

SPUTNIK AND THE *REPUBLIC*

SPUTNIK AND THE *REPUBLIC*:  
EDUCATION AND WAR  
IN  
PLATO AND THE UNITED STATES

By

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## **Abstract**

This thesis is a discussion of the issue of public support for education. Educators in contemporary North America are finding it increasingly difficult to attract public dollars to educational institutions. Life in modern society is highly complex and specialized. It is unlikely that all people can become proficient in all activities that are vital for sustaining our way of living. Consequently, it is unlikely that the general public can come to anything but a vague understanding about most of the practices in our educational institutions. A central question emerges: How can educators persuade the general public to provide resources for specialized services that the average person can only have a vague understanding of?

Those concerned about the issue of public support for education can look to recent American history for an example of a time when the public enthusiastically supported educational institutions. After the launch of the Soviet satellite "Sputnik" on October 4, 1957, there was an outpouring of public support for education in the United States. When considering this event, the historical observer is confronted by a perplexing consideration: What is the relationship between Sputnik and support for education in the United States?

The thesis begins with an examination of Plato's *Republic* in order to outline a special connection that Socrates makes between education and war. According to

Socrates' argument, if the average citizen is persuaded that education is readily and directly applicable to the attempt to provide the conditions under which the city will be better fortified against enemies, then the city will support educational activities of which they have no precise understanding.

The discussion in Plato's *Republic* of the connection between education and war is a theoretical backdrop against which the flourishing of educational institutions during the post-Sputnik era can be examined. Plato's *Republic* helps modern readers to recognize the significance of evidence demonstrating that American pride and fear over the increasing technological and scientific capacity of their ideological rivals resulted in unprecedented public support for educational institutions.

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## **Introduction**

This thesis begins with the examination of a problem that seems to emerge whenever education is discussed in public debate, or as part of an examination of the policy platforms of political parties. Whenever education is discussed publicly, the issue of public support for education is sure to be raised. Most people agree that public funding for education is justified at least for the early stages of the development of young people. Yet, it seems that in recent times, especially after the end of Cold War hostilities, public education has repeatedly suffered from dreaded government "cut-back" programs. Institutions of higher education have particularly suffered from dwindling resources, yet even primary and secondary education has been affected. It seems as though it is getting more and more difficult to persuade citizens that public education, particularly public university, is something that is worth paying for.

This situation has caused public educators a considerable degree of consternation and frustration. Those interested in arguing the merits of publicly funded education must attempt to bring the public around to an understanding of the importance of intellectual activities. Educators know and have complete confidence in the notion that cultivating proficiency in intellectual enterprises is worthwhile. They cannot help admitting, however, the unlikelihood that the general public will see things their way. The public's

perception of education is vague. Particularly when matters of higher learning are discussed, there is little expectation that the average person will have a precise understanding of what it is that is being done in the schools. The difficulty of impressing the importance of sophisticated intellectual endeavours on a public body that has no precise understanding or experience of sophisticated intellectual endeavours seems to have its source in one of two things: either in the general public's apathy toward the notion that developing intellectual capacities is something that we *all* should do, or in the inability, or the unwillingness, of sophisticated intellectuals to adequately present the importance of their sophisticated activities to the lay person in a manner that can be accepted and understood by the lay person.

It is unlikely that many intellectuals expect or desire all people to have as complete an understanding of their studies and abilities as they do. Moreover, especially in our complicated and bustling world, it seems unrealistic to expect that all people will know about all things that are vital to our comfort, security and happiness. Perhaps more than at other times and places, doing things well in the modern age requires specialization. A certain division of labour is necessary. Thus, it seems that the average person should not be faulted for having such a vague notion about what education is, and what it does for society.

Educators provide specialized services for a society whose members have a complicated, bustling and busy way of life. The educators are convinced that the service they provide for others is more necessary than desirable. In order to successfully practice their art, they must be able to persuade *others* that they are necessary. They must be able

to persuade others that education is worthwhile based on a what can only be a vague understanding in their interlocutors' minds of what it is that they do. Education, especially higher education, is a hard sell. A central consideration emerges: How can educators persuade the public to provide resources for a service that the average person can only have a vague understanding of?

There are a number resources that educators can turn to for guidance in developing a better understanding of the issue of public support for education. In this thesis, I have sought out two of them. One of them is an example in the recent history of the United States, the other is Plato's *Republic*.

As seekers after an better understanding of the issue of public funding for education, we do not have to venture too far to remember a time when public support for education reached astounding levels. Shortly after the Soviet Union launched Sputnik on October 4, 1957, there was an outpouring of public support for all levels of education. Many contemporary observers made an explicit and direct connection between these two things. However, the relationship between the Soviet satellite and public support of education is not so clearly established in *our* minds. An historical investigator who is particularly interested in discovering the means of encouraging public support for education is drawn to this time period for obvious reasons. It is certainly true that the American people demonstrated great enthusiasm for education at this time. But what is the historical observer to make of the *connection* between Sputnik and support for education? In order to address this question, I proceed in a manner that may appear rather strange to some. In order to understand the relationship between Sputnik and education, I begin with an

examination of Plato's *Republic*.

This thesis argues that Plato's *Republic* helps us to understand why people in the United States were so willing to support education during the post-Sputnik era. Moreover, this thesis seeks to establish the notion that Plato's dialogue can offer guidance in understanding the issue of public support for education at all times and places. That is, Plato's discussion can help we historians to discover what is of timeless importance about the Sputnik era. Against certain trends in historiography and hermeneutics, I seek to demonstrate that reading Plato's *Republic* is useful for us. An examination of the association between Sputnik and the *Republic* demonstrates that Plato was not, as some commentators have maintained, an "idealist." Within the pages of Plato's *Republic* is found a pragmatic discussion of the context within which the pursuit of intellectual excellence will be considered both politically acceptable and worthy of public support.

Recognizing this aspect of what is arguably one of the most famous texts in classical political philosophy involves disabusing ourselves of an age-old tradition. This tradition counts Plato's pragmatic discussion of the regime among the most idealistic studies of humanity. The most likely source of the misunderstanding about the "idealism" of classical political philosophy seems to be an equally famous text: Machiavelli's *The Prince*.

But since my intent is to write something useful to whoever understands it, it has appeared to me more fitting to go directly to the effectual truth of the thing than to the imagination of it. And many have imagined republics and principalities that have never been seen or known to exist in truth; for it is so far from how one

lives to how one should live that he who lets go of what is done for what should be done learns his ruin rather than his preservation.<sup>1</sup>

It was Machiavelli's contention that classical political philosophy failed to produce a realistic account of politics. He suggested that Plato has done a disservice to his readers by advocating an idealistic and impossible regime. Machiavelli suggests that his own work would bring philosophy down from the lofty heights of *ideas* to address the most significant aspects of political practice. He would accomplish what no philosopher has yet accomplished: he would make thinking practical.

When the modern reader allows himself or herself to be addressed by Plato's dialogue, they recognize quite a different presentation than the one intimated by Machiavelli's description. Particularly when the *Republic* is read as a description of the relationship between the pursuit of intellectual excellence and political society, one becomes aware of the depth of Plato's practical presentation of things political.

The reader recognizes the significance of Plato's treatment of the relationship between the pursuit of intellectual excellence and political society by noticing a peculiar connection that is made by his principle character, Socrates. Socrates narrates a story about a conversation that he had with a group of friends in Piraeus, during which a tale about a city is crafted. Socrates and his principle interlocutors, Glaucon and Adeimantus, speak about philosophy as a kind of learning that is necessary for a particular kind of city. Their city is a luxurious city, and luxurious cities must go to war. Making war requires

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<sup>1</sup>Niccolo Machiavelli, *The Prince*, trans. by Harvey C. Mansfield (Chicago: University of Chicago Press, 1985), 61.

warriors, and their warriors will require a special education and training. Socrates' suggestion, one that modern readers may find peculiar, is that education and war are inextricably linked.

Chapter I of this study discusses the manner in which Socrates establishes the connection between education and war in Book II of the *Republic*. The argument encourages Socrates and his interlocutors to discover a model of the guardian of the city that is not against nature. However, the guardians' nature must combine seemingly opposite qualities; they must be vicious and gentle at the same time. Socrates' model for the warrior nature is eventually found in nature by appealing to the analogy of the noble puppy. The noble puppy is gentle with familiars and vicious with enemies. Like the noble puppy, the guardian of the city must be both a lover of learning, a philosopher, and spirited in his nature. Having learned to love his own and by learning to despise what is foreign, the guardian will act gently toward the former and vicious toward the latter. Thus, if the army that Socrates proposes is to work properly, the warrior's sense of self must be extended to include the entire political community. After determining the qualities that the warriors will have, Socrates and his interlocutors must confront the question of how the warriors will be educated. Education must be considered because they must discover a means of actualizing and harmonizing the philosophic and spirited parts of the warriors' souls.

This discussion indicates that Socrates and his interlocutors do not begin with any presupposition that education is a good thing in and of itself. Education is specifically introduced as something that, in general, will contribute to the achievement of the goals

of the city and, in specific, will contribute to the city's war-making enterprises. Thus, education is shown to be something that will benefit society in a direct way. Education is shown as something that all people in society will have an interest in supporting. Thus, Socrates suggests that war will make education politically acceptable and that this will facilitate its public support.

Chapter II of this study discusses the manner in which Socrates establishes the relationship between philosophy, as the culmination of a system which promotes the development of the capacity to intellect well, and the city. Understood in the way that it is presented by Socrates in Book VII of the *Republic*, philosophy needs the city, and the city can directly benefit from a system of education leading toward philosophy. In this section, I draw a parallel between the means used by Socrates in persuading Glaucon that education is worthwhile, and the means by which the few who are educated might be able to persuade the many who are uneducated about the usefulness of education.

The discussion in the first two chapters of this study establishes a theoretical backdrop against which the phenomena of the furor over education in the United States after Sputnik, and the public's willingness to support education, is examined. Plato's *Republic* suggests that if the general public comes to associate intellectualism with the war effort, they will be persuaded to support education. Similarly, after Sputnik, the American people associated intellectualism with national defence, and there was a subsequent increase in public support for education.

Chapter III is the first of two chapters which consider the public discourse surrounding what was perceived as the "crisis" of Sputnik. This first part argues that,

after Sputnik, members of the American scientific community saw an opportunity to raise the public profile of science and intellectual pursuits in general. Having learned important lessons about the power of public fear and pride, the scientists sought to establish themselves as authorities who the public could turn to for guidance and advice. Sputnik itself, as well as other feats of technological proficiency, had established the importance of the intellectual in the post war world. As spokesmen for science, public representatives of the scientific community made strong arguments in support of intellectual freedom. They spoke with authority in presenting intellectual freedom as the solution to the problems presented by Sputnik. Sputnik had caused a sickness in the American public. This sickness manifested itself as fear and confusion. Like doctors prescribing a drug for the alleviation of suffering, scientists recommended science as the answer to Americas troubles vis-a-vis Sputnik.

Chapter IV of this study is the second part of my consideration of public discourse surrounding Sputnik, and focuses on the public debate over the question of the schools. After Sputnik, critics of American education called for greater attention to be paid to the effort of teaching the young to intellect well. This agitation for reform was specifically and explicitly motivated by a concern for national security. Critics of American education made a direct connection between education and national security. They argued that, because they had a situation of cold war, they had to adopt an education that would teach the young to intellect well.

Chapter V of this study examines the Eisenhower administration's response to Sputnik. At first, the government attempted to down-play the seriousness of the Soviet

success. After encountering an unexpected and almost hysterical response from the public, however, the government changed their tune. The administration began to speak of the seriousness of the challenge from the Soviet Union, and began to speak of the importance of paying greater attention to helping young Americans develop the capacity to defend the nation in the age of technology and science. Cold war, along with a perception about the commitment of the Soviet Union to intellectual pursuits, justified a concerted public effort to help capable young people cultivate the intellect. Moreover, the pressures of cold war called for more efficient utilization of the “brain power” that America already possessed.

## **Chapter I - Spiritedness, Philosophy and the Education of the Guardians**

This chapter discusses the importance of the context within which philosophy emerges in Plato's *Republic*. Socrates and his principle interlocutors, the brothers Glaucon and Adeimantus, are acting as founders of a city in speech. They describe a luxurious city--a city which is concerned with satisfying more than the mere necessities of life.

*Education emerges within the context of a discussion of a specific task that will be undertaken by certain members of the city. Their luxurious city is a warlike city and thus requires certain citizens to specialize in guarding the city. The guardians will have a special education and training which is applicable to the special attributes of their natures.*

A descriptive account of the guardians' rearing and education reveals that philosophy is necessary and useful. Nowhere is education discussed as something that is good in and of itself. The guardians require music and gymnastic education in order to serve in their capacity as the city's protectors. They must by nature be capable of great viciousness. This viciousness, however, must be controlled. Socrates describes how music and gymnastic will provide the guardians with the virtues of courage and moderation. These virtues will enable the guardians to arouse and focus their anger against both internal and external threats to the comfort and security of their fellow citizens.

