the “other fellow,” allows us to attend to and truly understand where and what we say in a way that is fair and honest. If we proceed without it, we risk neglecting open public discussion

⁴ Most quotations from Plato come from J.M. Cooper's *Plato: Complete Works* unless otherwise stated. The line references to the relevant material are in parenthesis.

and inadvertently censoring ourselves. We also risk alighting on incorrect “truth” unchecked, and thereby endangering ourselves and others if we stand uncorrected. The basic rationale behind the pursuit of science is the avoidance of harm by allowing ourselves to correct others. Dialectics contains such a call to open civil criticism and discussion (in another section I will examine a practical form of disputative dialectics through Thomas Aquinas of the Middle-Age). Protagoras, in the *Diogenes Laertius*, is said to have devised an entire taxonomy (method of classification) for speech into acts of question, answer, assertion, and command (IX. 53-54). Socrates and Plato form much of their classical dialectic around these terms, especially question and answer. They do this by way of a concept first explored by Protagoras, *dissoi logoi*.⁵

Dissoi logoi means “arguments on either side” (Taylor and Lee 1), or “different worlds.” It refers to the nature of argument: they have two sides, and either side has the fundamental human right to ask questions about what is being argued or presumed to be true. We find this phrase and broader concept in IX.51 of *Diogenes Laertius*. *Dissoi logoi* requires that each side respect the rights of the other. Plato makes specific mention of this concept and Protagoras’ prowess in the public question-answer contests (debates) of the day in writing how the man was never beaten (*Lesser Hippias* 363c-364a). Indeed, Socrates and Plato owe the principle elements of their dialectic to *dissoi logoi*. It is interesting, then, to find in the histories of Plato an extraordinarily harsh view of the sophists as a collective. G.E.R. Lloyd writes in “On the ‘Origins’ of Science,” “The objection that Plato himself brought against these sophists was that they dealt in the merely *persuasive*, whereas what he, Plato, required was *proof*, a style of reasoning that would secure certainty” (Lloyd 11). Whereas Plato’s concern was epistemic, the sophists’ was merely stylistic. Though Protagoras has greatly influenced the classical dialectic

⁵ This term did not appear until the 5th century AD, by way of Sextus. It later came to be associated with Protagoras’ concept of two opposing *logoi*.

through *dissoi logoi*, his motivations and methods leave much to be desired for the modern day. Protagoras, mentioned in various places in Plato and Diogenes' historical accounts, took great pride in taking the weaker side of an argument and winning the debate, through elaborate rhetorical tactics that his opponents were ignorant of. He did this not because he took pride in the truth or proof of a claim, but because he cherished argumentative structure itself. Protagoras adored the act of winning through intricate argumentative footwork, not the act of communally finding the truth in a civil manner. While this is admirable, it does not quite capture the commitment to open truth that the modern day requires. Instead, we must look to Socrates and Plato's refinement of Protagoras' *dissoi logoi*.

Socrates, Plato's renowned mentor, took the *dissoi logoi* concept and formalized it into the beginnings of an epistemic discussion model. The Socratic method, a phrase now-common to education, functioned as a precursor to future dialogues. The Socratic method lies at the core of the classical dialectic. If any of my readers have ever had any discussion or education course that you could describe as a "back and forth discussion between the students and teacher," then you have seen the Socratic method in action.

Sokratikoi logoi became a primary assumption in any efforts by Plato to distinguish epistemic method. Formal classic dialectic rhetoric begins with the *Sokratikoi logoi*, a methodical approach to knowledge conceived by Socrates and predicated on his conception of the rhetorical tool the *elenchus*. The *elenchus* captures the Socratic method: participants took turns as questioner and answerer, were forbidden from specifying the answers they wanted, could not harass opponents (as verbal abuse is not proper refutation), and must concretize answers. This does much to champion what Plato and Aristotle both desired: "incontrovertibility" (Lloyd 20). Such practice required, in the ancients' case, a commitment to

prolonged and intentional thought. Plato remained greatly indebted to Socrates for much of his dialectical philosophy. In many of his works, the character of Socrates appears as his mouthpiece. Without Socrates' mentorship, Plato, and indeed Western philosophy as a collective according to C.C.W. Taylor and Mi-Kyoung Lee of Oxford University, may very well have taken quite a different historical turn ("Sophists" 6). Taylor defines *Sokratikoi logoi* as "Socratic conversations" (7), although the plural term can also be defined as Socrates' classification of singular *logos*, relating to reason, logic, and rational thought, which he believed to be dependent on discussion or debate. While "conversations" does signify one of Socrates' primary influences on Plato (the belief in the power of discussion), the *elenchus*, though functionally identical to *Sokratikoi logoi*, better provides a single word that captures the concepts behind the Socratic method. The *elenchus* indicates an active dialogue between more than one participant based on questions posed in search of a definition for a term, concept, or notion received through an answer (Ahbel-Rappe 65). The sophist influence is clear. Plato inherited Socrates' rhetorical tradition of the *elenchus*, or again *Sokratikoi logoi*, and created the "Theory of the Divided Line" and its parable "The Allegory of the Cave" to evolve and model the *elenchus* into a fully functioning dialectic. The "lost dispute language" of the classics begins to take definite shape in Plato's modeling of Socrates' envisioned *elenchus*.

Plato evidently placed much value in the dialectical process hinted at by Protagoras and taken seriously by Socrates. His two seminal pieces, *The Dialogues* (of which *The Republic* is part four) and *The Apology* are composed in active-discussion format. Each is a lengthy conversation between two people in typical *elenchus* form. This strategy formatted any discussion in the form of an active dialogue: one person (in Plato, typically his model of Socrates) would explain a theory or idea to another (in Plato, often a sophist) who would respond

with questions or criticism aimed at rooting out the truth of the matter being examined. The first would then answer and the process of epistemology would begin as a conversation. The classical dialectic “theory” comes out of this epistemically-concerned dialogue. Plato’s “Theory of the Divided Line” (DL) comes from Book VI of *The Republic* during an interchange between two of Plato’s characters, Socrates and Glaucon:⁶

SOCRATES: Then you should think, as we said, that there are these two things, one sovereign of the intelligible kind and place, the other of the visible—In any case, do you understand these two kinds, visible and intelligible?

GLAUCON: I do.

SOCRATES: Represent them, then, by a line divided into two unequal sections. Then divide each section—that of the visible kind and that of the intelligible—in the same proportion as the line. In terms of now of relative clarity and opacity, you will have as one subsection of the visible, images. By images I mean, first, shadows, then reflections in bodies of water and in all close-packed, smooth, and shiny materials, and everything of that sort. Do you understand?

GLAUCON: I do understand.

SOCRATES: Then, in the other subsection of the visible, put the originals of these images—that is, the animals around us, every plant, and the whole class of manufactured things.

GLAUCON: I will.

SOCRATES: Would you also be willing to say, then, that, as regards truth and untruth, the division is in this ratio: as what is believed is to what is known, so the likeness is to the thing it is like?

GLAUCON: Certainly.

SOCRATES: Next, consider how the section of the intelligible is to be divided.

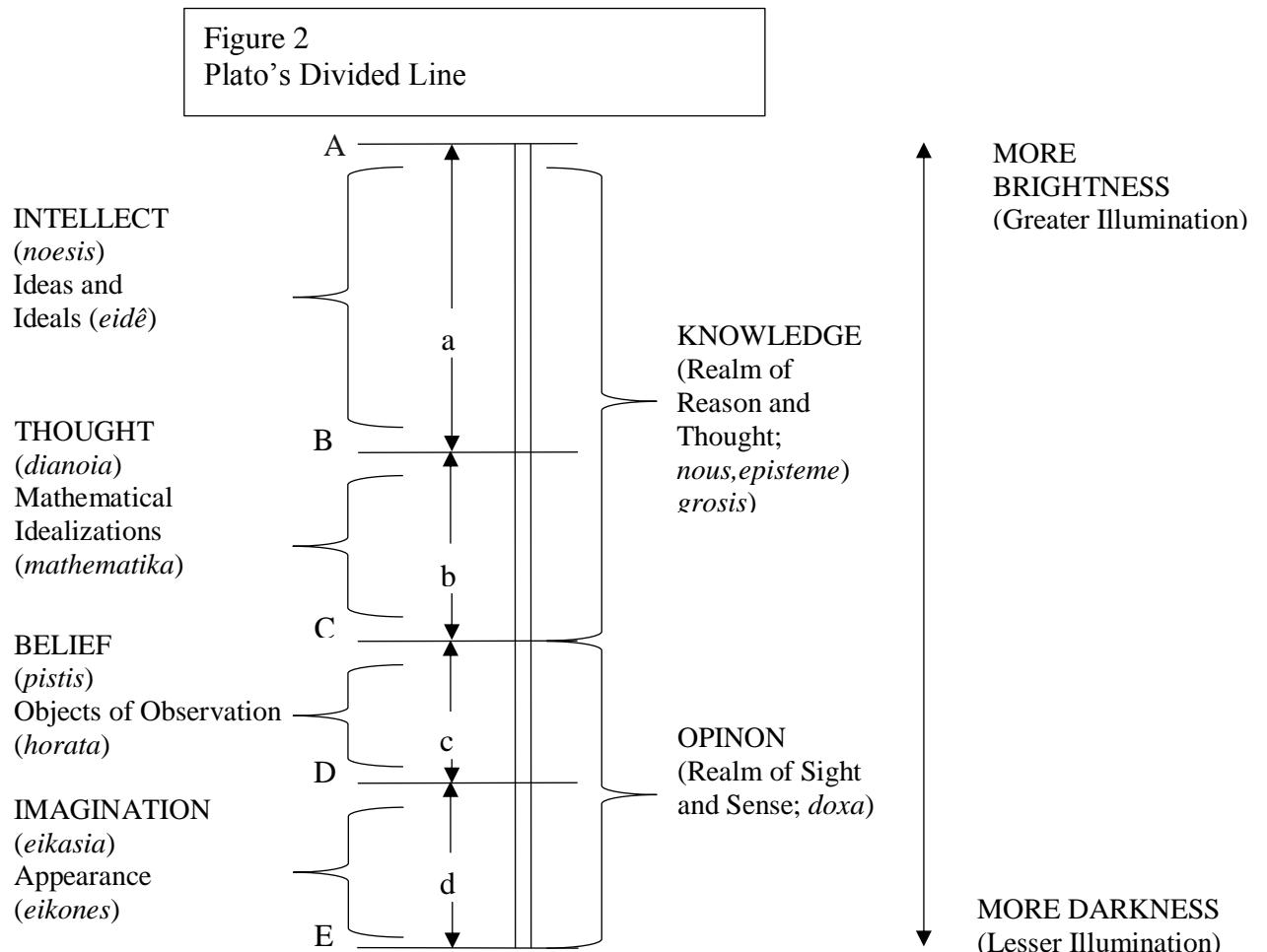
GLAUCON: How?