## Luxuries, War and the Need for Spirited Guardians

In Book II, Socrates' agreement with Adeimantus to co-found a city in speech soon becomes the description of a feast. Life in the healthy city exemplifies the central role of moderation in the lives of its people (372ac).<sup>2</sup> These men will "have sweet intercourse with one another, and not produce children beyond their means, keeping an eye out against poverty or war" (372c). All inhabitants of the healthy city contribute to its preservation in a way that is particularly suited to their characters. Each inhabitant practices only one art (370b). Because mere life is the only goal of its members, harmoniousness between happiness and devotion to the city is possible.

Glaucon objects to what Socrates opines to be a description of the true city (372cd). He says that the city founded by Socrates and Adeimantus is one fit, not for men, but for sows. Glaucon suggests that men who are not to be wretched must have relishes with their feasts. A city fit for human beings must have all of the conventional luxuries that well-to-do Athenians enjoy if its inhabitants are to fare well. Socrates accepts Glaucon's objection to the healthy city without hesitation. It seems that a description of the luxurious city, the city "gorged with a bulky mass of things, which are not in cities because of necessity" (373b), is just as likely to serve their purpose of bringing to light the "natural growth in cities" of justice and injustice (372e).

There is, however, an important consequence resulting from Glaucon's excessive

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<sup>2</sup>All citations from the Plato's *Republic* are from Allan Bloom, *The Republic of Plato* (New York: Basic Books, 1968).

desire. The institutions of the healthy city are not dedicated to the practice of war. Rather, the healthy city's inhabitants have a moderate way of living. Their way of life makes it possible for them to avoid situations that place the city in danger of being corrupted or destroyed. Socrates explains that, as a result of "overstepping the boundary of the necessary" (373d), the healthy and moderate city becomes feverish. Now the city must "go to war"(373e).<sup>3</sup> The luxurious and feverish city is not simply a city that has luxuries. It is a city that is characterized by excess in tastes and fashions. In contrast to the pastoral life of the healthy city, the feverish city is busy and bustling and action-packed. Most importantly, the feverish city is characterized by illness and disease. It is in greater need of doctors (373d)—people who are capable of diagnosing illness and providing remedies. A return to a life characterized by moderation would require sacrifice regarding the very things that the luxurious city has become dedicated to providing. One expects that, lacking moderation, the luxurious city's inhabitants will become like sows: fattened and ready for the slaughter. It is unlikely that the city, which has become feverish, will be restored to health without some method of intervention on the part of Socrates and his companions.

Like doctors anticipating the effect of a deadly virus on a healthy body, Socrates and Glaucon must anticipate the forces that are likely to affect the disintegration of their city. Their patient, the city, will require something like a vaccination. The luxurious city must

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<sup>3</sup>Socrates suggests that, at this point, they should not trouble themselves about the question of whether or not war does good or evil. They should be satisfied by having already discovered the origins of war "in those things whose presence in cities most of all produces evils both private and public" (373e).

attend to the task of preparing a proper defense of their way of living.<sup>4</sup> Socrates introduces a professional standing army into the city. This is an innovation particularly suited to deal with the problem of war. For the purposes of this study, the most significant aspect of Socrates' introduction of professional armed forces is the fact that the city's warriors will require an intense program of training and education. Unlike the healthy city, which kept "an eye out against poverty and war" (372bc), the luxurious city will require a system of education and training.

The novelty of the professional standing army is justified on the basis of the discussants' previous acceptance of the dictum "one man, one art" (370b). Previously, Socrates and Adeimantus agreed that, by accounting for the observation that "different men are apt for the accomplishment of different jobs," the city will more efficiently secure the necessities of life. That is, if the city they are founding is to work properly, it must be specialized. Socrates reasserts the particular importance of this principle with respect to the defense of the luxurious city (374bc). In comparison to other arts, the task of the new guardian class (victory in war) will require greater leisure time, art and diligence proportional to the greater importance of its role in fulfilling the needs of the city. The invocation of a principle that was established during the discussion of the healthy city to justify the introduction of an innovation (the professional standing army)

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<sup>4</sup>At 373d, Socrates suggests that the city following the luxurious way of life that they have characterized will "be in much greater need of doctors." The city that is characterized by excessive care of the body will be in greater need of medical attention due to the luxurious and physically damaging lifestyle of its inhabitants. In order to restore harmony, the city's doctors may even be required to use pharmaceuticals (cf. 382c). The excesses of so-called friends may compel the doctors to employ instruments and methods the use of which, under normal circumstances, could itself be considered excessive.

peculiar to the luxurious city indicates that the agreement regarding the dictum "one man, one art" goes to the core of a question regarding the origin of cities: Why do we have cities? At 369b, Socrates suggests that he *believes* that "a city comes into being because each of us isn't self-sufficient but is need of much (cf. 382d). The implication of this answer is that the people of a city live together not because they care about others, but because they care about themselves. This answer suggests that the creation of cities is motivated by a need to overcome natural deficiencies. An aggregate of human beings coming together out of concern about self-sufficiency requires individuals who are going to be useful to one another in providing for the necessities of life. Socrates suggests that the needs of the city will be better provided for if each of its inhabitants practice only the art that they are particularly suited to by nature (370ab). This, of course, implies that it is not good if everyone has the same nature. Moreover, it implies that nature is the standard which will enable the accurate and efficient determination of which people are particularly suited to particular tasks required by, and considered useful to, the purposes of the city. Stated differently, the individual's choice regarding his or her occupation will have no place in determining what that individual's occupation will actually be (cf. 519e-520a).<sup>5</sup>

The art of war will require a nature "fit for the pursuit" (374e). Socrates suggests that he and Glaucon must be responsible for determining the nature and kind of those who are

<sup>5</sup>Bloom suggests that the principle of one man, one art indicates that each "man chooses an art according to his natural capacities so that nothing in life goes against the grain of the inhabitants' desires or talents." One should remember, however, that Bloom is speaking of this principle as it appears in the context of the discussion about the *healthy* city--a city in which a "hidden hand" harmonizes public and private interest (Bloom, 344; 346).

fit for guarding the city. In keeping with their agreement to use nature as their standard, Socrates and Glaucon look to nature as a guide in determining the preferred nature of the warrior. With respect to guarding, it seems to Socrates and Glaucon as though there is no difference between the nature of a noble puppy and the nature of a "well-born young man" (375a). The noble puppy's spiritedness makes it determined, invincible, and even savage. Most importantly, the noble puppy's spiritedness makes it fearless. Socrates and Glaucon agree that their guardians must above all be courageous if they are to perform their task. Thus, they must be spirited.<sup>6</sup>

As Allan Bloom notes, spiritedness has a principle role in the foundation of the luxurious city.

It is inevitable that the spirited warriors will rule in the city, for they are strong. In every civil society, there is one group that has the greatest strength, and it can and always does set down the laws in the terms suitable to it. Whatever the character of this class, the city's way of life will be determined by it. . . .If Socrates and his companions wish to establish a good regime without having to compromise with mere power, it is this crucial class they must control and train.<sup>7</sup>

The luxurious city originated with an act of aggression against a neighbouring city (373d). Presumably, such an action is only possible if the aggressor, or more likely a small part of its general population, is capable of asserting its will on an adversary. It is

<sup>6</sup>"The word here is *thymos*, and it expresses one of the most important notions in the book. *Thymos* is the principle or seat of anger or rage. It might well be translated by that pregnant word "heart," which mirrors the complexity of the Greek" (Bloom 499n33).

<sup>7</sup>Bloom, "Interpretive Essay," 350. Cf. 359b.

this small but powerful minority that Socrates and his interlocutors take great interest in. This group of warriors must, of course, possess great physical strength and endurance. They must be courageous. They must like a good fight. They must be capable of great viciousness. In short, a guardian must be *aner*, a "real man."<sup>8</sup>

Even though it seems obvious to the present company that the city requires spiritedness, Socrates is concerned about this character quality. The very presence of this element poses a great danger to the city.

"Glaucon," I said, "with such natures, how will they not be savage with one another and the rest of the citizens?"

"By Zeus," he said, "it won't be easy."

"Yet they must be gentle to their own and cruel to enemies. If not, they'll do it themselves beforehand" (375bc).

Spiritedness, it seems, is like a virus that threatens to disturb the harmoniousness of the healthy body. In order to develop immunity to a deadly virus, a small amount of the virus in modified form must be introduced into those who are at risk of suffering from it. Similarly, the healthy city requires the presence of spiritedness *in a modified form* for its warlike purposes.

At first, Socrates and Glaucon are at a loss as to how they are going to proceed. It seems contradictory to assert that characteristics which are so obviously opposites could co-exist naturally in the same nature (375c). Appealing to the image that he invoked earlier, the noble puppy, Socrates discovers a way out of their conundrum.

<sup>8</sup>Bloom, 441n14.

Noble dogs are gentle with familiars and people they know and vicious with those they do not know. Socrates attributes this ability to differentiate between friend and enemy to the dog's ability to learn. Excluding experience as a significant criterion in distinguishing between knowledge and ignorance, Socrates suggests that the noble dogs are gentle with certain people on account of whether or not they are familiar with them. They *learn* the difference between hostile and friendly; noble dogs are habituated to distinguish between enemy and friend by remaining ignorant of the former and learning the latter. The noble dog is gentle toward those he knows and loves, and is vicious toward those he does not know and, therefore, despises. By recognizing his own, the noble dog properly directs his viciousness. Thus, Socrates asserts, the noble dog cannot be anything but a lover of learning. At 376b, Socrates suggests that "love of learning" and "love of wisdom" are the same. By equating the two, Socrates implies that philosophy is "love of knowing," as well as "love of what is familiar" as well as "love of that which by learning is determined to be one's own."<sup>9</sup> Philosophy, it seems, is the key to the solution of their difficulties. Just as the noble dog must be gentle with friends and vicious with enemies, the well-born young man must have a philosophic nature to complement his spiritedness (375e).

The guardians must be habituated to hold that caring for themselves is the same as

<sup>9</sup>Initially, Glaucon is confused by Socrates' use of "philosophy" (377e-376a). Glaucon's perplexity might be accounted for by something that Adeimantus says later in the conversation. At 487d, Adeimantus suggests that he has observed, and many of his contemporaries agree, that those who linger in education for a long time "become quite queer, not to say completely vicious. . ." Soon after, Socrates identifies this sentiment as a common accusation against philosophy (489d). Socrates is neither surprised, nor does he disagree with the accusation. Socrates' portrayal of philosophy at 375e-376c challenges the popular presupposition about philosophy. Hence, Glaucon's confusion.

caring for the city. The substitution of the love of one's own for the love of self must suffice to prevent the guardians from attacking those who they must protect. Using Carl Page's formulation, the love of one's own represents "the spontaneous tendency to identify with the immediate circles of what has, as a matter of historical accident, supported the individual's arrival at maturity."<sup>10</sup> Love of one's own prevents the guardians from using the city for its own purposes.

Socrates and Glaucon agree about the kind of natures the founders of the city must identify, and further, that the natures in question must be of this sort "to begin with" (376c). The guardians will not arrive at maturity spontaneously, so the discussion moves to a consideration of how the young guardians will be reared and educated (376c).

### **Music Education**

What is education? Socrates and Glaucon look to tradition; they look to a system of education which, over the great expanse of time, has come to be considered the best (376e). Tradition considers the best education to be the one that employs music for the soul and gymnastics for the body. Socrates intimates that their own interests will be best served by appealing to established and respected practices--the new and strange will be introduced by means of an appeal to the old and familiar. Whatever the original function of these instruments of education, Socrates soon explains that both should be adopted to

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<sup>10</sup>Carl Page, "The Unjust Treatment of Polemarchus," *History of Philosophy Quarterly* 7, (July 1990), 252.

help the city care for the souls of its young guardians (410bc).<sup>11</sup> This suggests that, even if the guardians' physical strength and fighting prowess are the most obvious indication of their vigour, these qualities are of incidental importance in comparison to the strength of their characters.<sup>12</sup>

The discussion of education, which immediately follows the introduction of philosophy into the conversation, is a story being told by men who are themselves characters in a story (376d). Socrates and his interlocutors, we recall, are leisurely founding a city in speech. The most important part of this tale is the education of the guardians in speech. They begin with a description of music education.