SOCRATES: As follows: in one subsection, the soul, using as images the things that were imitated before, is forced to base its inquiry on hypotheses, proceeding not to a first principle, but to a conclusion. In the other subsection, by contrast, it makes its way to an unhypothetical first principle, proceeding from a hypothesis, but without the images used in the previous subsection, using forms themselves and making its investigation through them. (Plato 514a-516)

Nicolas Rescher’s model provides an easy-to-read visual representation of DL’s upward progression. He comprehensively separates Plato’s strata of intelligence into a diagram more

⁶ This exchange comes from an edition of *The Republic* edited by Michael Morgan. This version better demonstrates the back and forth exchange than others.

fitting Plato's words. Many drawings portray DL as a horizontal line. Rescher's vertical representation is a far more honest visualization, as Plato viewed the realm of the Good (true intellect) to be found "above." See Figure 2.



Rescher, Nicolas. Pp. 141. (2014). On the epistemology of the Divided Line. Retrieved from <http://logos-and-episteme.acadiasi.ro/wp-content/uploads/2014/12/ON-THE-EPISTEMOLOGY-OF-PLATO'S-DIVIDED-LINE.pdf>.

Plato believed in a form representative of the true, perfect nature of all reality, The Good. The Sun, the cause of vision, comes from The Good and is a tangible source of illumination that leads one to greater illumination (awareness/intelligence) of the truth (Plato 508c-d). DL, then, maps the

steps one must take toward greater illumination from lesser illumination. Or, from lesser intelligence and knowledge to greater. Plato claims that the commitment to knowledge acquisition is the ladder that one must climb. He writes in *The Republic*, “When its [the soul’s] gaze is fixed upon an object irradiated by truth and reality, the soul gains understanding and knowledge and is manifestly in possession of intelligence” (508d). Plato’s sun-illumination metaphor demonstrates his insistence in the tangible effects of a dialectical process informed by the *elenchus*. It encompasses far more than what our senses see. Dialectical efforts allow one to gather thoughts and work through true hypotheses regarding truth from the observation of our surroundings, which sensory information validates. DL presents the progress of an individual’s advancement into the realm of knowledge through active discussion with our senses and thoughts. We then speak these ideas to others and begin public discussion. While individuals accomplish the act of climbing the ladder of intelligence and awareness, the collective species benefits as the individuals are connected through Socratic dialectics: from imagination objects gain appearance→we observe via the senses such objects and develops belief on their nature→we apply reasoned thought to our observation-founded belief→we achieve well-reasoned knowledge on the truth of the objects.

These steps contain the epistemic code that later morphed into 20th and 21st-century scientific hypothesis-building, also a process dependent on our engagement with observed material and surrounding discussants. The creation of the hypothesis (the act of viewing an object and questioning its relationship to its surrounding) precedes the act of coming to a reasonable scientific conclusion via experimentation. Segment EB of DL demonstrates this progression. The transition from the realm of sight and sense to that of knowledge, depends on empiricism (usage of the five senses to obtain knowledge). Empiricism informs scientific efforts. We are all “scientists,”

observing our world with sight, sound, touch, scent, and taste. Plato's DL rhetorical conventions involve both the individual and the public interest.

Plato's epistemic and dialectic traditions (through the *elenchus*) depend on his conceptions of knowledge as achieved through a public and interpersonal discussion on the true "forms" of reality. No modern-day philosopher would toss Platonic forms in the wastebin of philosophic history. Plato arrived at Platonic ideals (or "Platonism") via the guiding force of vigorous discussion taught to him by Socrates. Dialectics relies on a commitment to discussion, or, at its most fundamental, words (and thus rhetoric). Epistemic concepts are first grounded in rhetoric that describes "true" things. Plato's rhetoric centers around a "light-darkness" language strategy reliant on the dialectical process as a ladder that allows one to climb higher into the sun.

All throughout *The Republic* we see Glaucon stumbling through topic after topic with Plato, posing questions, answering some, and trying to discuss his way to the truth. He eventually arrives, but only after Plato walks him through the DL process. First, they use their minds to come up with an "imagined" truth.⁷ The finest "forms" are captured by the mind; only then can they be captured by sight. We do this today. As children, we learn the word for "elephant," "fire," "bumblebee," and others long before we physically see any such creatures or objects with our sight. The language may be attached to the seeing of such visual objects (the initial phenomena), but for the child, we must rely on the abstract move via metaphor to true sight. And, as any parent will tell you, this process involves the active thrust and parry of discussion (in most cases exhaustingly so). Who would argue that the process of discussing the rhetoric of "elephant" does not let the hearer know that such a thing exists? Humanity constantly relies on rhetoric to form knowledge and construct truth. This has not changed with time. As G.E.R. Lloyd writes, "this

⁷ This simply means that they use their mind to come up with a thought of what their target "truth" is before using their senses to see it and their mind to rationally think through it. Take the elephant example as a mode.

ancient history of ideals continues to be relevant to our own predicaments today” (41). The Divided Line functions as a model of one such ideal, and it refashions the Socratic dialectical rhetorical tradition of *elenchus* by way of language framing and metaphor.

Plato, not one to abandon the value of well-chosen words, used seven nouns and one verb to construct DL. *Noesis*, *episteme*, *pistsis*, *doxa*, *eikasia*, *horata*, and *eikones* roughly for “intelligence,” “knowledge,” “belief,” “opinion,” “imagination,” “object,” and “appearance” respectively. *Dianoia*, however, translates directly from the Greek as “thinking.” “Thinking” is active in nature. Verbs drive action to and from nouns. The verb *dianoia* falls firmly between the realm of sight and sound and the realm of knowledge (points C and B). It therefore acts as the driving force behind the DL’s core transition, one that represents the soul of Plato’s philosophy. As there are no other verbs to fuel action, the reader is forced to adopt *dianoia* as the sole way for us to climb to knowledge. Once done, we then have no alternative but to denote *dianoia* as characteristic of the entire DL. “Thinking” one’s way to “knowledge” is a decidedly epistemic quality that permeates Plato’s work that even Descartes acknowledged in his revisions of DL (Weissman 15).⁸ The act of “thinking” as an active, near-transcendent action appears in Plato’s work as *dianoia*. Cross and Woozely see Plato describing the mathematician’s mind as “one intermediate between belief and knowledge in the full sense” and giving it the name *dianoia* (93). Two other Ancient Age philosophers allow us to more concretely say that Plato’s thoughts represent the classic dialectic seen in DL.

Plotinus, of the third century, provides evidence in his treatises the *Enneads* of the classic dialectic in DL. Acting as the main information source on Plato for various heavily influential individuals of whom Augustine and Descartes are but two, Plotinus stands today as a primary well

⁸ Don’t forget that “epistemology” is the study of knowledge. How we get there falls inside of it.

of platonic thought (Weissman 8). “It is therefore,” writes Plotinus in the *Enneads*, “by identification that we see the good and touch it, brought to it by becoming identical with what is of the Intellectual within ourselves” (539). Correct interpretation of this passage relies on the word “identification.” It is written as what allows us to grasp “The Good.” “The Good,” in Platonic thought, should be the “goal hoped for” by all individuals: it is the arrival of an individual into the realm of intellectual. The Intellectual Realm, a concept unique to Platonism at this juncture in epistemic progress, allows one to see “truth” for what it truly is and rid themselves of all the “shadows” (or “truth-distortions”) of the lower realms. It is a concept that has the public interest firmly in mind through the ridding of false visions of truth (or mere “forms” or reality). The second clause of Plotinus’ provides the link from “The Good” to Plato’s Intellectual Realm. If “identification” depends on recognizing and following the principles behind the concept of the Intellectual (the upward progress of intellect/awareness of truth), then it must demand that we follow the observation-belief-rationalization-intellect process as conceived in DL, as that alone gets us to the realm of the Intellect. Those who do not embrace this process “pretend to reasoning...like the heavier birds which have incorporated much from the earth and are so weighted down that they cannot fly high for all the wings Nature has given them” (Plotinus 434). The DL climb from what we see to what we can rationalize from what we see to our interaction between our working hypothesis and public discussion lets us fly along the air of proper reasoning. Any attempts to bend the observations, data, or rationalizations to a conclusion not logically supported by the true nature of what we see cause the opposite: we cannot “fly high” on “truth” because we have forfeited fair, honest, and open epistemic tactics. The Coca-Cola beverage company, for example, is still on the ground. In sacrificing honest discussion, it does not allow truth its day, nor begin the dialectic process in a fair manner. Plotinus speaks directly to DL’s

process of ascending from the sensibles to the intellectuels and emphasizes the latter (all that is rational or reasonable) (Weissman 9). Plotinus provides good evidence for Plato's refinement of the *elenchus* as the classical dialectic. Another to do this is Saint Augustine of the fourth century A.D.

Saint Augustine demonstrates the lasting influence of the classical dialectic in Book VII of *Confessions*. He states directly that he "procure[d]...some books of the Platonists" and found much worth inside them (144-146). Not five pages later, Augustine reiterates in his humbly plain style an abridged version of the classical dialectic:

So, step by step, my thoughts moved on from the consideration of material things to the soul, which perceives things through the senses of the body, and then to the soul's inner power, to which the bodily senses communicate external facts. Beyond this dumb animals cannot go. The next stage is the power of reason, to which the facts communicated by the bodily senses are submitted for judgment. (151)

His language parallels the "Theory of the Divided Line." Movement to knowledge begins at the observation of our surroundings ("material things") through the avenue of the bodily senses. It ends with rational judgment. Augustine clearly places reason as the paramount guiding force, where final judgment, and thus final knowledge, dwell.

Plotinus and Augustine both echo an epistemic, rather than solely ontological, reading of DL. The foundational language of DL, in addition to two of Plato's most influential students, provide substantial evidence in the reliability of judging DL as a classic dialectic model. Descartes' later claim that rational knowledge is greater than simple belief in the *Meditations* demonstrates the prevailing influence that Plato's epistemology commanded over philosophy's formative years (Descartes 59). If epistemic and dialectic readings of DL were simply empty circumstance, one would have to grudgingly regard many of modern philosophy's forefathers as little more than fools, for much of their teachings come from Platonic epistemology. This would implicate not only

philosophers, but much of scientific thinking which grew out of philosophic epistemology as well. That is quite the slippery slope, one that many would be, and should be, hesitant to concede.

Augustine's bare prose simplifies the primary caveat buried within the mathematical nature of the Divided Line: it is a step-by-step process. One cannot take any one step without taking the others prior to it. What emerges is a process that is "quadratic, contemplating higher and lower modes of knowledge with respect to either category" (Rescher 136). Rational insight is at its peak, solidified by inferential knowledge issuing from a conviction for pursuing the truth (*Republic*, Book VII, 511E). Any attempts at truth discovery must, according to Plato, be guided along the winds of the classical dialectic. We must begin with objective observation and proceed to rational, cooperative consideration of the object under question. It is a mathematical, metaphorical climb upward on the ladder of dialectics to actualize epistemic methods. Failure to do so not only injures one's perception of reality, but endangers the truth and those who report it. As individual units in a larger community, people must hold the "public interest" high. It is an individual's duty to present scientific findings to the public for its benefit. Censorship by omission can occur in two places here: 1. In the individual's collection and publication of data; and 2. In the way that data interacts with the public. While the "Theory of the Divided Line" concerns largely the first of these, Plato's greatest warning is a command to those who, when confronted with the truth, forcibly obfuscate and censor it. He, in fashion befitting a teacher, weaves together the "Allegory of the Cave" as illustration.

3.2 The Allegory of the Cave

The "Allegory of the Cave" (Cave) comes in Book VII of *The Republic*. Plato's rendering of Socrates, to his dutiful listener Glaucon, narrates the following story: There are, in a cave,

number of prisoners who have lived their entire lives chained to one of its walls. The prisoners know nothing aside from the reality of the cave. They are prevented from looking at anything but the wall in front of them by chains. Behind them is a fire, and between the fire and the prisoners a raised walkway, all of which is beyond the sight of the prisoners. The prisoners' reality consists of the shadows cast onto the wall by objects that pass before the flame. They know of nothing else, and are slave to what they think they know about what is true. They ascribe the sound of people walking behind them to the "shadows" they see. Plato, as narrator, frees one of the prisoners, who quickly climbs out of his chains. He sees the fire and what the shadows really are. His recoils at such a sight, as his eyes are unaccustomed to viewing the true illumination that the fire provides. Plato then supposes one hauls the prisoner into the world of light, the world outside the cave. The prisoner, blinded fully by the sun, would have no recourse but to slowly allow his eyesight to adjust to the illumination that is even harsher than the cave fire. First, he sees only shadow, then the reflection of images in water. Gradually, he comes to look upon the images themselves, until finally able to gaze upon the sun. Then is the prisoner able to discern the true nature of his reality. Now enlightened, Plato speaks how the prisoner naturally desires to return to the cave to spread his knowledge regarding truth to his fellows who are yet lost in the dark. However, now accustom to light and reality, the prisoner would falter in the darkness. The chained prisoners would incorrectly infer, from both his inability to see their false shadows and his wild words of a world of light, the enlightened man's insanity. They would discount him a madman, and anyone who attempted to free the still-chained prisoners would be met with murderous intent (*Republic*, Book VII, 514a-520a). Plato's illustration of the death of Socrates

largely informed the prisoners' response: Socrates was condemned for misleading the youth away from sophistry.⁹

The Cave functions as a parable demonstrating the interplay between Divided Line principles and the public. The individual has a duty to epistemic methods, driven by a stronger duty to the "public interest," of the public's conceptions of "truth." It is more than simply a civic obligation to share scientific findings; it determines their perceptions of reality. The manipulation of public opinion by the state in the modern-day cases examined at the beginning of my study and Socrates' death are examples of the murderous prisoners of the real world. The question that we must answer for this view of the Cave to hold is this: Can it be reconciled with DL? Its *elenchus* format certainly lends credence to claims of dialectical method, and the interaction between the one who frees the first prisoner and the first prisoner's enlightenment serves a role like that of two discussants engaged in determining truth. Richard Robinson answers unwaveringly in the negative, writing that the narrative constraints present in the Cave "forbid us to put it in exact correspondence with his Line" (Robinson 99). Much of his critique, and Cave/DL critique on the whole, centers on the numeric aspect of DL. It contains four divisions (a,d,c,d in Figure 2), while the Cave at most can be construed to contain three: "images or impressions [things reflected in the water outside the cave], material things [the things themselves], and the Forms [the Sun]" (Weissman 9). Here Robinson and Weissman err on the grounds of neglecting the overarching principles that comprise both the Cave and DL. The numeric separations are merely epistemically symbolic, not prescriptive. The Cave can in fact be coordinated with DL, to great effect.

⁹ See *The Apology* in the collection of Plato's works referenced in the Work Cited.

Several passages are relevant if the word “scientist” is used in place of “prisoner.” Plato writes on line 515, “He [the escaped scientist] would need, then, to grow accustomed before he could see things in that upper world. At first it would be easiest to make out shadows, and then images of men and things reflected in water, and later on the things themselves” (*Republic*, Book VII). The scientist, once free of bondage in the shadowy cave, cannot immediately look upon the sun, the source of truth and illumination, due to the change in brightness from the cave. Also remember that this truth Plato ties to knowledge. The process of knowledge acquisition is synonymous with the collection, reporting, and publication of scientific data (knowledge acquisition in the modern world). The scientist in Plato’s time, however, must operate exclusively in the realm of sight and sense before able to negotiate truth and begin a conversation with both himself and those around him in line 516: “Last of all, he would be able to look at the Sun and contemplate its nature, not as it appears when reflected in water...but as it is...he would begin to draw the conclusion that it is the Sun that produces the seasons and the course of a year...and...the cause of all that he and his companions used to see” (*Republic*, Book VII).

The escaped scientist’s burden is here twofold: to arrive at a conclusion through an epistemic process (step-by-step from areas of lesser brightness to greater), and to present that conclusion to the public to start the dialectic proper (return to the Cave). The first half of the scientist’s burden corresponds with DL. In the Greek, the word used in place of the English “contemplate” is *skopeó*. This can be defined also as “thoughtful consideration.” Similarities to DL’s *dianoia* are apparent in that “contemplation” requires the act of “thinking.” Once more Plato’s main DL actor rears its head, serving identical purpose in both DL and the Cave: to bring one into objective knowledge. Objective knowledge separates the “enlightened prisoner” from his peers. “Thoughtful consideration,” a cooperative act as demonstrated by Plato’s constant

reliance on a debate-style form in his literature, necessitates dialectic discussion. The scientist's new-found knowledge that the sun is responsible for all he sees realizes A, true intellect, but only post-consideration of observed phenomena, an assertion first demonstrated in DL. For example, the observed scientific data showing sugar-sweetened beverages role in obesity is the observed phenomena, and the consideration of this evidence that Coke, being sweetened with sugar, is not a healthy beverage alternative is true intellect. The discerning scientist logically deduces their cause by way of viewing effects. He or she sees the reflection in the water, and works upward to the end "truth." It is an upward path from effect to cause (Robinson 125). This is much akin to how a hiker can view a mountain stream, deduce a lake, and after a brief period of hiking upward, locate said lake. It is, also, very much a scientific practice.

A third passage of Plato's Cave deposits on the scientist the second half of his burden complete with a warning to the public. It is crucially important and connects the Cave to the active discussion elements present in DL. This moment, where the scientist takes their data and conclusions and interacts with the public for their good, activates the "dispute language" the escaped scientist has learned. However, indicative of the modern day, when the scientist presents his findings to the public he is attacked or at the very least feels threatened. The enlightened scientist, who wants to return to his fellow scientists to tell them what he knows, would be met with a tragic end in line 517. "They would laugh at him and say that he had gone up only to come back with his sight ruined; it was worth no one's while even to attempt the ascent. If they could lay hands on the man who was trying to set them free and lead them up, they would kill him" (*Republic*, Book VII). Those chained to the cave wall, knowing only the shadows cast by the fire, regard the man speaking truth as asinine and insane. They are so blinded by their false reality that they censor all evidence against what they believe. The scientific community's

commitment to an ignorance that appeals favorably to their views prevents them from learning the truth. Indeed, they would murder all who spoke against their false truth. For who among the comfortably established scientists dares to consider that their reality is but a facsimile and there is far more beyond the confines of the cave? Is it not easier to continue to believe as they have? Plato's warning follows naturally. To one who receives truth through another, no matter the circumstances, consider it, for it may have been gained through the merits of the classical dialectic. Science must be a public cooperative exercise. An example from the history of geography shows us that the classical dialectic can be applied transgenerationally to science, through Plato's student Aristotle.

Aristotle, Plato's self-proclaimed esteemed protégé in the "mind of the school" (Johnson, Mowry 7), deduced a spherical earth when the majority of the population believed that the earth was flat. Beginning with what he could view with his senses, the earth, moon, and sun, Aristotle observed a lunar eclipse, where the earth travels between the sun and moon. The shadow, he observed, cast by the earth upon the moon, was rounded, contrary to what one would expect to see if the earth was flat. Next, he viewed the North Star's progress across the sky, and its tendency to slip beneath the horizon if one travels too far south. Again, inexplicable under a flat-earth model. Aristotle also observed how the sails of ship were hidden beneath the horizon at great distances, but as they neared the observer drifted into sight. Logically, then, Aristotle deduced a spherical earth, as any explanations rendered these objective conclusions strictly impossible (Dowling 1).

Although objectively deduced in the third century BCE, not until centuries after was it widely accepted. Why is this? It is due to successful censorship of Aristotle's findings away from the public ear: "For a thousand years of middle time, almost all scholars held that the earth must

be flat...proof required the bravery of Columbus and other great explorers who should have sailed off the edge, but (beginning with Magellan's expedition) returned home from the opposite direction after going all the way round" (Gould 2). The classic dialectic, at least the knowledge-gaining portion, worked wonderfully. After all, Aristotle was correct. However, the public's open interaction with the data did not take place. They instead censored Aristotle by imposing an "ecclesiastical darkness" (Gould 2), and fell victim to the Cave's warning. The state (the Hellenistic church) condemned the data, and the public omitted it from their consideration because it spoke opposite the accepted "truth" of the day. The prisoners of the cave and the established power won out. The part of the classic dialectic that demands we civilly discuss all evidence, that we act communally for the goal of truth, is what we in the modern day must adopt. The history of astronomy offers a vivid example of something often left unconsidered. Thousands of years passed before the truth could publicly be discussed, and each took place after the "truth" was actually discovered and presented to the public. With our current zeal for the truth and need, simply, to know, can we afford those years? Think for a moment on the necessity of the truth in many of today's issues. Gun violence, climate change, medicine, and the textbooks of schoolchildren. These are issues that impact us all, and the public has a right to know and openly discuss potential truths.