Education in music and philosophy (411c) must begin when the guardians are "thoughtless young things" (378a), for it is at this developmental stage that their natures are most amenable to the prescribed teachings (377ab, 519a, 415d, 540e-541a). Once the guardians have reached an age where they are able to grasp reasonable speech, a suitable habituation is difficult, if not impossible, to instill (402a). Because the young guardians are thoughtless, music education does not aim at making them knowledgeable. The first

<sup>11</sup>The absence of any significant discussion of the actual *physical* training that the guardians will undertake is significant. The guardians must have great fighting skill. One would expect, then, that their education should include training in the martial arts. However, Socrates does not dedicate any time to a discussion of the art of bearing arms (Bloom, 351). It appears as though Socrates' principle concern is to differentiate the physical attributes of the guardians from that characteristic which will make it possible for the guardians to be intelligent. Just as the military institutions of the city will distinguish the members of the guardian class from the rest of the citizens, the system of education will emphasize the care of the soul in contradistinction to the maintenance of the body.

<sup>12</sup>The presence of "spirit" makes every soul that has it "fearless and invincible in the face of everything" (375b). As we discover through the subsequent discussion of the music education in Book III, the "everything" Socrates refers to includes death. The guardians must believe that, for decent men, death is not something terrible (387d). If the guardians have been reared with the proper speeches, they will behave in a manner befitting free men. That is, they will fear slavery more than death (387b, cf. 520c).

part of education will immerse the young in an environment of things impressed with the image of good disposition (401b).<sup>13</sup> The form and content of this environment will be carefully controlled: all things likely to impress a bad disposition on the young will be strictly censored.

As a consequence of being encouraged in the cultivation of good habits, the guardians will be naive; they will be "innocents"<sup>14</sup> (400de, 409a; cf. 348c) in the sense of being unfamiliar with anything vile, sordid or depraved. Socrates explains that rearing in music

". . .is sovereign because the man properly reared on rhythm and harmony would have the sharpest sense for what's been left out and what isn't a fine product of craft or what isn't a fine product of nature. And, due to his having the right kind of dislikes, he would praise the fine things; and, taking pleasure in them and receiving them into his soul, he would be reared on them and become a gentleman. He would blame and hate the ugly in the right way while he's still young, before he's able to grasp reasonable speech" (401e-402a).

The guardians' characters will be properly formed without their awareness (401d). This is not to say that the young guardians will be compelled to learn these lessons against their will. Rather, Socrates suggests that the young will be improved despite themselves; that

<sup>13</sup> At 522ab, Glaucon recalls what their earlier discussion (*Republic*, Book II-III) of music education established: "[Music] educated the guardians through habits, transmitting by harmony a certain harmoniousness, not knowledge, and by rhythm a certain rhythmicalness. And connected with it were certain other habits, akin to these, conveyed by speeches, whether they were tales or speeches of a truer sort" (522ab).

<sup>14</sup> Bloom, 454n53.

is, despite certain natural inclinations which tend to draw them down and away from the attainment of the virtues (538cd)--the virtues befitting "war-making men" (399ac, cf. 519b).

Socrates explains how this redirection will be accomplished. He asserts that, because "no forced study abides in the soul," the studies of the young must not be given the aspect of compulsion (536de). Rather, play must be used in order to identify what kinds of activities the children are naturally drawn toward. Education must turn these personal tastes and aptitudes in a direction that will cultivate a certain disposition. The educators must observe the children in their preferred activities in order to identify whether or not they possess the qualities conducive to a guardian's education. The children must be set to activities that test their steadiness and courage. They must approach these tests with keenness, and must learn easily (535ab). Socrates asserts that "a man with a memory and who is firm and wholly a lover of labour must be sought" (535c).

The latter quality is essential to the success of the program of education. The studies must be sufficiently pleasurable<sup>15</sup> to encourage and inspire one to withstand their rigour. The studies require a courageous soul because the labours of the soul are "closer to home" than labours having to do with the body (535b; cf. 535de).<sup>16</sup> If the guardians do not love

<sup>15</sup>Cf. Plato, *Phaedo*, 60bc.

<sup>16</sup>Socrates suggests that the kind of profound indecision that is brought about by the testing of strongly held convictions (539bc) must be concealed from those who are unable to withstand its pressures (539d, cf. 476de). One would expect that such a barbaric state is particularly difficult to conceal from intimates and friends. Intimates and friends know our characters, and might detect that they are being misled--that something is on our mind and that we are attempting to cover it up. Some might even mistake indecision and reticence for contempt or anger. In such a case, one would *de facto* be guilty of contumely. Someone may become harsh and demand a satisfying account. Socrates wonders if it is possible to both satisfy those who question while at the same time preserving them from being exposed to the dangers that philosophers must endure (476d): "Will we have some way to soothe and gently persuade [the man who opines], while

the labourious studies, then it is unlikely that they will "be willing both to perform the labours of the body and to complete so much study and practice" (535c). Part of the rigour associated with the studies, and not the smallest part, is the effort to provide the conditions under which leisure can arise and be cultivated. The rigour of the studies mirrors the rigour associated with providing for the needs of the body. However, it is clear that the studies, though strenuous, will not strain the body. The pleasures and the pains of the study will have little to do with the needs of the body.

### **Gymnastic Education**

The child who in a playful situation shows himself or herself ready to endure labours, studies and fears will be selected to join others like them for a second education (537a, 537bc).<sup>17</sup> The timing of this process of selection is particularly important. Qualified candidates for the higher education will be welcomed after they have been released from compulsory gymnastic. Because the initial stages of education must encourage a fine disposition, the young must be vigilantly observed and tested to identify how they respond in situations offering the opportunity for excessive behaviour. So begins their gymnastic education.

Like the music education, the gymnastic education will be simple and decent (404b). The guardians must not develop a taste for refinements which give birth to illness and

hiding from him that he's not healthy?"

<sup>17</sup> Socrates also suggests that, insofar as possible, the best looking children must be chosen (535ab). The guardian class, it seems, must keep up appearances.

licentiousness (404e). They must not be given any intimation of luxuries, or things resulting from excessive care of the body (407b). Such experience with excess will give them the sense that they are deficient even when, in all actuality, they are in a healthy and balanced condition. The guardians must avoid being counted among the many who excessively indulge in activities which come into being in service of the necessity for securing the livelihood of the city (cf. 373d, 371b). The many's anxiety and corresponding excessive acquisition is indicative of an inability to master the uncertainties of the human condition. Such excess amounts to a denial about the fact of their dependence on, and hence their obligation toward, their fellow citizens (407de).

The guardians must not learn bad habits when they are young that will lead to vicious actions--with real consequences--when they are adults. Like music education, the discussion of gymnastic education suggests that this viciousness is associated with the excesses of the body. The testing of the young in gymnastic will come at a time when the young people are least able to ignore the demands of the body. Socrates explains:

"For this is a time, whether it is two or three years, during which it is impossible to do anything else. Weariness and sleep are enemies of studies. And, at the same time, one of their tests, and that not the least, is what each will show himself to be in gymnastic" (537b).

The guardians' education will not let-off at the age of puberty. This is, in fact, when their testing becomes more intense. Now they will be tested for their ability to remain moderate even though their bodies are persistently telling them that they are deficient. They must learn to resist and focus the urge for completion. The urge toward completion

(the feeling of deficiency) is closely associated with fear of death. There is, after all, no greater reminder of one's lack of self-sufficiency than the one felt in facing the certainty of death, or rather the *uncertainty* about what is to happen after death. The greatest test of self-mastery with respect to the fear of death is "the greatest contest"--*i.e. war.*

The champions in war will have demonstrated that they are able to master themselves enough to come to terms with death. The careful observer will recognize this as an indication of their capacity for philosophy. Even the casual observer will recognize the importance of the guardians' contribution. The guardians' accomplishments will coincidentally meet an expectation that the citizens of the healthy city have of them. The warrior's art is victory in battle. The champion in war has proved himself both willing and able to defend the city. This demonstration will help persuade the many of the value of the guardians and their way of life. Conversely, it should be enough for the guardians to know that they possess a quality of soul that few people share (414bc, 416e).

### **The Harmonious Soul**

Rearing in music and gymnastic is intended to affect the coincidence of opposite character qualities in the same person. Socrates asserts that an habituation in both music and gymnastic are primarily for the sake of soul-care (410c). The soul of a guardian must be both gentle and vicious. Music softens the spirited part of the soul, which otherwise would tend toward savagery and hardness. Gymnastic exercises the philosophic part of the soul, which otherwise would become soft and feeble. Music and gymnastic must be brought into the finest mixture in order to affect harmony in the soul of the young

guardian. Music helps to create the conditions under which the young person can be persuaded to delight in speeches and deeds that befit a fine disposition. Gymnastic tests the young person's ability to avoid corrupting excesses. In short, the harmonious soul is both moderate and courageous. Such a character would be a model of education and rearing (412b). The time spent in music and gymnastic will be an important preparation for the guardians' action in adult life. The degree of success in affecting a proper harmony in soul of the guardians will determine how the guardians are likely to treat their fellow citizens.

Having been given the opportunity to develop an understanding of what actions will contribute to the salvation of the city, those who have been properly habituated must guard the many. When dangers emerge, the guardians' spiritedness must become defensively aroused, and poised for action. That is, the guardians' will must be sufficient to encourage the many to behave in such a way as to ensure that the city's way of life will continue. Because the many do not share the guardians' experience in matters of defence, there may be resistance to certain suggested policies. If the guardians have had a proper musical and philosophic education to temper their time spent in gymnastics, they will not deal harshly with their fellow citizens. Rather, they will make use of gentle persuasion by means of speech. A lack of time spent in music would, in the same situation, result in the guardians becoming misologists. They would go about their duties like wild beasts, using force and savageness (411d).

If the guardians have not been educated to affect the timely arousal of spiritedness, the city will be equally endangered. Such would be the situation if the guardians had

spent too much time in the musical cultivation of the philosophic part of the soul. Any spiritedness that might have been present from birth would be weakened until it dissolved completely. The guardians would no longer have "heart." The guardian's soul would be a "feeble warrior," unwilling and unable to do what is necessary to secure the city's way of life.

## Conclusion

In response to Glaucon's objection to the healthy city, Socrates introduces luxuries. The healthy city will have relishes too. The relishes that Socrates introduces, however, are not up to Glaucon's standards. The relishes that Glaucon requires to live well are admitted into their city. However, this action leads to war, which in turn requires the establishment of a professional standing army. The specialized army requires education and training. The discussion about the required education and training of warriors allows for the introduction of a particular conception of philosophy as required for the cultivation of an affectation of character which is spoken of as the emotional basis of gentleness. Glaucon's interruption and subsequent demand for luxuries facilitates the propitious introduction of philosophy into the conversation about justice. Philosophy, then, makes its way into the *Republic* as a decent element in the city. It is spoken of as something that the people of the city will consider necessary for the city's survival. The warriors will be both spirited and philosophic. They will combine fierce loyalty to the city with an ability to transcend the concerns of the city.

Having discovered the nature of the guardians, Socrates and his interlocutors move to

a discussion of education. Education is discussed as something that is inextricably connected to the city's war effort. That is, Socrates and his companions do not begin with the presupposition that education is good in and of itself. They begin with the presupposition that education has a specific purpose in contributing to a specific task of the city. By way of music and gymnastic, education will aim at the proper care of the young guardians' souls. Through their habituation, the guardians will know when to take harsh action in order to preserve the city. Also, they will understand when harsh behaviour is excessive. Having received a fine habituation, the guardians will be particularly suited to protect the city's way of life from internal and external dangers.

## **Chapter II - Trust, Demonstration and the Cultivation of the Intellect**

Socrates does not dispute the importance of intellectual pursuits. He argues for the development of a system of education that is based on the quest to distinguish between nature and convention. However, Socrates is also aware of the effect that intellectual pursuits are likely to have on the intellectuals. If studies are not carefully conducted, the intellectuals will seem like strangers to the city. In Book VII of the *Republic*, Socrates' discussion of a system of education that aims at cultivating the capacity to intellect well emphasizes the character of the relationship between the educated and the educators on the one hand, and the city on the other. Socrates asserts that the people who are interested either in being teachers or students must recognize their obligations to the city that allows for their development. Recognizing this obligation means recognizing the necessity of presenting their way of life, a life dedicated to science or philosophy, as something that demonstrably contributes to the quality of life achieved in the city. Directly related to the ability of philosophy or science to demonstrate its usefulness is the business of war. War is precondition for persuading the city that intellectual pursuits are necessary and worthwhile.

### **The Outlandishness of the Intellectuals**

Socrates suggests that the guardians' education will culminate in an awareness of the truth of the origin of all things. In describing this ascent to the light of the sun (515e) and the region of "the things themselves" (516a), Socrates seems either reluctant, or unable, to give a precise account. Socrates describes the intelligible region by appealing to *images* that are characteristic of life in the city. Consequently, his audience's deriving a sense of what the intelligible place is like relies on a prior knowledge characteristic of the city only.