The Ancient Era "dispute language" premises, in summary:

- *Dissoi logio-* arguments have two sides with equal right to the truth. Truth can be challenged with a question (Protagoras)

- “Truth” can be gained cooperatively, through the methodology of the *elenchus* (Socrates)
- Overwhelming the opponent with sophistry and rhetorical strategy is no substitute for the proven, observable truth (Plato)
- A hypothesis can be the springboard from unknown into the known, proven world (“The Theory of the Divided Line”, Aristotle’s geography)
- The appearance of a new “truth” can provoke, attack, and dispute, but we should interact with the new “truth,” not murder it (“The Allegory of the Cave”)

The classic dialectic is “utterly honest.” It demands the rational consideration of all explanations. This extends fully to the publication and report of all evidence. To again cite Richard Feynman, “If you make a theory, for example, and advertise it, or put it out, then you must also put down all the facts that disagree with it, as well as those that agree with it.” Constructing a hypothesis based on observation and reasonably regarding all facts, both for and against, is the call embodied in Plato’s refinement of the classical dialectic hinted at by the sophists and initiated by Socrates. But how do we do this? Thomas Aquinas, an apologist of the Middle Age, took this call and created a practical plan of dispute of written and spoken argumentation that models the classical dialectic in a way that has implications in the modern day.

3.3 Thomas Aquinas’s *Quaestio*: A Medieval-Era Practical Dispute Language

Thomas Aquinas’ amalgamation of treatises, the *Summa Theologiae (ST)*, is where his plan of dispute can be witnessed. He finished constructing the seven-thousand-page *Summa*

Theologiae in 1265, in a period in which he acted as professor at the Catholic Dominican house in Rome (Valkenberg 48). During this time, a grand desire to represent in a single treatise all rationally defensible Christian belief gripped Christianity. The Crusades of the 12th century corrupted religion into a debauched motivation for conquest, spurred by the inability of the illiterate public and laymen to rationally attend to the biblical material. Dominicans such as Peter Lombard determined to rectify this illiteracy and prevent similar heinous acts by assembling scholastic principles of intellect into theology. Lombard constructed the *Sentences*, a lengthy academic treatise defending the faith. Aquinas, however, saw attempts by Lombard and others as needlessly convoluted and disorderly. The *Summa Theologiae* stands as the response of an apologist who wanted to provide beginning rhetoricians with an exhaustive dialectic work addressing all then-contemporary Christianity debates.

As a Dominican apologist, one who employs reason as defense for the faith, Aquinas' motivation for writing the *ST* came from a series of scientific and epistemic inquiries. According to one scholar of Christian apologetics, Aquinas concerned himself with three guiding questions: "...what type of scholarly investigation are we starting? How is this inquiry related to other scholarly endeavors? What are the sources that we use and how are they to be used?" (Valkenberg 48). These are found within Article 1 of Question 14 located in *The Treatise of the One God* in the *First Part*, "Whether there is knowledge?" (320). From the Latin, "knowledge" in this instance translates directly as the noun *scientia*. *Scientia* acts as the root Latin formation to the English "science." *Scientia*, whose etymological history as given by Derrick Jensen and George Draffan leads one to the broader act of "having knowledge," involves the mind as what we bring into conversation with the truth (25). The intellectual mind as actively seeking *scientia* is a primary component of dialectics.

Aquinas through his use of *scientia* established *ST* as a body of work dedicated to the pursuit of how one “has knowledge,” otherwise known as epistemology. He gives a somewhat murky origin for *scientia*:¹⁰ “Knowledge is according to the mode of the one who knows; for the thing known is in the knower according to the mode of the knower” (*ST* 1a, q14 a1). Aquinas, referenced throughout modern history as the quintessential model of religious apologetic thought, predictably placed knowledge into two categories, divine and created. Created knowledge is that confined to the limited scope and capacity of the human mind, and is the primary arena in which Aquinas does battle (*ST* 1a, q14 a1-16). If legitimate knowledge acquisition rests on the “mode of one’s knowledge,” one might indeed want to determine what precisely that mode is. Aquinas never tells us this mode directly. It is rather demonstrated in his written form, one that puts into method the classical dialectic.

I will produce, in abbreviated form in the interest of space, the aforementioned Article 1 Question 14 written to emphasize Aquinas’ structural rhetorical method that extends far past merely echoing Ancient-Age dialectics. Socrates and Plato explained that the mind is the principal dialectical actor that can arrive at truth if it adheres to the classical dialectic. They did not establish a definitive and practical strategy for how we do that. Aquinas anchors the somewhat ephemeral dialectics of the ancients in the practically tangible mode of *scientia* expressed through Aquinas’ adherence to a systematic dialectical arrangement of argumentation called the *quaestio*-form. See the following page.

¹⁰ All Aquinas material is taken from Christian Classics Ethereal Library edition, which is an on-line downloadable edition. It is approximately seven thousand pages in length, hence the lengthy citation ranges.

Whether there is knowledge (Scientia)?

Objection 1: It seems that...

Objection 2: Further...

Objection 3: Further...

On the contrary, The Apostle says...

I answer that, In God there exists...

Reply to Objection 1: Because...

Reply to Objection 2: Whatever...

Reply to Objection 3: Knowledge is according... (*ST* 1a, q14 a1)

Each of *ST*'s 610 questions in its seven thousand pages are structured along this form. It is no circumstantial accident on the part of Aquinas that his inquiries and subsequent claims follow the *quaestio* template. In fact, *ST* signifies a specific argumentative style, the *quaestio*-form. A byproduct of medieval dispute ideology, the *quaestio*-form (or “question” form) assembles arguments as answers to a question posed to be answerable either in the affirmative *Yes* or negative *No* (Marenbon 74). The sophist influence of *dissoi logoi*, its two sides, and the question-answer contests is apparent. Table 2 on the proceeding page outlines a typical *quaestio* argument.

Table 2. *Basic Structure of a Scholastic Quaestio*

- Question: p or not- p ? (Then, supporting that the answer that will be proposed is not- p : -)
- A: Assertion of p , preceded by *Videtur quod...* ('It seems that...')
- B: A series of arguments (*rationes*), based on authority or reason, in favour of p
- C: A brief statement, usually from an authority, that not- p , preceded by *Sed contra* ('But against [this]...')
- D: A reasoned explanation by the author of why it is the case that not- p (This is often called the 'body' of the *quaestio*.)
- E: Counter-arguments (*solutiones*) to each of the arguments proposed in B, explaining why they do not give grounds for believing that p
-

Source: Marenbon, John, *The Cambridge Companion to the Summa Theologiae*, Method, 2016, table 1.

While Table 2 makes the *quaestio*-form seem a complex jumble of Latin, it is at its heart simple. Aquinas began with a question, which he wrote at the top of each discussion. The question represented the topic of debate and was followed by a brief introduction that gave a brief background on the topic and its importance. This was commonly done in this form to keep the scope of the debate in mind and to keep the author from straying from topic relevance. Next, the author would do something quite strange for the modern day. He would research the opposing side to his own extensively, then recreate it honestly and accurately. It would appear first, directly after the topic question (Part A in the table). The opposing side would be complete with its best argumentation and evidence (Part B). Then, the author would give his own thesis counter to the first position already given (Part C). Proceeding Part C would be Part D, the author's own reasoned explanations and evidence for his primary claim. Finally, he would conclude with a series of counter-arguments addressing each of the opposing side's claims (Part E).

This form governed Aquinas' approach to all discussion in *ST*, contrary to his contemporaries who adhered to the traditionally loquacious form incepted by Lombard in his religious treatise *Sentences*. (I am unable to produce a translation as they have yet to be transcribed from the Latin, but one can see the obvious verbose locution in Book IV. 1-42 should one require proof). Aquinas' usage of the *quaestio*-form remedied the perceived weakness of then-current contemporary style and argument complexity. He viewed the argumentative style around him as so needlessly complex and obscure that it harmed clear truth. Plagued by this, they "multiplied useless questions, articles and arguments...[and] bred boredom and confusion in the minds of hearers" (Aquinas, "Prologue," qtd. in Jordan 36). His concern was for the mind of his readers. He "promises to teach 'briefly and clearly' only what is useful, according to an appropriate order, and without alienating duplication" (Jordan 36). Aquinas' solution for such a goal was a clear form of argumentation that historically predicated on a fundamental part of the classic dialectic method, civil disputation, or fair and honest public discussion.

The concept of "disputation" arose within Middle-Age classrooms as an exercise in which philosophical and theological questions were debated (Bauerschmidt 10). The Dominicans prized discussion. Timothy Radcliffe writes of the early Dominicans, "Debate was more than a matter of the cold acquisition of knowledge. It was a foretaste of the joy of the beatific vision" (28). Albert Magnus, Aquinas' masterful tutor, spoke at length on the pleasure of seeking truth alongside others in Book VII of *Commentarii* via the term "*in dulcedine societatis quaerere veritatem*" (Magnus 30). *Veritas* functions as the route for the word "truth," and *societatis* denotes "society." The modern-day Veritas Forum (an organization dedicated to fostering open scientific, philosophic, and societal discussion) uses identical vocabulary in its mission statement. The Dominican Order believed that truth came about by collected debate and

discussion between individuals in society. The *quaestio*-form, by placing the opposing argument first, forces one to attend to the counterargument of peers first and foremost. Such back-and-forth fuels the dispute process. The result of doing so eliminates the all too common “straw man” fallacy (Bauerschmidt 10).

A natural critique of the *quaestio*-form is that it encourages straw-man attacks. Aquinas’ *quaestio*-form chosen Replies (Parts A-B) according to Bauerschmidt, “should not be viewed as straw men set up by Aquinas so that we can admire his skill in knocking them down...Aquinas generally thinks that they are rather good arguments” (10). Much to the contrary, representing the opposition fairly helps his own Objections (Part D) by forcing them to be coherent rebuttals. The higher the truth-value in the soon-to-be refuted Replies, the higher the truth-value in Aquinas’ arguments that prove them invalid. It is therefore to Aquinas’ benefit to carefully balance the truth of the Objections and his own *sed contra* (Bauerschmidt 12). Aquinas adheres to the *quaestio*-form to prompt argument refinement through debate.

For those unversed in formal fallacy, this scenario is a straw-man attack: Citizen A asserts that *Huckleberry Finn* by Mark Twain is a pivotal piece of American literature as it examines the demons of slavery and urges the value of all human life. Citizen B disagrees, critiquing the novel on the grounds of its (as he views) poor grammar structure, weak plot construction, and unrealistic narrative. Citizen A constructs Citizen B’s argument as a racist attempt to silence the horrors of slavery, misconstruing Citizen B as a pro-slavery sympathizer. Citizen A then proceeds to systematically burn down his version of Citizen B’s argument using the entire violent history of slavery to support his original claim that *Huckleberry Finn* is seminal. He claims that his successful rebuttal on these grounds invalidates the other’s original claim. Citizen A’s rebuilding of Citizen B’s conclusion into a notably weaker, and thus easier to

attack, position that does injustice to the original conclusion is a straw man. It is essentially misconstruing an argument in a way that fraudulently renders an opposing argument perfectly rebutted by your argument's perceived greatest strengths. Citizen A's error is common in modern discourse: the fundamental absence of any disciplined training in the importance of genuine civil dialectic. The process of questioning and not merely hearing the opposition's response is essential to the classical dialectic. This absence of dialectic is not hyperbole and metaphor. It poisons the public's right to know and destabilizes scientific integrity and academic freedom. The Coca-Cola case, the Trump Administration's handling of climate change research, gun violence, and the many instance of censorship by omission within the science v. faith debate all often include straw-man attacks. The above use of *Huckleberry Finn* is also intentionally chosen. In 2015, this novel continued to be banned from secondary school classrooms (Akkoc 1). Deprived of the occasion to engage in honest debate discussants have little recourse but to fall victim to willful or coerced censorship and straw-man attacks.

Aquinas often upheld the importance of disputation as a dialectic process. In fact, he vehemently desired it in *De Perfectione Vitae Spiritualis*: "If anyone wants to write back against what I have said, I shall be delighted, because there is no better way of disclosing truth and confuting error than by arguing with people who disagree with you" (337). As examined in the analysis of DL and the Cave, the assertion of truth is at the soul of epistemology. Therefore, the *quaestio*-form, urging the assertion of truth via the consideration and rational response of individuals to counterargument, becomes a form concretized adamantly in the classical dialectic. Aquinas' most favored quotation aids in establishing a firm link between himself and Plato-era dialectics: "Nothing in the mind if not first in the sense" (Radcliffe 30). Aquinas quite clearly echoes DL ideology in *ST* along those very lines: "As is clear from what has been said, our

intellect, which takes cognizance of the essence of a thing as its proper object, gains knowledge from the sense...hence from external appearance of things we come to know the essence of things” (1a, q17 a13). He does, albeit, tie truth to God rather than The Good (Augustine would argue the two are not entirely dissimilar). Aquinas and Plato, while radically dissimilar in their religious views, share much in the way of classical dialectic.

As with Plato, and indeed the topic of scientific integrity and academic freedom in America, the tendency is to raise a questioning hand. Why emphasize a medieval Latin argumentative form used by religious saints to write seven-thousand-page long treatises? One simple answer is to remind readers that a renowned argument for the existence of God, the *Quinque Viae* (often called the “Five Ways”), is from *ST*. The Five Ways is a unique philosophical attempt to reconcile science with religion and served to usher in a fundamentally influential era of philosophy on science. Another, lengthier answer, requires us to wet our toes once more in the pool of disputation and recognize Aquinas’ goal in providing a written plan of dispute based on the older classical model for a dispute language, the dialectic.

Two *ST* segments emphasize the importance of the dialectic *quaestio*-form and the discipline it inspires. The first warrants special attention, as it puts into practical form the Platonic view of the truth of an object arising only after one acquires its existence intellectually, a view previously defined only through Plato’s belief in dialectics as a knowledge-gaining process. Aquinas molded this classic dialectic process into a formal strategy. The first segment comes from The First Part of the Second Part, q. 16 a. 2, “**Whether truth resides only in the intellect composing and dividing?**”

In the first segment, Aquinas gives the opposition’s argument in Objection 1: truth does not reside only in the intellect for the senses and intellect are “always true as regards their proper

sensible objects,” and composing and dividing (or corresponding observation of data with a hypothesis) are not in the intellect. Aquinas then answers in a way consistent with both the Divided Line and the Allegory of the Cave. It is consistent with the first in its claim of a deducible hypothesis from observation, and consistent with the second in its open engagement with the ability of one’s intellect to find truth. “**I answer that,** As stated before, truth resides, in its primary aspect, in the intellect” (2a, q16 a2). Aquinas continues to clarify his statement through Divided Line reasoning: “For although sight has the likeness of a visible thing, yet it does not know the comparison which exists between the thing seen and that which itself apprehends concerning it” (2a, q16 a2). To put it more simply, our sight alone does not tell us how things are related; that requires logical thought and rational ability, or “intellect.” Truth resides in how we take what our sight gives us and apply scientific (*scientia*) procedure (“composing and dividing”).

The second segment is found in The First Part of the Second Part, q. 29 a. 5, “**Whether a man can hate the truth?**” Here again Aquinas makes a Plato-argument through his practical form of dispute. Objection 1, the opposition, holds that man cannot hate truth as he cannot hate good and has a natural desire for knowledge, and the two are convertible. Aquinas responds with an argument that would not be foreign to the Allegory of the Cave: “The knowledge of truth is lovable in itself...but accidentally the knowledge of truth may become hateful, in so far as it hinders one from accomplishing one’s desire” (2a, q29 a5). He cites three instances of this hate: 1. Man may hate truth because he wishes it not to be true; 2. Man may hate truth because it stops him from what he wants to do; 3. Man may hate truth because another man knows it. The Coca-Cola case is a modern-day example of these similar instances of truth-hatred leading to censorship by omission. For example, it “hates” the truth because it impedes profit margins

(what the company wants to do), and if another man knows it that is dangerous to the company. Plato's prisoners hate the truth of the cave largely under the first and third criterion, and they respond with violent censorship. Here Aquinas is putting into disputative argumentation Plato's warning regarding reacting with hatred when confronted with a "truth." Aquinas speaks to the individual's hatred of truth, but as a society is a collection of individuals, it implicates the public as well. Aquinas' words on the hatred of truth, and the value of enacting a practical civil disputative form of the classical dialectic are prophetic with another example from the history of astronomy.

Galileo Galilei, the father of the heliocentric model of the solar system, proposed his model in 1610 after his invention of the telescope. He followed a process similar to the classical dialectic (the advancement from seen objects to rational belief and subsequent public relaying of that belief) as given by DL and the Cave. Galileo observed that Jupiter's moons (now labeled the "Galilean Moons") appeared to orbit Jupiter, rather than the earth, as the then-current geocentric model held. He next observed the phases of Venus, which would only be viewable if Venus revolved the sun. Galileo rationally concluded that the earth orbited the sun and published his *Dialogue*. The Catholic Church (who upheld the Ptolemaic model) rapidly ordered the publication banned and subjected Galileo to court trial as a heretic. Rather than enter into open and fair dialogue regarding the merits of both models and the observations that fueled them, the Church threatened Galileo with torture. He had no recourse but to publicly recant his findings. Galileo, immediately after declaring the earth stationary, famously muttered, "*Eppur si muove* [And yet, it moves]" (Hayton 1). Like Aristotle, fair disputation within the confines of a dialectic language that ensured a two-way discussion would have acted as mediator in brokering the discovery of the truth alongside the public. Healthy scientific dialogue, and thereby the removal

of censorship, relies on allowing hypotheses to become refined through civil public disputation, an often forgotten lesson as Thomas Aquinas' *ST* reminds us. Hatred of the truth does not stop merely in the pages of history. The Coca-Cola beverage company obfuscates truth as it threatens their corporate profit desires. Gun research is suppressed because it strikes against one side's views of "truth" and they wish it not to be "true." Even today's pharmaceutical companies' mass settlements seem to imply that they hate that "the other man" knows what they know, that they have omitted valuable data. In all cases, the hatred of truth, or of a willingness to discover truth, results in the suppression of reports, data, and findings to the public. Richard Feynman offers an exemplary sentiment in favor of Aquinas' above assertion in man's ability to hate the truth, one that runs parallel to disputative efforts.

There must exist the uninhibited flow of research for the lost language of the classical dialectic to be effective: "For example, if you're doing an experiment, you should report everything that you think might make it invalid—not only what you think is right about it" (Feynman 1). A hatred of the truth prevents one from engaging in discussion with all material, both for and against. Rather than adopt a method of dialectics, the discussant begins to censor material, either by omission, coercion, or sophistry. The truthful discussant cannot address each facet of the opposition and the process of truth-finding is injured. Again, the public bears this cost. Aquinas' *quaestio*-form maintains the atmosphere of honesty that must negotiate dialectic attempts. If it is such an intrinsically important method, why has it in the modern day been relegated to the storage shed of philosophical and epistemological irrelevance? One answer rests at the beginning of my study: corporate and executive desire for power, profit-seeking, and the prioritizing of their interests above the public's. Another is that we have as a society lost its language.

The *quaestio*-form, far from being unimportant, was “the basic unit of (later) medieval theological (and philosophical, legal, and medical) inquiry” (Friedman 85). Later commentaries several decades after Aquinas’ death on both *ST* and *Sentences* were *quaestio* in nature (Marenbon 82). I would extend Friedman’s prognosis and spread the *quaestio* influence into the modern day. What is a court session but an extended debate between two individuals, where the winning argument decides the fate of the accused? Despite its prevalence, *ST* structure has largely been forgotten by many readers of the modern age. According to Mark D. Jordan, this is often a result of an interest in extracting individual passages and principles for application elsewhere, rather than a consideration of the piece as a whole (34). The *Quinque Viae* is famous because it has been plucked from its context and taken only at its face value. It is worth noting that the value of any passages or principles examined in this way, without regard to their structure, should not be viewed under any less serious an eye. After all, The Five Ways are quite famous. It is foolish, however, to leave a highly intentional act like writing a seven-thousand-page treatise unheeded. The purpose behind this section is to bring the *quaestio* out of time and into the modern day.