Socrates' description highlights those aspects of the intelligible place which serve to illustrate the contrast between life there and life in the city. His account fosters an appreciation of the effect that the intelligible place will have on those who experience it. Anyone becoming accustomed to this region will understand that "the sun itself by itself" is "in a certain way the cause of all things" the city believes true (516bc). This region will make the wisdom of the city seem like "silly nothings" (515d).

"...in the knowable, the last thing to be seen, and that with considerable effort, is the *idea* of the good; but once seen, it must be concluded that this is in fact the cause of all that right and fair in everything--in the visible it gave birth to light and its sovereign; in the intelligible, itself sovereign, it provided truth and intelligence--and the man who is going to act prudently in private or in public must see it" (517bc).

From Socrates' image, the audience gathers that those who "see" the *idea* of the good will become different than their fellow citizens. They will no longer be limited, chained by the opinions that hold most people in rigid conformity to a settled perception about their

place in the city, and the city's place in the cosmos. They will consider themselves happy and will no longer be willing to "mind the business of human beings" (517c). The city's truths will be revealed as mere opinions, or partial truths. Recognition of the truth about the status of the city's truths will begin a quest for the whole truth.

Socrates explains what he considers to be a prevailing misunderstanding about education. He suggests that certain people profess education to be a process by which knowledge is transferred. In this understanding, the soul is like a blank slate upon which knowledge is inscribed. Socrates rejects this definition as discordant with their present argument regarding human nature "in its education and want of education" (514a).

According to Socrates, knowledge is a power in each of us. Just as the body has eyes with which it sees, the soul has an instrument with which it learns (cf. 527de). The instrument of the soul "must be turned around from that which *is coming into being* together with the whole soul until it is able to endure looking at that which *is* and the brightest part of that which *is*." The instrument of the soul is useful and helpful, or useless and harmful, according to the way that it is turned (518d-519a).

Education, then, is an art by which the instrument of the soul is led forth to see the look of the good. The philosophic or scientific education (521c) is the proper orientation and development of the intellect. Socrates suggests:

"There would, therefore," I said, "be an art of this turning around, concerned with the way in which this power can most easily and efficiently be turned around, not an art of producing sight in it. Rather, this art takes as given that sight is there, but not rightly turned nor looking at what it ought to look at, and

accomplishes this object" (518d).

Socrates implies that there are various methods that could be employed for the purposes of affecting the "turning" around of the soul from becoming to being. Following the argument, their concern should be with discovering a method by which this turning can most *easily* and *efficiently* be affected. The particular method of education that is chosen will break the bonds constraining the prisoner in the cave, turn the soul from becoming to being, and lead forth to what *is*.

Socrates' clarification of the specific sense in which he understands the art of education is consistent with a particular account of how human beings know. This epistemology, along with its concomitant formative methodology (selected out of concern for maximum efficiency and ease), places the art of education at the very centre of the community's concerns. Like all activities in the city, learning has a function proper to the goals of the city. The educated must be made "willing to go down again among those prisoners" and "share their labours and honours, whether they be slighter or more serious" (519d).

Insofar as education in philosophy or science is the quest to replace the city's opinions about all things with truth about all things, and insofar as this is a task without resolution,<sup>18</sup> the man coming from "acts of divine contemplation" (517d) would appear

<sup>18</sup>"Philosophy is essentially not possession of the truth, but quest for the truth. The distinctive trait of the philosopher is that "he knows that he knows nothing," and that his insight into our ignorance concerning the most important things induces him to strive with all his power for knowledge. He would cease to be a philosopher by evading the questions concerning these things or by disregarding them because they cannot be answered. It may be that regards the possible answers to these questions, the pros and cons will always be in a more or less even balance, and therefore that philosophy will never go beyond the stage of discussion or disputation and will never reach the stage of decision" (Leo Strauss, "What is Political Philosophy," in *What is Political Philosophy? and Other Studies*, Chicago: University of Chicago Press

ridiculous to his or her fellow citizens (517a). When "compelled in courts or elsewhere to contest about the shadows of the just or the representations of which they are the shadows, and to dispute about the way these things are understood by men who have never seen justice itself," they will appear graceless and ridiculous.<sup>19</sup>

After considering Socrates' account, one finds it difficult to imagine how the city will benefit from education. It is difficult to see why the people of the city would be persuaded that education is both necessary and good. Education makes the educated strangers to the concerns of the city. Thus, the city can no longer be assured that the educated are dedicated to the city's success and flourishing.<sup>20</sup> Two alternatives seem to present themselves as a solution to this problem: either the whole city must become educated (all citizens must "see" the good itself in order to understand the good as the educated do), or the educated must learn to give an account of what they know that corresponds to the way these things are understood by the people who are not educated in

[1959], 12).

<sup>19</sup> Consider Aristophanes' *Clouds*. Strepsiades asks why Socrates must attack the *Mysteries of the gods* in the air, and not on the ground. Socrates says: "Why, for accurate investigation of meteorological phenomena it is essential to get one's thoughts into a state of, er, suspension by mixing small quantities of them with air--for air, you know, is of very similar physical constitution to thought--at least, to mine. So I could never make any discoveries by looking up from the ground--there is a powerful attractive force between the earth and the moisture contained in thought. . ." (Aristophanes, *Clouds*, in *The Acharnians, The Clouds, Lysistrata*, trans. by Alan H. Sommerstein, Harmondsworth: Penguin Books [1973], 121-122). Strepsiades is confused and asks Socrates to "come down". Socrates' justification of the ridiculous appearance of his activity is equally ridiculous.

<sup>20</sup> As Leo Strauss suggests: "Once we realize that the principles of our actions have no other support than our blind choice, we really do not believe in them any more. We cannot wholeheartedly act upon them any more. We cannot live any more as responsible beings. In order to live, we have to silence the easily silenced voice of reason, which tells us that our principles are in themselves as good or as bad as any other principles. The more we cultivate reason, the more we cultivate nihilism: the less we are able to be loyal members of society. The inescapable practical consequence of nihilism is fanatical obscurantism" (Leo Strauss, *Natural Right and History*, Chicago: University of Chicago Press [1953], 6).

these things. That is, either the many must ascend to the intelligible region, or the few must "go down".

### **Intellectual Pursuits and the Need for Public Approval**

Even though the city will not easily be persuaded that education is good, Socrates does not abandon the pursuit of public support. Quite the opposite. He suggests that the city must be encouraged to respect, and ultimately support, philosophy or science if it is to flourish. Public support for education in philosophy or science is a necessary condition of its open practice.

The necessity of gaining the city's support is affirmed by Socrates in his demand that the philosophers not be permitted to remain too long in the study of philosophy. The "best natures" must be *compelled* (520a) to return to their prison home and share in both the serious and the not so serious labours and honours of the prisoners there (519d). On the basis of an expectation that life in the prison home would be far worse than the beautiful life described in Socrates' image of the good, Glaucon objects to the action of compelling the philosophers to return: "'What,' he said. 'Are we to do them an injustice, and make them live a worse life when a better is possible for them?'" (519d). The philosophers, Glaucon says, would surely have justice on their side if they chose to resist such a provision.

Socrates explains that the philosophers must recognize the obligation to repay the contribution the city has made to providing the conditions under which a life dedicated to philosophy is possible. It is indeed true that there is a remote possibility that a

philosopher might spontaneously appear in a city that does not foster an education toward and in philosophy (520b). Socrates, however, questions whether or not it would be wise, given the circumstances of the city's constitution, to rely on chance. To explain Socrates' reluctance, we must return to the images provided in the cave analogy.

In particular, we must recognize the significance of Socrates' description of the condition of a prisoner who is released and healed from their bonds and folly.

"Take a man who is released and suddenly *compelled* to stand up, to turn his neck around, to walk and look up toward the light; and who, moreover, in doing all this *is in pain* and, because he is dazzled, is unable to make out those things whose shadows he saw before. . . ."

"And, if [someone] *compelled* him to look at the light itself, *would his eyes hurt and would he flee*, turning away to those things that he is able to make out and hold them to be really clearer than what is being shown?

"So he would," [Glaucon] said.

"And if," I said, "someone *dragged* him away from there *by force* along the rough, steep, upward way and didn't let him go before he had *dragged* him out into the light of the sun, wouldn't he be *distressed and annoyed* at being so dragged?" (515c-516a; emphasis added).

The newly released prisoner would be likely to resist his or her liberation from the bonds. They would have to be properly oriented toward truth through compulsion. Liberation from a condition of ignorance or lack of education would be painful and disorienting. Those who would act as liberators would be inflicting pain and suffering on their

fellow citizens. If the person who has been educated attempted to "go down" to the cave in order to release his fellow prisoners from their bonds, he would not be met with enthusiasm by his fellow citizens. That is, if one of the educated attempted to act as a teacher or supervisor of a fellow citizen's studies, a call for a reaction of spirited violence against the so-called teacher would be sounded. Socrates asks: "If they were somehow able to get their hands on and kill the man who attempts to release and lead up, wouldn't they kill him?" (517a). The city, then, would act in self-defence against the philosopher. The spirited part of the city would be called into action against what is perceived to be a pernicious and "foreign" element within their borders. The guardians, we recall, have been rigorously trained to be vicious with enemies of the city regardless of whether or not the threat comes from inside or outside of the city itself. The philosopher who is not a political philosopher poses a threat to the city's accepted truth by refusing to respect the right of the first occupier. Such an individual would compete for the rulership of the city, and would risk both their own and the city's destruction (521a). Thus, if a philosopher emerged spontaneously, the citizens would have no grounds for accepting his speech and action as authoritative and helpful.

Socrates explains his point in more detail during a discussion of the third stage of the educational system: the dimension of cubes and what participates in depth, or solid geometry. Socrates suggests that it is not impossible for such a difficult and obscure study to flourish, provided that the citizens are able to give an account of its usefulness. Socrates and Glaucon are unable to refer to this study by name, as no formal name has been attributed to it. This science remains obscure because "no city holds it in honour"

(528b). It is not held in honour because "scarcely an ordinary thing, rather it's hard, to trust that" such a study is intrinsically worthwhile (527de).

Socrates suggests that those who are *attracted* to this study must have guidance from a supervisor.<sup>21</sup> However, a supervisor is difficult to find. The fact that it is practised at all testifies to the science's accessibility. It is therefore unlikely that supervisors are difficult to find because of the intrinsic difficulties of the science. Rather, the risk of arousing the spiritedness of the city makes it unlikely that a person who is knowledgeable about solid geometry will be likely to take lightly the charge of being a supervisor of others who are attracted, for whatever reasons, to the study of solid geometry.

Socrates suggests that public involvement is a means of encouraging supervisors of taking on the supervision of students that are likely to have a high opinion of themselves.<sup>22</sup>

<sup>21</sup>In a footnote in an essay dedicated to Allan Bloom, James H. Nichols Jr. suggests that Socrates' reference to the need for a supervisor over researchers may "suggest Plato's own role in his academy." Nichols' comment intimates that, as a supervisor, Plato (and perhaps Bloom?) intended to provide young men of potentially philosophic nature with *decent* guidance (James H. Nichols Jr., "Platonic Reflections on Philosophic Education," in Michael Palmer and Thomas L. Pangle, eds., *Political Philosophy and the Human Soul: Essays in Honor of Allan Bloom*, Lanham: Rowman and Littlefield Publishers, Inc. [1995], 116, 118). Walter Nicgorski sounds a similar theme describing the importance of a stern supervisor when describing Bloom's understanding of education "as experience of greatness, emphatically inclusive of the beautiful. Such experience assumes exposure, chiefly to books marked by such greatness, but the experience is usually had only with the *prod* of the caring and questioning teacher. Questioning is the appropriate mode for the student to engage greatness, and the teacher is the *midwife* to that experience and its fruit. 'Particularly the teacher dedicated to liberal education' writes Bloom in *The Closing [of the American Mind]*, must constantly try to look toward the goal of human completeness and back at the natures of his students here and now, ever seeking to understand the former and to assess the capacities of the latter to approach it'" (Walter Nicgorski, "Allan Bloom: Strauss, Socrates, and Liberal Education," in Kenneth L. Deutsch and John A. Marley, eds., *Leo Strauss, the Straussians, and the American Regime*, Lanham: Rowman and Littlefield Publishers, Inc. [1999], 211, emphasis added).

<sup>22</sup>In Book VI, within the context of a digression about the reputation of philosophy in *actual* cities (487bd), Socrates adds flesh to the consideration of how the best natures will fare when exposed to the influence of their fellow citizens. Socrates suggests that philosophy's bad reputation is due to the city's not making appropriate use of it (488d-489c). Because the multitude can neither accept, nor believe, "that the fair itself, rather than the many fair things, or that anything itself, is, rather than the many particular things,

"But if a whole city should join in supervising it and take the lead in honouring it, *these men would obey*; and, with it being continuously and eagerly sought for, its character would come to light; for even now, although it is despised and cut short by the many, and by those who seek it, since they have to account to give of the way it is useful, nevertheless in the face of all this it grows *per force*, due to its charm" (528cd).