This is not to say that I wish us all to write like Aquinas. Rather, we should take Aquinas’ self-discipline and insistence on argumentative honesty as a model of how we should apply the classic dialectic to our own disagreements: we should be fair, civil, honest, public, all the while representing all data relevant to any side of the discussion accurately and openly. Writers do not choose their technique of imparting knowledge without consideration. Aquinas knowingly established *ST* on the *quaestio*-form because he viewed fair and honest disputation as the chief means to grasping truth. I again will reference his open invitation for discussion in *De Perfectione*: “If anyone wants to write back against what I have said, I shall be delighted,

because there is no better way of disclosing truth and confuting error than by arguing with people who disagree with you” (337).

Let us for a moment shift our focus from the philosophic and Latin notation, the *p*’s and the not-*p*’s, the *Videtur quod* and the *sed contra*. What, on a simple level, does Thomas Aquinas do in *ST*? At first glance, he seems to be only demonstrating debate prowess. He lays out the counterarguments against his position first and fairly, eliminating straw man attacks, or at the absolute least rendering them foolish. He then destabilizes the counterargument’s conclusion, finishing by offering arguments for his own position and undermining the opposition (Yaure 1). Yet, it is within his argumentation style that we find Aquinas’ true lesson. The value of the classical dialectic extends beyond an Ancient-Age belief in its practical ability to generate new knowledge. It represents a tangible strategy of how we must carry ourselves in our pursuit of truth. We must deliberate all claims, evidence, and objections, and be prepared in like turn to meet the very same upon the field of fair and honest discourse. The fires of unfettered disputation refine the truth. Willful, conscious academic adherence to this facet of rhetorical dialectics we label “academic freedom.” Before we can debate, we must be allowed to be debate. The *quaestio*-form itself, however, is not the “mode” of Aquinas’ “knowledge” that is mentioned at the beginning of this section. The approach we should use for the classical dialectic, for the public and in the public sphere, is a civil disputation language that upholds scientific integrity.

Middle-Age pedagogy was wholeheartedly organized around the civil management of disputation aimed at finding truth. It is important to clarify that this management took place under the watchful eye of the clergy. There are, to be sure, critiques that could be made for a model developed out of the church during this time as seen in the Aristotle and Galileo examples. Equally important is to keep in mind that Aquinas’ Dominican division of the church

is quite different from those that suppressed early scientific findings. As an order, the Dominicans endeavored to adopt practices indicative of the classical dialectic conventions that trace to Socrates and the *elenchus*. And, it must be said, without the errors of the sophists. The “Master” proposed a thesis in a Socratically-modeled classroom, and the pupils put forward arguments against it. Others responded with counterarguments, creating a fairly free exchange between pupils and the Master. After, the Master summarized all previous arguments and counterarguments given during the duration of the session and presented his own analysis and solution of the issue under discussion (Marenbon 77). Any conclusions submitted by the Master were judged *by the students* under the lens of its rational coherence; they did not necessarily immediately eclipse those of the students. *Ad hominum* attacks (attacks on the person rather than the argument) had no place.

Remember your collegiate and graduate experience. Did it consist of open discussion committed to the truth, where students were regarded as fair collaborators? Possibly, as is common in educational institutions, you quietly remained in your desk as you furiously jotted down the teaching of your professor. If you had both, which style of teaching prompted the most learning? A meta-analysis conducted by seven doctors of biology at the University of California and published in the *Proceedings of the National Academy of Sciences of the United States of America* offers evidence steadfastly in favor of the second. An active dialectical approach to educational learning has observable effects on learning. The concept of *dissoi logoi*, the “two sides to every argument,” invites proponents of one side to active challenge the other and actively attend to challenges. The *quaestio*-form, the Middle-Age product of this classical concept, is an active logical dual-via-discussion between competing theses. Academic freedom

and scientific integrity each are rather “active” in how they ask that we carry out science: together and publicly. They allow active style discussion like those centered around *dissoi logoi*. And this often encourages learning more than the alternative.

The seven biologists conducted a meta-analysis of 225 studies that reported the scores of examinations and rates of failures for science, technology, engineering, and mathematics courses that utilized both traditional (lecture-based) and active (discussion-based) teaching methods (Freeman, et al. 1). The findings were as follows:

...results indicate that average examination scores improved by about 6% in active learning sections, and that students in classes with traditional lecturing were 1.5 times more likely to fail than were students in classes with active learning. Heterogeneity analyses indicated that both results hold across the STEM disciplines, that active learning increases scores on concept inventories more than on course examinations, and that active learning appears effective across all class sizes—although the greatest effects are in small ($n \leq 50$) classes. Trim and fill analyses and fail-safe n calculations suggest that the results are not due to publication bias. The results also appear robust to variation in the methodological rigor of the included studies, based on the quality of controls over student quality and instructor identity. This is the largest and most comprehensive meta-analysis of undergraduate STEM education published to date. The results raise questions about the continued use of traditional lecturing as a control in research studies, and support active learning as the preferred, empirically validated teaching practice in regular classrooms. (1)

If a student fails a course or exam, the student shows that they have not learned the “truth” of the material presented in the course adequately. “Traditional lecturing” teaching styles show a much higher rate of student failure (1.5x) than “active learning” styles. Active learning styles, according to the study, prioritize open discussion and stray from the “teacher in front” teaching methods. It is a present-day incarnation of *dissoi logoi* and the *quaestio*-form. This meta-analysis provides empirical evidence to the value of the classical dialectic, and it extends far outside the works of Plato and Aquinas.

A commitment to public and civil disputation and the “thinking through” of all evidence, as the meta-analysis implies, may increase the public’s awareness of knowledge and truth. This means treating the public fairly as equals. We do, after all, have a right to know. We, as people within the “public” and those in formal organizations “without,” need to uphold the public sphere of open discourse. The sobering truth of the matter is that we have become a culture of willful censorship by omission. The ancient Greek Forum was an area within the city of open discourse. Any member of the public could approach the Forum and give public voice to his or her complaints, suggestions, and questions about what is true. It was, to put it simply, open to everyone. The modern-day equivalent, the Internet forum, takes its name from the Greek Forum. This is, unfortunately, often where the similarities end. The Internet culture is one of mass censorship, *ad hominum*, and knee-jerk responses. In an era of 120-characters-or-less, true civil disputation has become a rare thing among the public. A return to the classical dialectic for the public’s own good is much needed. Scientific integrity and academic freedom demand that we do not manipulate the public. The classical dialectic, from its inception by the sophists through Aquinas, has always had at its core the protection of our right to know. But what relevance does this have in the modern day?

4. The Classical Dialectic and the Modern Day

The final section of my study is dedicated to the classical dialectic in the modern day. What does it look like? What are, at heart, the current problems? How would it change the current climate? All are answerable through the classic dialectic of Socrates and Plato. First, a famous historical example of the classic dialectic in work from the 20th century shows how it can

be acted out in the modern day. The core issues warrant examination of why we do not carry ourselves in the same way today. Richard Feynman and Trudo Lemmens, each with contemporary versions of the classical dialectic, offer a cure to these problems. We can sieve through the cases found at the beginning of this study through dialectics and see what drains out. What might the future look like if we reoriented our concern around the public's right to know?

4.1. The 20th Century

Before 1916, mass public perception of physics was run by Isaac Newton's physics model. Newton's theory revolved around the absolute motion of celestial bodies. Or, in other words, gravity as the natural force of a body in space that can influence other bodies in space the same, no matter the distance. He also found time to be a universal absolute: what happens at one time and in one place in the universe happens at all times and places. Newton also separated the planes of time and space. This model on the nature of celestial forces and bodies was taken by the scientific society as "true" and foolproof.¹¹ It was used as a definitive rubric for science in the modern day. Until, that is, a man by the name of Albert Einstein entered the scene and proposed his General Theory of Relativity. The conceptual discussion between these two men across time gives possibly one of the most prominent examples of the classical dialectic in all modern scientific history. It serves as a reminder of the power and influence of the classical dialectic on the public's natural right to know.

Albert Einstein greatly respected and cherished the "lost language" of epistemological dispute. He wrote many letters to contemporaries about what he called his "philosophy-science,"

¹¹ See Newton's *Philosophiae Naturalis Principia Mathematica*

a mixture of classic epistemic methods and scientific practices. Einstein waved his “philosophy-science” under the banner of the “independence of judgment.” Simply put, we should try to observe and create and test hypotheses honestly and faithfully, free from any bias. He wrote in 1936, “In looking for a new foundation, [the physicist-philosopher] must try to make clear in his own mind just how far the concepts which he uses are justified, and are necessities” (*Collected Papers* 349). He even challenged many of the day’s great philosophic thinkers directly through these letters, such as Ernst Mach.¹² His very public interaction with Newtonian physics is most important.

Einstein was much alike Aristotle and Galileo in his epistemic approach to science. Through a type of scientific process helmed by a curiosity that lead him to question, he detected numerous key celestial movements. He witnessed the effects of gravity lessen over greater distances away from the gravity-giving object, like a magnet’s inability to attract iron if too great a distance separates them (Einstein, *Relativity* 57). From this, Einstein proposed gravity as a tangible product of an object that has limited influence across space, unlike Newtonian ideas of gravity. He named it a “gravitational field:” “The law governing the properties of the gravitational field in space must be a perfectly definite one, in order correctly to represent the diminution of gravitational action with the distance from operative bodies” (Einstein, *Relativity* 57). Again, unlike Newtonian physics, Einstein observed that a piece of lead and a piece of wood fell identically within a gravitation field.¹³ Einstein recognized that if this were the case for

¹² See “The Collected Papers of Albert Einstein” found in the Work Cited for the letters Einstein sent to his contemporaries. Einstein explains the importance of epistemology in his philosophy-science in great detail in those various papers. His *Relativity: The Special and General Theory* is used in the discussion of his findings in the field of physics that demonstrate his use of the classic dialectic.