The science Socrates describes is novel. Its novelty is strange, or even threatening to the city.<sup>23</sup> As a result, average citizens are likely to suspect that those who engage in philosophy or science become either useless or vicious as a result of their activities. In order to alleviate the city's ambivalence about or hostility toward science, practitioners

. . .those who do philosophize are necessarily blamed by them" (494a). Those having philosophic natures (489e-490c), as opposed to those who actually *practice* philosophy (495cd), are "first among all in everything," their fellow citizens will want to make use of them for their own affairs (494b). The best are therefore flattered by the many, according to certain convictions (cf. 493a) about what is good, in the attempt to win them to a life dedicated to the pursuit of wealth and honor: ". . .such is the extent and character of this destruction and corruption of the best nature with respect to the best pursuit. And such a nature is a rare occupancy in any event, we say. And particularly from these men come those who do the greatest harm to cities and private men, as well as those who do the good, if they chance to be drawn in this direction. No little nature ever does anything great either to private man or city" (495ab; cf.491e.). Thus, the elements of their character best suiting a young person for philosophy are given a bad rearing (495a; cf.492bc). The young man who is flattered by the multitude will be told that he useful. He will believe that he is competent to mind the business of "both Greeks and barbarians," and will become conceited (494cd). However, the young man who believes himself to be cosmopolitan will, in fact, have no intelligence. In anticipation of counteracting this tendency, Socrates suggests that the instrument of the soul should be tended to in early childhood. Its "ties of kinship with becoming" should be cut off "like leaden weights, which eating and such pleasures as well as their refinements naturally attach to the soul and turn its vision downward. . ." (519ab).

<sup>23</sup>Strauss suggests: "There is a fundamental disproportion between the philosophy and the city. In political things it is a sound rule to let sleeping dogs lie or to prefer the established to the non-established or to recognize the right of the first occupier. Philosophy stands or falls by its intransigent disregard of this rule and of anything which reminds of it. Philosophy can then live only side by side with the city. As Plato put it in the *Republic*, only in a city in which the philosophers rule, and in which they therefore owe their training in philosophy to the city, is it just that the philosopher be compelled to engage in political activity. ." (Leo Strauss, "Liberal Education and Mass Democracy," in Robert A. Goldwin, ed., *Higher Education and Modern Democracy: The Crisis of the Few and the Many*, Chicago: Rand McNally and Company [1967], 82).

must provide the city with an account of the role that science plays in the city. In order for their learning to become effective, the practitioners of science must be able to answer the question of "why science?" Science must be introduced on the city's terms if its authority is to be accepted as safe, useful and beneficial.

### **Education and War**

Because change is difficult, philosophy or science is problematic for the city. Socrates suggests that the authority of intellectuals will not be acknowledged by the average citizen on the basis of their having a precise understanding of the business of the educated. This leads the reader to wonder how it is that the educated will encourage the citizens' trust in their ability to help the city. If the average citizen has neither the desire nor the aptitude to develop a precise understanding of scientific practices, then how will they come to understand the merit in an educated person's claim that they have something to offer the city? What would convince the average citizen to forego a precise account of what it is that the educated are actually doing to help the city?

While acknowledging the dangers of philosophy, Socrates maintains that there are conditions under which citizens would be encouraged to accept the authority of intellectuals' appeals that changes be made to their way of living. Socrates singles out a situation of war as being a reason that would likely persuade the average citizen to forego a precise account of the intellectual's business.

At 521d, Socrates and Glaucon discuss the principle attributes of the educational system.

"What then, Glaucon, would be a study to draw the soul from becoming to being? And as I speak, I think of this. Weren't we saying that it's necessary for these men to be champions in war when they are young?"

"Yes, we were saying that."

"Then the study we are seeking must have this further characteristic in addition to the former one."

"What?"

"It mustn't be useless to warlike men"(521d).

Socrates and Glaucon agree about a number of things. First, their system of education must facilitate the process whereby the "eye of the soul" is purified and rekindled (527e). The educational system must teach students to intellect well. Second, they recall an earlier agreement about the kinds of characters who will be chosen for this program of studies, and reassert that they must be champions in war. Finally, Socrates suggests that "warlike men" must find the studies useful. That is, if the people of the city are "warlike," then its practices must be useful to a warlike people.

The importance of war for the success of the proposed educational system is easily overlooked because of the emphasis that Socrates places on the ability of the chosen studies to help the young intellect well (523a, 525c, 526b). Socrates asserts that, if the studies are implemented for any purpose other than to aid in the quest after "the fair and the good", then the studies are useless (531c).<sup>24</sup> Further, certain dramatic details in

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<sup>24</sup> At 526de, Socrates suggests that only a small part of the studies will suffice for the purpose of cultivating excellence in military matters: "...for such [military] things, only a small portion of geometry--as of calculation--would suffice. It must be considered whether its greater and more advanced part tends to

*Republic* Book VII seem to suggest that the most important consideration with respect to education is whether or not this difficult turning and ascent toward "the *idea* of the good" can be facilitated. It appears as though the military or technical applications of the studies are relegated to a position of incidental importance.

Socrates' emphasis on the intellectual aspects of the studies, however, should not be taken as evidence of the incidental *importance* of the fact that they are applicable to matters of defence. It is true that the military applications emphasized by Glaucon are designated "bi-products" (527c) by Socrates. However, recognizing that the military applications are not the only products of the studies is not to suggest that they are *not important*. In fact, war is so closely connected with education in Socrates' mind that he is immediately reminded of their earlier discussion about the guardians (521d: "[. . .] And, as I speak, I think of this.").

The studies chosen for the program of higher education are spoken of as having many practical, especially military applications. Almost immediately after the study of number and calculation is introduced, Socrates emphasizes its usefulness for the art of war. If the warrior is to "have any professional knowledge of the order of the army," number and calculation should be among his studies (522ce, 525b). Similarly, the discussion of geometry begins with Glaucon offering a description of the many ways in which this science is useful for war (526d). Finally, before being interrupted by Socrates, Glaucon praises the science of astronomy for its many practical and military applications (527d).

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make it easier to make out the *idea* of the good. And we say that this tendency is possessed by everything that compels the soul to turn around to the region inhabited by the happiest part of what it, which is what the soul must by all means see."

Socrates and Glaucon agree that the guardians are "champions in war" when they are young. Those selected to take part in the education toward philosophy (521c) will be chosen from among those who have proven themselves in battle. Their capacity to be steadfast in defending the city's way of life will be readily apparent. They will be respected and honoured for their past sacrifice in selflessly defending the well-being of the city. With respect to their capacity for study, the guardians will be battle-tested and ready to spend time performing the greatest test for a nature that is dialectical. Their education will "be integrated into an overview which reveals the kinship of these studies with one another and with the nature of that which *is*" (537c). The various studies used to develop the intellect will act as a process by which the preferred few who are dialectical can be identified (537d).

The central importance of war in Socrates' account of education, then, is apparent. If the average citizen is persuaded that a project toward developing human beings that will have the capacity to intellect well is readily and directly applicable to providing the conditions under which the city will be better fortified against threats from formidable enemies, then the city will support an activity of which they have no precise understanding. In this way, Socrates' discussion of a difficult and radical process of education toward truth is inextricably linked to war.

A situation of precarious security, of course, will not alone be sufficient to persuade average citizens that education is worthy of public support. The educators and the educated alike must be sure to behave in such a way as to maintain the confidence of their fellow citizens. They must beware the temptation to appear as though they are

independent of social responsibility. Particularly, the educated must resist the temptation to talk down to those who do not share an appreciation of their endeavours.

Socrates demonstrates that he is aware of the tendency that most people who are clever at such subtle studies have to speak about them in such a way as to belittle any attempt to derive a more commonplace understanding of them (525d-526a). In fact, in a moment of weakness, Socrates himself goes further than this by attacking in speech those who he mistakenly (495ce, 499e-500b) believes are responsible for Philosophy<sup>25</sup> being "undeservedly spattered with mud" (536c). People behaving in such a manner are vexed to find their favoured studies derided out of what they expect is ignorance about their great beauty. Socrates asserts that such natural inclinations toward defensiveness should not be indulged. With respect to obtaining "a finer reception" (527c) of the proposed studies, practitioners must be mindful of their obligations to the city. The city must notice "a general and complete difference" between the people who have spent time in study and those who have not. Studies must, at a glance, appear to have affected the young people who have mastered them in a positive way.

This is, in fact, how Socrates describes the public attitude toward those who practice geometry. Glaucon emphatically agrees that geometry has a beneficial effect on those who study it (527c). Even though its practitioners do not take the studies as far as they could (526d), their behaviour has helped it cultivate a favourable reputation. Socrates describes how ridiculous geometers are when they speak about their art.

". . .they speak in a way that is as ridiculous as it is necessary. They speak as

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<sup>25</sup>"Philosophy" is capitalized in the text.

though they were men of action and were making all the arguments for the sake of action, uttering sounds like 'squaring,' 'applying,' 'adding' and everything of the sort, whereas the whole study is surely pursued for the sake of knowing"  
(527ab).

Socrates suggests that the geometers are ridiculous because they choose to speak of their study in such a way as to obscure its more noble purposes. What is interesting about this passage, however, is Socrates' acknowledgement of the fact that such speech is *necessary*. Socrates implicitly accepts that even though the geometers might appear ridiculous for emphasizing only certain aspects of their study, this does not mean that they are able to resist being compelled to do so. Their speech reflects an awareness of the importance of emphasizing those aspects of their study that might appear to non-practitioners as useful, or beneficial to the city.

### **Glaucon's Indecisiveness**

Socrates dramatically represents his point about the importance of communication<sup>26</sup> in a short digression from the discussion of the various stages in the "philosophical" education. In this digression, the dramatic Socrates chides Glaucon for emphasizing the practical, especially *military*, applications of the studies (in this case, astronomy) that the founders will institute in order to lead forth the few best youngsters from becoming to

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<sup>26</sup>"Communication may be a means for living together; in its highest form, communication *is* living together. . . . [T]he quest for truth is necessarily, if not in every respect, a common quest, a quest taking place through communication (Leo Strauss, *The City and Man*, Chicago: Rand McNally and Company [1964], 52, author's emphasis).

being. "You are amusing," Socrates says to Glaucon. "You are like a man who is afraid of the many in your not wanting to seem to command useless studies" (527a). Socrates' accusation implies that Glaucon is concerned about reputation, about *seeming* to command useless studies. Moreover, he suggests that Glaucon is *like* one of the many. That is, Glaucon's reaction to Socrates' introduction of the particular studies that their students will engage in is in some way indicative of how the many uneducated citizens would be likely to perceive the activities relating to the philosophic or scientific education. Socrates' accusation is perplexing because it is Socrates, not Glaucon, who insists on emphasizing the importance of war for education (521d; 376c, 403e). Why does Socrates criticize Glaucon for paying attention to an attribute of the studies which was established as necessary at the outset of the discussion of the program of studies?

While the criticism of Glaucon appears misplaced, it is, in fact, consistent with the point that Socrates is making about the place of the philosophic or scientific education in the luxurious city. Socrates suggests that, when speaking of the possible practical applications of the studies as the reason for their being implemented, Glaucon is directing his comments to a particular audience.

"It's scarcely an ordinary thing, rather it's hard, to trust that in these studies a certain instrument in everyone's soul--one that is destroyed and blinded by other practices--is purified and rekindled, an instrument more important to save than ten thousand eyes. For with it alone is truth seen. To those who share your opinion about this, what you say will be indescribably good, while all those who have had no awareness at all of it can be expected to believe that you are talking

nonsense. They see no other benefit from these studies worth mentioning.

Consider right here with which of these two kinds of men you are discussing.

Or are you making the arguments for neither but chiefly for your own sake, without, however, grudging anyone else who might be able to get some profit from them?" (527e-528a).

Glaucon suggests that he is making the arguments chiefly for his own sake. This declaration indicates that, while Socrates has somewhat unjustly criticised Glaucon, he has correctly divined Glaucon's opinion about purely theoretical or abstract studies.

Glaucon readily provides examples of the practical aspects of the philosophical education as proof of their efficacy because he is not easily persuaded that enlightenment is simply good. He does not trust that the actual purpose of the studies--the *end* of education (to turn the eye of the soul toward the light, to encourage the proper formation of the virtue of prudence)--is enough reason for him to believe that they are beneficial.

Previously, Glaucon seemed to demonstrate that he had become favourably predisposed toward the suggestion that philosophy was the best way of life. He rebukes Socrates for suggesting that the enlightened should be compelled to return to the city (519d). Glaucon's reaction indicates that the attractiveness of Socrates' image of true philosophy has prepared Glaucon to be persuaded that this way of life is better than any other. That is, Socrates is not required to take pains to provide a clear and concise definition of philosophy in order to be successful in his efforts to persuade someone like Glaucon that philosophy, as a way of life, is attractive. However, it soon becomes clear that Glaucon is not completely persuaded by Socrates' charming speech about philosophy.

Glaucon's failure to pay sufficient attention to what Socrates asserts is the principal aspect of the studies--to help the young cultivate a capacity to intellect well--amounts to a retreat (528a; cf. 474ab). Glaucon is not willing to stand with Socrates against the many as someone who advocates useless things. He is not willing to be associated with an activity that is considered indecent by most citizens. Glaucon's tendency to praise the practical and especially the military aspects of the studies indicates that these attributes are the ones that *really* persuade him that education is a good thing. Socrates is still not required to give a precise account of true philosophy after the military attributes of the studies are introduced. Yet, it becomes quite clear that Glaucon appreciates the studies more as a result of Socrates' directly linking them to the defence of the city.

Glaucon is like the city. He requires good reasons for believing that certain activities are worthwhile. For both Glaucon and the city, if the studies result in an ability to demonstrably contribute to the city's war effort, then they are worthwhile and worth supporting. It appears as though Glaucon has been, as it were, set-up by Socrates in order to make the dissonance between the educated and the city more apparent. Socrates suggests that it is an extraordinary thing to *trust* that the studies they are proposing will properly restore that part of the soul which is necessary for the proper stewardship of the city. Socrates does not harbour any expectations that average people will recognize arguments expounding the intrinsic value of education as anything more than nonsense. That is, Socrates does not expect that the average citizen will simply trust that education is something good for the city.

## Conclusion

Socrates introduces an understanding of education that is particularly relevant for contemporary readers. Education is here described as a process which provides the educated with a special ability to serve the city. Socrates' discussion always treats education as something that will become applicable to life in the city. The educated must remember their obligations to the city, and must be useful for the city's purposes.

Glaucon is Socrates' principle interlocutor throughout Book VII of the *Republic*. Glaucon's reactions to Socrates' speech are particularly significant because Glaucon reacts to Socrates' proposals in a way that is indicative of the city. Glaucon begins the discussion of an education leading toward true philosophy as Socrates' partner. Socrates suggests that he will need a defender because he is likely to be attacked for introducing proposals that will arouse the suspicion of his fellows. Glaucon at first seems persuaded that philosophy is the best way of life even though Socrates has not offered any precise definition of what the philosophic life is. However, Glaucon soon demonstrates that it is the military bi-products that have persuaded him that Socrates' proposed education system is worth adopting. Glaucon is persuaded by Socrates' ability to associate a rather vague notion of education with things that Glaucon already believes are useful and beneficial for the city. Glaucon is particularly attracted to the military bi-products of the studies, because they seem particularly meritorious aspects of practices that are subtle.

Socrates' persuasion of Glaucon becomes a particularly important theme as we turn to the discussion of the Sputnik era. Like Glaucon, Americans had little precise understanding of education, even though education was something that was frequently

discussed. Just as Glaucon does not offer any resistance to Socrates' suggestion that young people must be inculcated by a process of education, the American people believed that education was something that young people should practice. After Sputnik, however, intellectual pursuits in general started to be promoted. Scientific and technological investigations, as well as education, were being spoken of as something that the citizens should encourage as necessary for the survival of the city. Public speakers suggested that activities which promoted the cultivation of the intellect were worthy of the attention of all citizens. As was the case with Glaucon, this notion of intellectualism as central to the purposes of society became acceptable because of war. Like Glaucon, Americans were persuaded to accept that intellectual pursuits were worthwhile because of war.

### **Chapter III - The American Scientist's Intellectual Freedom**

Shortly after the launch of Sputnik, political philosopher Hannah Arendt, in the "Prologue" to *The Human Condition*, provided one of the most insightful statements assessing the importance of the event. The language that Arendt uses to describe the impact of Sputnik on its international audience of observers is reminiscent of Plato's *Republic*. There, Socrates invokes the image of a cave, complete with prisoners breaking repressive bonds and ascending toward the light that is truth. Similarly, Arendt describes earth dwellers, hitherto enchainied by the necessities of the human condition, being released from their imprisonment by a demonstration of the true ingenuity of humankind.

In 1957, an earth-born object made by man was launched into the universe, where for some weeks it circled the earth according to the same laws of gravitation that swing and keep in motion the celestial bodies--the sun, the moon, and the stars. . . .

This event, second in importance to no other, not even to the splitting of the atom, would have been greeted with unmitigated joy if it had not been for the uncomfortable military and political circumstances attending it. But, curiously enough, this joy was not triumphal; it was not pride or awe at the tremendousness of human power and mastery which filled the hearts of men,

who now, when they looked up from the earth toward the skies, could behold there a thing of their own making. The immediate reaction, expressed on the spur of the moment, was relief about the first "step toward escape from men's imprisonment to the earth." And this strange statement, far from being the accidental slip of some American reporter, unwittingly echoed the extraordinary line which, more than twenty years ago, had been carved on the funeral obelisk for one of Russia's great scientists: "Mankind will not remain bound to the earth forever."<sup>27</sup>

After Sputnik, who among us can now observe a frontier that stands against the strength and determination of human will? People of past generations reached for the stars. People of the new generation had taken their first step toward visiting them. The message of this dramatic scene was optimistic. In light of Sputnik, one could hardly conceive of an aspiration that could not be actualized.

As one would expect from a truly insightful analysis, Arendt delves deeper than the surface impression created by celebratory jubilation. Even the most optimistic non-specialist observer of the Soviet achievement could not help but feel a degree of uneasiness about the corresponding political implications of what at first glance seemed

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<sup>27</sup> Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958), 1. The Russian scientist referred to by Arendt appears to be Konstantin E. Tsiolkovsky (d. 1935). *The New York Times* introduced him as "a leader in developing modern theory of interplanetary travel" (*New York Times*, 5 October 1957, 3). In 1911, Tsiolkovsky articulated his chiliastic expectations: "If we can even now glimpse the infinite potentialities of man, then who can tell what we might expect in some thousands of years, with deeper understanding and knowledge. There is thus no end to the life, education, and improvement of mankind. Man will progress forever. And if this be so, he must surely achieve immortality. So push confidently forward, workers of the earth, and remember that every ounce of your efforts is eventually bound to bring a priceless reward" (quoted in Walter A. McDougall, *The Heavens and the Earth, A Political History of the Space Age*, New York: Basic Books Inc. [1985], 17).

to be a purely scientific event. While Sputnik might have seemed to demonstrate that human potential was boundless, there was still a sense that humankind would have to endure a great deal of suffering before reaching the end of a such a prodigious progressive journey. Before human beings would reach the land promised by modern science--a land where people could be emancipated from the fear of a hostile mother nature--political societies would have a lot to learn from well-educated intellectuals.

Far from celebrating, Americans responded to Sputnik with patriotic fear and pride. Even though the human-made satellite could be seen with the naked eye, the nature of this technological innovation remained unsettlingly mysterious to laymen and professional practitioners alike.<sup>28</sup> This chapter examines the character of public speeches made by professional scientists regarding science in general, and intellectual freedom in particular, in the wake of the negative public response of Americans to Sputnik.

By scrutinizing selected speeches as aspiring to be representative of the scientific community in the post-Sputnik era, it is possible to identify and consider a predominant question that was on the scientists' minds: What does the public reaction to Sputnik mean for Science? In order to better understand the connection between public opinion after Sputnik and increased support for the effort to facilitate scientific advancement, it is useful for the political scientist to consider what the scientists might have seen in the general public's fearful and prideful response to Sputnik. Following the discussion of the

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<sup>28</sup> Amidst considerable fanfare, the United States attempted to orbit their first human-made satellite, the Vanguard, on December 6, 1957. It exploded on the launching pad. Even though Vanguard I was successfully orbited on March 17, 1958, the Vanguard team was marred by repeated failures in the same year (Feb. 5, April 28, May 27, June 26, Sept. 26). The first U.S. satellite to successfully orbit, Explorer I, was launched on January 31, 1958 using an Army Jupiter-C missile.

relationship between citizen concern for issues of security and support for the cultivation of the intellect that is found in Plato's *Republic*, I surmise that scientists recognized both opportunity and danger given the "climate of opinion" following Sputnik. It seemed that if the scientific community could declare and demonstrate their capacity and desire to help Americans and at the same time act to preserve a respect for intellectual freedom, then science would indeed flourish. Speeches representative of the interests of the scientific community sought to aid American science in traversing this difficult terrain.

### **Freedom for Intellectuals**

All political societies have among their membership an element that advocates change. Such changes are recommended based on the advocate's claim to have reached a more precise understanding about a matters of public interest. Every political society must confront such recommendations for change. Some political societies deal with elements agitating for change more repressively than others. While some might instinctively argue that the United States would not be easily given over to the practice of curtailing intellectual freedom, careful and concerned observers at the time of Sputnik recognized this as a perennial possibility. Contemporaries of the Sputnik era did not have to look far into the past to observe that the curtailing of intellectual freedom had precedent in the United States. Scientists especially remembered, for example, the ". . . terribly disturbing era of mistrust when the Oppenheimer case was a *cause celebre* and the late Senators McCarthy and McCarran rode roughshod over scientists and intellectual

"eggheads" in general.<sup>29</sup> The McCarthy era demonstrated that a public concerned about national defence would allow itself to be directed by those who presented themselves as the country's defenders. It also demonstrated that intellectual freedom was a favoured target among suspicious men.

Robert J. Oppenheimer was honoured as one of America's foremost specialists in nuclear physics. He was credited with much of the success of the project to construct the atomic bomb in Los Almos, and was a respected professor and lecturer in his field. In 1954, however, the Atomic Energy Commission (AEC) decided by a four-to-one vote to refuse Oppenheimer, then chairman of the General Advisory Committee (GAC) to the AEC, access to restricted information.<sup>30</sup> Oppenheimer fell under suspicion as a result of past association with communist-sympathetic organizations as well as his opposition to the development of the hydrogen bomb.<sup>31</sup> With the aid of FBI sources, Joseph McCarthy had been quietly building a case against Oppenheimer for some time. The senator sought to publicly investigate the matter as early as 1953, but was dissuaded by White House

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<sup>29</sup>Marshak, 162.

<sup>30</sup>AEC chairman Lewis Strauss had previously ordered all classified documents in Oppenheimer's safe at Princeton University be removed. This action was prompted by an order from President Eisenhower that "a blank wall be placed between Dr. J. Robert Oppenheimer and any secret data" (Denise Royal, *The Story of J. Robert Oppenheimer*, New York: St. Martin's Press [1969], 154).

<sup>31</sup>Oppenheimer and the GAC rejected a call to expand thermonuclear work toward the construction of the H-bomb for technical, military and moral reasons. They suggested that technical problems with the "Super" bomb would not be solved in the near future. The GAC decision was overruled by President Truman. Oppenheimer then attempted to resign as chairman of the GAC. Truman would not accept his resignation; that is, Oppenheimer was *compelled* to remain associated with the GAC of the AEC. Shortly after the GAC decision was overturned by Truman, fellow scientist Edward Teller and his colleagues solved the technical problems that the GAC had spoken of. The "Super" bomb was born shortly thereafter. This scientific achievement was matched a few months later by the Soviet Union. Oppenheimer's opposition to the project, it seems, was not easily forgiven nor forgotten.

officials. While McCarthy approved of the Presidential censure, he played no direct role in the Oppenheimer affair.<sup>32</sup> However, many recognized the association between McCarthy's activities against un-American activities and the Oppenheimer case. Prominent journalist I. F. Stone commented:

The impossible search for 'absolute security' is incompatible with a free and healthy society. If this is to be a national policy, why should anyone be trusted? There is a momentum here which plays into the hands of those who are prepared to be most unscrupulous and extreme in pandering to a growing paranoia. One of the charges against Oppenheimer is that he testified for others who are security risks. Can we, then, trust the long list of men who testified on his behalf? They included some of the most distinguished names in American banking, business, education and science. But will this protect them from a Jenner or a McCarthy?<sup>33</sup>

Stone's reflections suggest that citizens should be suspicious of those who show themselves to be willing to exploit public fear and anxiety in service of limited or partisan political goals. He is critical of those who are excessively suspicious that "un-American" activities are occurring within the borders of the United States. He is also critical of the ease with which a fearful public seems to be able to suppress reasonableness in giving themselves over to the prompting of overzealous public figures.

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<sup>32</sup>Thomas C. Reeves, *The Life and Times of Joe McCarthy: A Biography* (New York: Stein and Day Publishers, 1982), 590.

<sup>33</sup>I. F. Stone, *The Haunted Fifties* (New York: Vintage Books, 1969), 81.