¹³ This is unsupported by the Newtonian equation: (Force)=(inertia mass) x (acceleration). Rather, Einstein proposed the equation: (acceleration)=(gravitational mass)/(inertia mass) x (intensity of the gravitational field) to better account for observed phenomena (58).

material bodies, it must be the case for beams of light. Beams of light, he witnessed, are identical in their speed in space no matter the speed the observer travels (Einstein, *Relativity* 18-21).¹⁴

Einstein exercised his right of *dissoi logoi*, his right to question Newtonian belief in space and time separation. Also, if light is of identical speed then two events cannot happen simultaneously in the universe. If a supernova occurs two light years away, it does not also occur from Earth's perspective until two years later. Einstein used the example of a single bolt of lightning striking two locations at an identical time: if it struck one location at one time, it could not also strike the other at the same time (Einstein, *Relativity* 22-23). If beams of light are uniform in their speed and subject to the same forces as physical matter, then, one would expect them through the natural process of logic to curve under the influence of gravity. Einstein created an experiment to test this hypothesis. He recorded the position of stars adjacent to the sun both during a solar eclipse and at regular periods of time. He found the position of the stars during the eclipse to be shifted outward slightly, evidencing the bending of the starlight by the sun's gravitational field (Einstein, *Relativity* 108-112).

Newton's laws of motion also predicted the perihelion-to-perihelion degree of motion of Mercury (perihelion=the point at which an orbiting planet is nearest its host star) to be 360 degrees. But Einstein's observation of Mercury found "that the theory of Newton does not suffice to calculate the observed motion" (Einstein, *Relativity* 108). Einstein's calculations, however, did suffice. This rough summary of Einstein's findings is the core of General Relativity, which is now regarded as scientific "truth." Einstein followed the knowledge-process that Plato gave in his "Theory of the Divided Line" and brought it into *elenchus*-style, two-party open conversation with Newton's idea. Unlike the case studies of Aristotle and Galileo, Einstein

¹⁴ E=MC²

represents “utter honesty” done right. Those around Einstein did not censor his scientific efforts, and he did not willfully censor himself, hide evidence, or unfairly represent the opposition. He and the public instead allowed themselves to inquire into the truth, a truth that led them to the very same conclusions Einstein produced through replication. The public’s right to know was at the forefront in the discussion, and their perception of “truth” benefited heavily. Why are there so many instances of action against the public good in the modern day?

4.2 The Modern Day: “Sophistry” and Selfishness

There is an interesting “something else” going on in the modern day, considering the discussion of Plato in Section 2.1, that warrants mention. As mentioned, Plato had a harsh perspective toward the sophists. The sophists were a group of early rhetoricians, those who focused on the structure and persuasive style of arguments. They attributed much significance to the influence of *logos*, or the power of words, in the rhetorical sense (Duke 1). Their rhetorical focus often does not, though, seem aimed at good intentions. One of the most famous sophists, Gorgias, writes in a way that makes Plato’s critique of the sophist as mere persuaders and not those dedicated to proof appear tame. Gorgias likens the effect of *logos* over the soul as comparable to the power of drugs over the body: it can spread fear, delight, courage, and bewitchment, making all its willing slave (Gorgias 82B11).¹⁵ While this may not seem negative given the power of speech we can see in the modern day, we cannot forget that the sophists seemingly valued the power of speech over the power of truth (see Protagoras’ pleasure in taking a “weak” position in an argument and winning a debate only through argumentative style, not

¹⁵ See Graham’s collection of early Greek philosophy, which contains editions of Gorgias’ early sophistic works.

necessarily the truthfulness of it). This is not to say that they did not value truth at all, or that the rhetorical power of an argument is not significant, but that they did not allot it the degree of importance that the classical dialectic does. It is fascinating to find in many of Plato's works the character of Socrates in conflict against individuals who are meant to be sophist figures, such as Thrasymachus in *Republic*. In the classical period, as observable by Plato's harsh words against the sophists, some of the prominent founders of the classical dialectic warred against the sophists. Nowadays, we see something similar.

A natural concern of the classical dialectic is the public's right to know. Throughout my study of the classic dialectic, it has been a core tenet. "Dialectic" itself refers to public discussion and involvement with truth through its definition. The modern-day companies, individuals, organization, and more who break this commitment through scientific integrity and academic freedom infringements do not have this at heart. They seem, in fact, to play the part of the modern-day sophist. The Coca-Cola case is a potent example. Coca-Cola's campaign to rhetorically shape the sugar-sweetened beverage argument in a way that results in them "winning" the argument (more Coke purchases) bears eerie similarity to the classic sophists Plato wrote against. Coca-Cola is adopting a scientifically weaker position, that sugar-sweetened beverages are not related to causes of obesity, and applying rhetorical tactics to make it appear stronger than the alternative, that they are. Protagoras's pleasure in deliberately taking on the weaker position and winning the debate through elaborate rhetoric is awfully parallel. The science wins out in this case: sugar-sweetened beverages are not healthy hydration. This is something we instinctively understand as members of the public as a collective. It is fascinating, then, to find these types of individuals, those who do not have the public as a concern, appealing to the power of elaborate rhetoric to hide the truth. Rhetoric is, to be clear, amoral: its direction

comes from whoever writes or speaks it. The comparison cannot be avoided, however. We are, in the modern day, playing at the classic war between sophists and the dialectic, the supremacy of the power of rhetoric verse the supremacy of the power of truth. Except in the modern day the dialectic is absent in the battle, allowing those who have a firm command of rhetoric to censor, compel, and coerce others to their agendas. We need, as Plato urged and Einstein concurred, a return to proof, evidence, truth, and discussion, not purely rhetorical style. This is a core issue at play in the battle for the public's right to know. Richard Feynman and Trudo Lemmens are two modern-day individuals who restate the classical dialectic in a way that is simple and direct, yet encapsulates the classical dialectic entirely.

4.3 Richard Feynman and Trudo Lemmens

It is important to give a portion of Richard Feynman's Caltech address again, in conjunction with Trudo Lemmens' insistence on the human right to know. Feynman's Caltech address provides the backbone of scientific integrity and academic freedom in the modern day:

It's a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty—a kind of leaning over backwards... If you make a theory, for example, and advertise it, or put it out, then you must also put down all the facts that disagree with it, as well as those that agree with it... try to give *all* of the information to help others to judge the value of your contribution; not just the information that leads to judgment in one particular direction or another. (1)

Lemmens implicates the human right to know in the knowledge-process, and weaves its importance into our search for truth. He expands Feynman's scientific integrity and academic freedom insistence into the realm of the moral, just, and fair:

...a human rights-based approach should inspire us to look more carefully not only at the significant human rights-related interests that are at stake, but also at the relations between the different interwoven regulatory, cultural, and social factors and how these play out at the various stages of knowledge production. (1)

We, as scientists, must replicate studies to see if others can replicate results. We, as the public, must enter a dialectic process, which means acting as Aquinas did and openly engaging with the current scientific thought in a public sphere in a practical plan of disagreement that honestly gives all side of the discussion and endeavors to critically analyze them. We cannot sacrifice open and civil discussion in our truth-finding efforts. This means censorship, even by mere omission of the truth, cannot exist. It also calls us to enter a discussion with ourselves. We must not fool ourselves by “stacking the deck” of handpicked evidence and elaborate rhetorical footwork in your favor. “Give *all* of the information...” In doing so, we must not “fool the layman.” The public has a right to the truth. Plato’s argument with the sophists is this statement exactly. The public’s right to the truth concerns much more than just a mental understanding of what the “truth” of the day is. In many cases, like the pharmaceutical companies, Coca-Cola, and Mr. Beall, the danger to the public caused by denying the human right to the truth and by breaking scientific integrity and academic freedom is a present and physical one. Individuals in this climate may lose their perception of what is “true,” their jobs, and their health. We must urge ourselves, as a public, to be the kind of individuals who adopt the procedural method of knowledge outlined in Plato’s “Theory of the Divided Line” but who do not play the role of the chained prisoners in “The Allegory of the Cave.” We must publish all findings before the public, even those we do not like, and we must consider the same with a dutifulness to dialectic procedure. The “truth,” the public’s right to it, and our safety may depend on it. What might the future look like if we did this very thing?

4.4 The Current Climate, Revisited

Let us revisit the contemporary cases at the beginning of this study using our “lost language” of the classical dialectic. Let us raise public consciousness and awareness of the classic dialectic method and “utter honesty” as a human right and a solution to some bitter unresolved disputes today that result in scientific integrity and academic freedom violations such as policy and corporate actions made on falsified or incomplete data and public relation sophistries.

1991-2010: Pharmaceutical Censorship, Criminal and Civil

The charges brought against the four main companies (GlaxoSmithKline, Pfizer, Eli Lilly, and Schering-Plough) revolve around the practice of off-labeling promotion and concealing study findings. Off-labeling promotion entails, in addition to deceptive marketing on the purpose of the drug, softening the public perception of the health risks of a product. This poses a very tangible harm to the public from the truth not being prioritized. What does the classical dialectic call us to do? To begin, it calls the four companies to publish all findings on the purpose of the drug, including their intentions for its usages outside the bounds of its FDA approval conditions. It also asks that we enter a conversation with our experiments. If, under experiments run by Plato’s epistemic process, the drugs do not address the medical issues the companies say they do, then cease all rhetorical marketing that manipulates the public in that direction. The onus in this case implicates two policy changes: there must exist more organizations like the FDA who replicate medical findings, and binding legislative and judicial actions must be leveled at companies like Pfizer. The FDA is notorious for the long time-period needed for its reports. This prompts companies to pursue quicker, illegal routes. When judicial action is brought against these companies, they simply settle out of court and continue their

negative practices. More strict punishment should be brought against offenders who, like the pharmaceutical companies, distort truth to gain corporate profits at the expense of the public. At its most fundamental, the issue is one of education. The remedy is more education in the elements of the classic dialectic: school curriculums should include teachings on the *dissoi logoi* concept, on the right to question any teaching, advertisement, or product label, and on how to evaluate conflicting sources of information through triangulation like Aquinas.

1999-2014: Gun Violence Research

The issue of gun-violence is a controversial, albeit crucially important, contemporary issue. No matter the sides of the debate, it implicates a constitutional right. It matters greatly, therefore, how we handle “truth” in this case. What the classical dialectic calls us to do in this case is the same whether you believe in strict or open gun laws: allow research. Denying the normal conduit of federal funding to a research organization dedicated to the public interest destabilizes the entire process of dialectics in every way. Plato’s “Divided Line” knowledge-process cannot even be begun, because we have not allowed ourselves to gather observed data and rationally attend to it, and Aquinas’ practical plan of disagreement cannot be enacted because we are disallowed from truthfully researching each side of the debate. The NRA and Jay Dickey’s treatment of the situation is the “Allegory of the Cave’s” warning played out in the modern day: when confronted with a potential truth beyond the cave, they label it “insane” and murder it. They are content to stare ahead at the cave wall when they have the freedom to climb upward. The same can be said of those who censor individuals demanding free gun laws. “Dialectic” means “discussion,” and currently our society often breeds opposite behavior. For the good of public, no matter the sides of debate or their claims, we must be allowed to research and

publish that research before the public. Only then can we begin the remainder of the classical dialectic process.