Stone's moral indignation aside, he identifies an important relationship between public fear, so-called public defenders, and those who have the misfortune of being associated with something identified as a threat to public well-being. Much to the dismay of those who wished to promote an appreciation of the scientific significance of the launch of the first human-made celestial object, the American public reacted to Sputnik with fear and dismay.<sup>34</sup> Given the public outcry over the "problem," and given the lessons of the McCarthy era in general and the Oppenheimer case in particular, representatives of the scientific community feared any reflexive public response which might result in the channelling of science and scientists according to what was considered politically expedient.

In order to place the public response to Sputnik in perspective, contemporary observers should recognize that the situation described above, the "growing paranoia" of the American people in the years preceding Sputnik, is indicative of the "climate of

<sup>34</sup>Popular historians of post-World War II American history are in general agreement about the public's reactions. Fred Kaplan suggests that Sputnik "rocked the nation into a state of near panic. . . . The very word was enough to send shivers up just about every American's spine" (Fred Kaplan, *The Wizards of Armageddon*, New York: Simon and Schuster [1983], 135). Robert A. Divine notes that "Americans reacted in shocked disbelief. . ." (Robert A. Divine, *Since 1945: Politics and Diplomacy in Recent American History*, Second Edition, New York: John Wiley and Sons, [1979], 89). According to J. Ronald Oakley, not even the reactions to the onset of the Korean War, or the firing of General MacArthur, elicited such a stunned reaction from a nation that was humiliated and scared (J. Ronald Oakley, *God's Country: America in the Fifties*, New York: Dembner Books, [1986], 343). Also seeking to compare Sputnik to other significant events which might have stood out in the minds of contemporaries, Eric F. Goldman suggests that "by nightfall of this strange Saturday, the most eerie day since Harry Truman announced the atomic bomb in far-off 1945, the word "sputnik" had a firm place in the American language" (Eric F. Goldman, *The Crucial Decade and After: America, 1945-1960*, New York: Vintage Books, [1961], 307-308). President Eisenhower observed that Sputnik brought about "an almost hysterical fear among some elements of the country;" this fear in turn encouraged near hysterical public pronouncements regarding the significance of the event (McDougall, 139). George Reedy, aide to Senator Lyndon Johnson, summarized his reflections: ". . .the American people are bound to become increasingly uneasy. It is unpleasant to feel that there is something floating around in the air which the Russians can put up and we can't. . . . It really doesn't matter whether the satellite has any military value. The important thing is that the Russians have left the earth and the race for control of the universe has started." (Fred Kaplan, 135).

"opinion" into which the news of Sputnik was received. Recent surges in American anti-communist sentiment, the wounds of which were still fresh in the public consciousness, indicated that intellectual freedom was precarious when it seemed to the average citizen that public safety, or the security of the nation, was at issue. Oppenheimer was the symbol of the intellectual who had proven himself both willing and able to defend the interests of the United States. His prominent position in American life, however, did not allow him to appear as someone who was, for reasons of personal conviction, no longer willing to forward the interests of his country when such help was required and demanded.

While the American public after Sputnik may have been in a condition which made them particularly susceptible to the rhetoric of public speakers who claimed to possess a remedy for American ills, this is not to say Americans were prepared to follow the advice of all people who advocated changes to their way of living. Consider, for example, the reaction of the general public to the phenomenon of beat poetry. One of the more interesting aspects of the post-Sputnik era was the association of the satellite launch with an increasingly visible underground "counter-culture" community identified as the "beat generation." The Oxford English Dictionary describes "beat generation" as an expression applied to a "group of young people, predominantly writers, artists, and their adherents, in San Francisco, later to similar groups elsewhere, adopting unconventional dress, manners, habits, etc., as a means of self expression and social protest. After Sputnik, "beat" (an abbreviation of "beatific," which was intended as a conceptualization of the essence of the movement) was combined with the Slavic suffix "nik" to form the neologism *beatnik*.

Thus, a new name, reminiscent of, and explicitly connected to Sputnik, was given to those who were ardent practitioners, believers, lovers or devotees of an *unconventional* way of thinking and living.<sup>35</sup>

The beat generation called for changes in American values and practices, but they did not demonstrate their own expertise in helping to bring about a better way of life for themselves and their fellow citizens. Americans responded to the movement by humorously associating their outlandish behaviour with Sputnik. That is, the average citizen seemed prepared to tolerate what they considered to be a strange, yet by and large harmless way of life for a small minority of young people.<sup>36</sup>

After Sputnik, fear and pride encouraged Americans to become responsive to suggestions that changes to their way of life must be made immediately. The public had shown itself somewhat susceptible to manipulation in the past, but this does not suggest

<sup>35</sup>The Oxford English Dictionary suggests that *beatnik* originated "arbitrarily" after *sputnik*, and was influenced by the Yiddish *-nik* (cf. Leo Rosten, *The Joys of Yiddish: A Relaxed Lexicon of Yiddish, Hebrew and Yinglish Words Often Encountered in English ... From the Days of the Bible to Those of the Beatnik*, New York : McGraw-Hill [1968], 265).

<sup>36</sup>Like Sputnik, the beat generation was mysterious and it did not take much prompting before this mysteriousness gave rise to suspicion and uneasiness. When violent acts were attributed to the movement in the late fifties, prominent beatniks responded by distancing themselves from what they considered a bastardization of the original intention of "beat." Jack Kerouac, considered one of the fathers of the movement, resented public accusations, and attempted to give a true account of the spirit of the beat generation.

But yet, but yet, woe unto those who think that the Beat Generation means crime, delinquency, immorality, amorality... woe unto those who attack it on the grounds that it simply don't understand history and the yearnings of human souls... woe unto those who don't realize that America must, will, is, changing now, for the better I say.... Woe unto those who are the real dreary sinners that even God finds room to forgive... woe unto those who spit on the Beat Generation, the wind'll blow it back (Jack Kerouac, "The origins of the Beat Generation," *Playboy*, [June 1959], 79; cf. Friedrich Nietzsche, *Thus Spoke Zarathustra: A Book for None and All*, translated by Walter Kaufmann, New York: Penguin Books [1978], second part, "On the Rabble," 99).

Contemporary observers can only speculate about how such speech might have been received by the general public.

that they were likely to accept suggestions about remedies for their ills from just anyone. Americans would only accept the aid of those who demonstrated a capacity to provide for their safety and well-being. The scientific community had in recent years established themselves as most helpful in this regard. Sputnik itself, a most spectacular example of the power of science, had demonstrated that Americans could and should turn to science for help and protection.

### **The International Geophysical Year and the Cosmopolitan American Scientist**

Sputnik itself, and the various reactions to it, are phenomena of the desires of human beings, who acted and spoke in response to a world that seemed to be changing more and more quickly with each day that passed. It would be difficult to maintain that the difference between Americans and Russians of the nineteen-fifties was simply that each country's citizens sought different means to realize the same conception of happiness. However, it is difficult to deny that the shared desire to place an artificial satellite in orbit exemplified a great deal of commonality between the powerful rivals. As much was implicit when both the Untied States and the Soviet Union became part of an international effort to further the project advancing science by taking part in the International Geophysical Year (IGY).

The IGY was an international undertaking that emerged during a meeting of the International Council of Scientific Unions in Rome in 1954. The intent of the participants of the IGY was to acquire "synoptic data--data taken simultaneously on and about the earth in order to get a planetary view of weather, geomagnetism, the ionosphere,

the aurora, and the like."<sup>37</sup> This meeting marked "the first serious discussion of an earth satellite as a scientific experiment," where a resolution, reached in the presence of both Soviet and American scientists, "was adopted by the scientists of the world recommending that 'in view of the advanced state of present rocket techniques. . .thought be given to the launching of small satellite vehicles . . .'"<sup>38</sup> The Eisenhower administration agreed to go forward with plans for "the launching of earth circling satellites" as part of the participation in the International Geophysical Year.<sup>39</sup> The United States developed a "carefully scheduled" satellite program, which was "in keeping with [their] arrangements with the international scientific community."<sup>40</sup>

Executive Director for the US National Committee for the IGY, Dr. Hugh Odish offered the National Press Club a personal assessment of the IGY. Odish's comments not only focussed on the scientific achievements springing from the international effort. He suggested that those who were interested in overcoming problems inherent in the organization of disparate goals within a general framework intended to provide overall consistency should look to the IGY as "a pattern worth noting, worth using again in other

<sup>37</sup>"The Meaning of the International Geophysical Year." An address delivered by Dr. Hugh Odish, Executive Director, U.S. National Committee for IGY, before the National Press Club, 4 December 1959, U.S. President's Committee on Information Activities Abroad (Sprague Committee) Records, 1959-1961, Box 6, A83-10, Dwight D. Eisenhower Library, Abiline, Kansas (obtained from NASA web-sight, <http://www.hq.nasa.gov/office/pao/sputnik/dec58.html>), 1.

<sup>38</sup>*Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1958*, Dwight D. Eisenhower, no. 211 (9 October 1957), 733.

<sup>39</sup>Ibid., 733-734.

<sup>40</sup>Ibid., 735.

areas."<sup>41</sup>

The true character of the IGY was exemplified in the individuals that engaged in the project: in essence, the IGY was a group of highly motivated individual, autonomous "human beings, each of whom had a vital personal interest in a particular subject, each of whom felt that this subject needed, out of its own exigencies, a concerted attack, but one for which a simple, uncluttered mechanism would suffice."<sup>42</sup> The IGY was a model of the successful coordination of cooperation and competition.

While internationally-agreed-upon criteria established the basic content of the program, the burden of execution rested upon national groups, which naturally wished to do well. Even more fundamentally, the burden fell upon individuals, who were personally interested in their part of the program and were individually anxious to achieve meritorious results.<sup>43</sup>

Further, the IGY exemplified how intra-state rivalries could be mitigated when individuals, "without regard to their institutional affiliations but only with regard to their competence and interest" gathered their own "logistical and financial" support.<sup>44</sup>

<sup>41</sup>"The Meaning of the International Geophysical Year," 5. In fact, according to Odish, there was little doubt that the IGY's accomplishments were applicable to other areas of organization and administration: "It appears now that this was an excellent way in which to do a job so broad in scope. Whether the pattern will be followed in other ventures, including scientific ones, remains to be seen" ("The Meaning of the International Geophysical Year," 6). Odish does not comment on his competence in assessing the applicability of the IGY "pattern" to any other, let alone non-scientific, "ventures."

<sup>42</sup>Ibid., 5.

<sup>43</sup>Ibid., 5.

<sup>44</sup>Ibid., 6.

The participants' faith<sup>45</sup> in the overall objectives of the IGY resulted in the fantastic accumulation of an "unprecedented storehouse of facts," the value of which could be fully realized and appreciated after research scientists examined, reduced and analysed it.<sup>46</sup> The IGY itself was "the single most significant peaceful activity of mankind since the Renaissance and the Copernican Revolution."

. . . I need not emphasize that the age of space affords a limitless frontier to the human mind and spirit. The pursuit of knowledge of the universe using the tools now at hand will occupy the interests and energies of innumerable men as they reach, no longer earthbound, far into space. The drama and excitement here, if but properly construed, are incomparable, and the ultimate place of IGY in history may be as the initiator of space research. History may well regard this innovation as the most striking departure of man in this or any century. . . .

Provided that the complexity of modern society does not hide what is at hand, provided that the destructive forces present in our day not only do not eliminate civilization but do not, by their necessary insistence upon man's attention, mask the wonders of earth and universe, and provided that teachers and poets, scientists and philosophers sense the possibilities, there is at hand an

<sup>45</sup> Odish does not elaborate on what might possibly have provided the foundations for the "internationally-agreed-upon criteria [which] established the basic content of the program. . . ."

<sup>46</sup> In fact, as "new and fundamental discoveries" were made, "these data shall often assume a new life of their own. . ." ("The Meaning of the International Geophysical Year," 1; cf. Eric Voegelin, *The New Science of Politics: An Introduction*, Chicago: The University of Chicago Press [1987], 8-9). Odish's comments suggest that the project's participants accepted that collecting data for purposes that are not immediately apparent--that science for the sake of science--is an intrinsically worthwhile endeavor.

unparalleled situation for stimulating the best in man."<sup>47</sup>

The dawn of the space age would revolutionize the way that human beings thought of themselves and their place in universe. If the implications the IGY could be understood by all, the possibilities for humankind would be endless. The IGY not only had an impact on society as a "purely scientific enterprise," but also "as a purely human engagement, as an activity of man without specific reference to its subject matter."<sup>48</sup> Scientific advances, the kind that almost exclusively depend on the rewards of "basic research," had become "fantastically powerful in recent years."<sup>49</sup> The "mere symbols of basic research" (*i.e.* Sputnik) had demonstrated as much.<sup>50</sup>

A clear message emerges from Odish's address. The IGY, the project that culminated in the launching of Sputnik, was an *international* success. The IGY was a victory for *science over politics*; that is, a victory over a certain understanding of politics. Most people would agree that politics is a rather sordid game played by focussed, capable and willful participants, who attempt to out-maneuvre one another in pursuit of that most

<sup>47</sup>Ibid., 7-8.