2002-2017: Coca-Cola’s “Actionable Misrepresentation”

This case is a prime example of the current war between a modern-day sophistry and the classical dialectic. The classical dialectic remedy is simple: do not place rhetorical style above truth, and do not use elaborate arguments fueled by one-dimensional data to manipulate the public perception and realize an agenda. Aquinas provides the self-discipline model for what Coca-Cola should have done in this case. Examine all evidence fairly (i.e. the weighty scientific data on sugar-sweetened beverages impacting health negatively) and begin a conversation with it. Feynman’s call to report all data here again makes an appearance. The Coca-Cola beverage company, particularly in their public relations sophistries prioritizing solely exercise as a factor of weight-gain or loss, are guilty of misconstruing data and experiment (the Plato process) to match their desired outcomes of the hypothesis “Are sugar-sweetened beverages a factor of obesity?” This case also represents another violation of the public’s right to know that is decidedly physical in its effect. It violates the safety of the public by violating truth. All throughout the origin and history of the classical dialectic is the call to do precisely the opposite.

2017-2018: The Trump Administration’s Climate Change Denial

This case is similar the case of gun violence research censorship. We must be allowed to research, even if that research jeopardizes corporate profits and agendas. That research may lead either direction, but the fact remains: it must be allowed to exist. Scientific integrity and

academic freedom collapse with censorship. The classical dialectic calls us to be “utterly honest” scientists, publishers, public servants in government, and citizens. To be worthy of that title, we must bend a knee to the opportunity to explore all sides of a debate. Rather than deny federal employees the means to participate in the global dialectics of climate change, and rather than strip the federal website of data about climate change to defend the commercial interests of a few, the federal government should disseminate information freely so that all may make more informed decisions about matters such as real estate, transportation, food production, and health. The government should fund studies that seek to questions of replicate the current “truth.”

2015-2017: Jeffrey Beall

The case of Jeffrey Beall’s “black-list” is a curious incident. It is, unlike the above cases, not a corporate or executive affair. It is however indicative of society’s growing aversion to allow criticism within the scientific sphere. Thomas Aquinas’ method of applying the classical dialectic through the *quaestio*-form predicated on fair and open criticism of commercial practices to refine what we take as “true”. I risk repeating this *ad nauseum*, but “dialectics” is “discussion,” and discussion involves criticism. The censorship of Mr. Beall’s “black-list,” of what he believed to be scientific faulty sources, is a fine instance of denying the opportunity to evaluate the “truths” around us. The classical dialectic, seen all throughout Plato’s works that are structured as dialogues between two or more people, is a conversation. Censorship by coercion destabilizes the necessary open, free-flowing nature of conversations that allow them to become vessels of information. Evaluation is part of that conversation. His criteria of how to evaluate scientific sources and publishers of scientific material could serve the public if taught in

classrooms. It would open up an important discussion: what constitutes a valid and trustworthy scientific source?

Science v. Faith: Various Cases and George Orwell: 1984

I am placing these case topics together for an important reason. These are cases largely public in nature: no one organization or executive power is responsible for the censorship present here. I would like to make the following clarification. During my initial review of the case in Section 1.1 the concern may have arisen around the separation of church and state. How could I be demanding that we tear down a legislative curtain that has existed within our government for quite some time? Why am I advocating that we change the laws and importance of keeping religion out of the state? I am demanding none of these things. I take the laws of separation of church and state to be determined by its original intention: to maintain freedom of religion within the United States. They were proposed and upheld not to eliminate the discussion of religious explanations of science inside the classroom, lecture hall, or laboratory, but to ensure that America makes no claim to a singular religion in its politics. That is the legal history of the legislation, and my call to return to the “lost language” of the classical dialectic does not endanger it.

The classical dialectic asks that we fairly and honestly discuss truth and its many sides. One such side is the side of religion. The censorship found in the various cases of faith battling against science are not cases of patriotism. They are awfully like any other form of censorship examined in this study. The censorship of *1984* I chose as a stand-in for all fiction-related censorship. The classic dialectic deals equally as strict with any censorship, public or private, scientific or fiction. My proposal for raising public consciousness and awareness of the

dialectical method and “utter honesty” as a human right addresses the rampant disagreement today.

4.5 Speaking the “Lost Language”

Fundamentally, what is the cause of the various unresolved disputes examined in my study? I have written how a focus on the “utterly honest” classical dialectic and the public’s right to know can broker those disputes. I have urged us to speak the lost language of the ancients, a valuation of the *dissoci logoi*, the dialectic, and the *quaestio*-form also present in modern-day movers and thinkers such as Richard Feynman and Trudo Lemmens. But why are we not doing this if it is so crucial to truth-efforts? We are not speaking with this language because we have stopped teaching ourselves how to speak it. The classical dialectic is not a new idea. It has been around for quite some time. It is observable still in fragmented vestiges in high-school geometry proofs and theorems or debate teams, in scientific and academic journals, and in law schools. The fact that to most it may seem new, strange, or unheard of is a testament to it fading out of our education. We in the classroom still teach the *logos*, the *pathos*, and the *ethos* as “this is rhetoric at its heart” but we forget that we are teaching only one chapter from the textbook. We are not taught the tenets of civil disputation, of a commitment to hearing all sides of a debate fairly, of avoiding *ad hominums* or straw-man fallacies, of the valuable lesson inside Plato’s “Allegory of the Cave,” of the knowledge-process in the “Divided Line,” or of publishing and addressing all material both for and against our claims. Public awareness and consciousness of the classical dialectic and Feynman’s “utter honesty” comes with educating the public. We must bring back the true rhetoric of the ancients to our podiums.

A predominant focus on merely the structure or persuasiveness of our arguments, which is important, but not the method and spirit behind them, risks imparting a half-message, a sophistry. Ironically, *logos*, *pathos*, and *ethos* are rhetorical concepts given by Aristotle yet we often educate, without reference to the larger history, that they focus our minds on the kind of truth search that Socrates and Plato begun. Albert Einstein did not redefine truth by only checking the boxes of *logos*, *pathos*, and *ethos*. He did it through a science rooted firmly in classic epistemology that intertwined these important tactics of argumentation with the heart for truth that the classic dialectic urges us to have. These are immensely important and strong elements of how we find truth; I am not discounting them. We must continue to teach them, but to teach them alongside the classical dialectic. If we do the former but neglect the latter, we disempower the public and empower corporations who know how to bend rhetoric for their agendas but toss the public's right to know and ask questions to the wind. If we made it our goal to educate the public with this "lost language," what might our world look like?

4.6 The "Classroom of the Future"

Remember the high-school classroom. The bell rings, the students rush in under the subtle murmuring of yet another Monday. Weekend excitement gives way to scholastic focus as the final stories of the students' Saturdays fade with the appearance of the teacher at the front of the room. Perhaps, instead of immediately taking position at the front of the room, the teacher rather reclines in a chair amongst them and directs the students to open their science textbooks to the front page. The students do so. The day's lesson is the origin of the universe and man. The teacher begins by directing the children to read the chapter. As the students do, they see religious explanations alongside traditional scientific explanations, young earth models alongside old

models, and measured arguments calmly criticizing both evolution and creation. After, the teacher makes a curious move: the teacher turns the questions onto the students by writing the term “*dissoi logoi*” on the board. For the proceeding half-hour, the students, using the question-method or a similar analog, challenge the “truth” in the textbooks. They entertain all options, critique, provide evidence, honestly rebut, and ask more questions all over again. They work as a collective to determine the truth. No hypothesis is checked at the door. In the last twenty minutes, the teacher summarizes all arguments and evidence, then begins, not as the central choke-point of the authorities, but as a mentor, to offer up evidence of her own. Maybe this rebuts the students, maybe it does not. The bell rings again, and the students rush out to brown-paper lunches. But before they do, the teacher gives them their assignment: create a social media account or find an open-source information website and post their points of view on it to the public. Something crucial has just taken place. We have done away with the central authority teacher, the “obviously correct” spooling words onto the “obviously ignorant.” What conception might the students of this model have of scientific discussion that differs from today?

Now imagine the teacher, who ends the day by checking in with her twenty-person experiment on changing greenhouse gases over Africa. She finalizes the experiment, and prepares to report it to the Environmental Protection Agency. The EPA, under their newest grant from the United States government, funded her project. Without the grant, her project never would have seen the light outside the Cave. She, to a panel of willing and cool-headed environmentalists, delivers her report. Many agree with her conclusions; many do not. Regardless, the entire panel as a collective compiles all data, accompanying remarks, and future projections. This report is delivered not only to the United States government, but also to various scientific outlets across the nation. A year later, a young California scientist fresh from graduate

school spies the report in a journal he frequents. He finds one of the conclusions tenuous. Targeting it as the focus of a new study, he brings together a team of contemporaries. Their study raises several crucial questions regarding the means of data-collection of the original study. He addresses the report to the scientific community for corroboration. It is quietly dismissed and censored by the EPA for criticism for implying that the study, which prompted a new EPA press release and call for action, might be mistaken.

Is this what the reader expects to hear after a study on “utterly honest” science? Or *wants* to hear? Of course not. They would expect and hope to hear, be they true scientists or people committed to the truth, that the EPA reevaluated the study and found that the data-collection methods did not account for a vital element of African weather patterns that resulted in the projections of the model taking place ten years earlier than original believed. They would also expect the United States government, one, say, currently run by an avid climate change denier, to make the dialectically conscious choice and censor neither the study nor the organization. How might the current scientific arena change if we adopted this freedom of discussion in every facet of our academic and scientific lives? By extension, what might that mean for creative works that stray slightly too close to institutional criticism?

What might happen to the Jeffrey Bealls of the world? The religious scientist who is scoffed out of the laboratory? In a contemporary world where having a cause to fight against is a near-requirement, let us find a cause to fight *for*. We may just find ourselves rectifying many of those first things. Our scientific prejudices, our aversion to address the degree of censorship that does much to destroy freedom of press and speech, scientific integrity and academic freedom...we must leave them in the wastebin and take instead from it what society has

discarded. I leave you, one last time, with the words of Plato: "I am the wisest man alive for I know one thing. And that is that I know nothing."

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