<sup>48</sup>Ibid., 4.

<sup>49</sup>"Basic research" refers to research that is undertaken for its own sake; it is research undertaken by a scientist without any expectation that his or her work will be applied, or used for practical purposes. Charles V. Kidd suggests that the term provides an exoteric account of esoteric scientific endeavors. It is intended to "convey--generally to non-scientists--a sense of the nature of basic research, a feeling for its importance, and an appreciation of the motives and working conditions of scientists. One ultimate purpose served by such a description is to expand the scientific capacity of the country by creating understanding of, sympathy for, and support for, the full array of conditions that seem to be conducive to the production of basic findings. To serve this function satisfactorily, basic research can be described in general, impressionistic terms, and logical precision is not required. (Charles V. Kidd, "Basic Research--Description vs. Definition," in Norman Kaplan, ed., *Science and Society*, Chicago: Rand McNally and Company [1965], 146).

<sup>50</sup>"The Meaning of the International Geophysical Year," 4.

valued, yet ephemeral, object: *power*. The IGY was an example of what science could accomplish if freed from national and institutional obligations. Individual scientists, who under the auspices of the IGY had had the opportunity to gather their own financial and logistical support, were not obliged to governments or university administrators. They were free to capitalize on the enthusiasm and generosity of those who shared their inclinations, desires and aspirations. National affiliations only seemed to compel scientists to observe the interests of those who scarcely recognized the progressive implications of scientific enlightenment.

The result of the IGY's experiment was an astounding example of what science could accomplish for human beings in times of peace. The absence of state interference was obvious: there was nothing of the guarded approach usually accompanying agendas set by nationally affiliated authorities. There was no explicit military angle to the conference and no talk of the potentially destructive applications of the organizations' fact and findings. There were no nations, no borders, no boundaries inhibiting the progress of pure research.

Given that the IGY thrived in a climate of trust--trust that the interests of science always coincided with the interests of humanity, it was accepted that the fruits of "science for the sake of Science" were discoveries that could only *improve* human life. The individual participants of the IGY themselves were the best demonstration of the true good that science could accomplish. The participants were a group of ambitious and dedicated intellectuals attempting to make the world a better place for all. Best of all, they were carrying out this noble cause on their own terms and in their own way.

Scientists and non-scientists alike could learn from this positive example. The IGY was a story of cooperation, excellence and efficiency. It was a demonstration of the role that reason could play in establishing an encouraging atmosphere. Narrow, rational self-interest had brought these individuals together out of an expectation that combined effort would allow them to aspire to greater heights. Outside observers could be assured that participants were wise enough to recognize the benefits of mutual cooperation. The IGY had obviously managed to focus potentially destructive competitive desires into activities that would improve humanity.

Odish associates the IGY with other world-changing events such as the Renaissance and the Copernican Revolution. He asserts that the IGY is historically significant because it is yet another event in human history that has demonstrated a transition from a "dark age," an age of nationalist superstition and prejudice, to an age of enlightenment, discovery and learning. Like the other noteworthy events that it can be compared to, the IGY is a symbol of the effort to discover universal truth by overcoming the limits, or rather limitations, of particularized opinions.

Despite Odish's emphasis on the peaceful orientation of the event, it was clear that the IGY was far from apolitical. Odish himself recognized and praised the importance of the cooperative attitude of the participants; and even a scientific body which meets, decides and declares itself apolitical is itself fundamentally political.<sup>51</sup> The participants of

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<sup>51</sup>I follow an observation, made by Arendt, about the Royal Society: "The foundation and early history of the Royal Society is quite suggestive. When it was founded, members had to agree to take no part in matters outside the terms of reference given it by the King, especially to take no part in political or religious strife. One is tempted to conclude that the modern scientific ideal of "objectivity" was born here, which would suggest that its origin is political and not scientific. Furthermore, it seems noteworthy that the scientists found it necessary from the beginning to organize themselves into a society, and the fact that the

the IGY tacitly admitted that they had a greater capacity to realize what they recognized to be truly humanising intentions by admitting their own lack of self-sufficiency. Even their apparently self-motivated participation was, at least in some respects, an other-regarding exercise. Even though Odish calls for the abolition of national distinctions, he implicitly suggests that he understands the origins of the state to be found somewhere in the needs that its members have for one another. He also demonstrates his trust in the hope that modern science will make such neediness a thing of the past.

Odish urged his audience, a non-scientific audience, to *trust* science. The new "age of space" was a limitless frontier promising the satisfaction of human aspirations. Sputnik had facilitated a new era in the development of humankind. A trust in science would deliver human beings into a world of unprecedented peace and prosperity. Odish was quietly advocating that the average American abandon national loyalties in favour of a loyalty to the very thing that made the IGY such a resounding success: Science. If the masses would allow themselves to share the trust in Science that IGY participants possessed, there would be no telling of the glories that the future would deliver. Sputnik demonstrated science's potential. Americans should trust that this success did not belong to the Soviet Union alone.

Despite Odish's insistence about the significance of the non-military orientation of the IGY, it was clear that he and others felt that it was necessary to persuade the public

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work done inside the Royal Society turned out to be vastly more important than work done outside it demonstrated how right they were. An organization, whether of scientists who have abjured politics or of politicians, is always a political institution; where men organize they intend to act and acquire power" (Arendt, 271n26).

that Sputnik should be considered a victory for science, and thus a victory for human beings. By emphasizing the scientific aspects of the IGY, Odish attempted to persuade his readers that their fears emerged from sources that only science could administer to. Most Americans believed that the Soviet Union was the cause of their uneasiness. Odish suggested that this uneasiness had its origin in a natural and understandable reluctance to follow the progress of history toward a better life for all. Thus, his speech reads as an attempt to redirect public attention toward support of scientific endeavours, and away from calling for direct reprisals against the Soviet Union (and perhaps fellow citizens who might appear to be sympathetic to the Soviet cause), as the best plan for alleviating their fears and anxieties.

### **The Value of Intellectual Freedom--The Soviet Example**

There were, of course, other speakers who appeared more willing to explicitly stir American fear and pride in order to improve the public profile of science as a means of salvation from insecurity. In an article appearing in the January 1958 edition of *The Atlantic Monthly*, academic scientist John Turkevich discussed the topic of science in the Soviet Union. Turkevich was particularly well qualified to speak on matters pertaining to Soviet Scientific development; he was a professor of chemistry at Princeton University, an "American of Russian origin," and, due to his knowledge of Russian, an acknowledged authority on Soviet science.<sup>52</sup> Like many discussions of Soviet science, this account centred around a consideration of what the author termed the "principles of universal

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<sup>52</sup>John Turkevich, "The Scientist in the U.S.S.R.," *Atlantic Monthly* (January 1958), 45.

science."

The basic facts of science and the theories invented to explain them are universal and are largely impervious to national transformations. Their passage over political frontiers and through ideological curtains may alter the printed word, but it does not alter the *real content* of scientific treatises and textbooks, the organization of scientific facts and theories, and the logical thinking that scientific argument entails.<sup>53</sup>

Turkevich asserted that science could only flourish in an environment where the conception, development, and free exchange of ideas was not only tolerated, but encouraged by the powers that be. While it was difficult to imagine that even the most extreme conditions could completely extinguish the scientific spirit, the possibility of discovery and innovation--considered *necessities* by all sensible people in the modern technological era--depended on creating the right environment for science. Turkevich implicitly acknowledged that it was always tempting to think of the advancement of science in terms of its service toward the achievement of immediate political aims. However, a science subordinated to politics was simply counter-productive.<sup>54</sup>

The shortcomings of the Stalinist era in this respect were well understood by Soviet and American scientists alike. Under Stalin, the spirit of scientific enquiry was curtailed. The Party compelled strict adherence to "Marxist science," science in conformity with Marx's dialectical materialism, as the new criterion of truth. Conflict arose when the

<sup>53</sup>Ibid., 45.

<sup>54</sup>Ibid., 49.

scientific reasoning which conformed to international scientific standards conflicted with the dogma of "Marxist science"; not surprisingly, State sanctioned dogma prevailed in such battles. The new administration under Khrushchev openly recognized Stalin's failings, and displayed determination in redressing former manifestations of ignorance about the importance of paying appropriate attention to the requirements of vital scientific investigation.<sup>55</sup>

Khrushchev's regime ushered in a sense of confidence which manifested itself in government encouragement of innovation in science. Public speeches in the United States warned that Americans should be aware of the change and even fear it as *the challenge presented to the free world by the Soviet Union.*<sup>56</sup> No longer could a complacent America rely on the incapacities of their strongest ideological rival. In essence, Sputnik was more than the culmination of a massive effort of reorganization toward meeting the demands of industrialization and development. It represented a change in orientation toward creating the conditions necessary for the facilitation of the freedom of thought. Before Sputnik, these conditions were the special possession of the United States, and Americans believed that only in a liberal democracy could these conditions be secured for any extended period of time. In the post-Sputnik era, this claim

<sup>55</sup>Ibid., 46: As Turkevich explains, "The truculent attitude of the Party leadership toward Soviet scientists" had all but disappeared. By early 1958, ". . .the Kremlin no longer appeals to the principles of Marxism for the development of science. Science is now discussed and promoted as an independent activity of the mind, endowed with its own principles, traditions, techniques, and universality."

<sup>56</sup>R. E. Marshak echoed Turkevich's observations of the restoration of freedom in Soviet science, and emphasised the implications of such a development for Americans (R. E. Marshak, "Nature of the Soviet Scientific Challenge," in Grant S. McClellan, ed., *America's Educational Needs*, New York: The H. W. Wilson Company [1958], 159-160). Marshak's own visit to the Soviet Union culminated in amazement from the observation of a "vigorous and uninhibited" Moscow academic conference "where young Russian physicists did not hesitate to call to task distinguished academics if points of difference arose."

to exclusivity was demolished.

Thus, Turkevich and other scientists emphasized an aspect of the Sputnik crisis that was sure to strike a cord with the American people. Sputnik, they said, demonstrated the Soviet Union's dedication to the development of science and technology. If American pride was hurt as a result of falling behind the Soviets in an area with such importance for national security, then America had to "get back in the game" and win the important race for technological superiority. Moreover, if Americans were afraid as a result of Sputnik, then what would their condition be if they did not act in such a way as to preserve the very thing that was likely to help them feel safe again--*i.e.* science, or intellectual freedom? The average American could only imagine.

### **Conclusion**

After Sputnik, representatives of the American scientific community made strong arguments in favour of intellectual freedom. Public support of intellectual freedom, they maintained, would not only help the American people solve their immediate problems with respect to their dangerous ideological rivals; science also held out the possibility of forever escaping problems which had their source in an outmoded or antiquarian way of thinking and living. In this chapter, I argued that the scientists' speeches might be approached in one of two ways. One way is to accept at face value the scientist's belief in his own bald assertion that public support for the unbridled freedom of intellectual pursuits would culminate in a way of life that could only be described as heaven on earth. Another way is to expect that the scientists stood to gain much from taking the public

response to Sputnik as an opportunity to present science as the best means of helping the American public out of a serious and delicate situation. The advantage of the latter approach is that it does not preclude accepting as a possibility the notion that the scientists were being completely genuine about their faith in science as a solution to the problems associated with the human condition. The *disadvantage* of the former is that it precludes the possibility of accepting as a possibility the notion that the scientists might have been exaggerating their *faith* in science in the hope of achieving more limited and pragmatic ends.

Plato's *Republic* suggests that a political society that is concerned about a foreign threat to the security of their way of life will more readily turn for guidance to those who have a reputation for expertise in activities considered relevant to the alleviation of their insecurities. The post-Sputnik era confirms this. Just as a person who feels ill seeks out a doctor, so too did the American public seek for a means of alleviating their uncomfortable condition vis-a-vis the Soviet Union in the wake of Sputnik. Any doctor relies on his reputation as a person who has the demonstrable capacity and requisite qualifications for performing his art--healing the sick. After seeing the reaction of the public to Sputnik, and having learned the lessons of the past, the American scientific community sought to cultivate their acceptance as a group of people who had the capacity and qualifications to help the American people.

## **Chapter IV - Defensiveness and Dissonance: The Critique of American Education**

Although the Soviet satellite presented a national defence problem, Americans recognized that understanding the Soviet challenge was no longer simply a matter of guns and bombs. Sputnik was an intellectual achievement; it demonstrated that Soviet citizens were being taught to intellect well. Americans observed that students in the Soviet Union were becoming products of an education system that emphasized the development of the intellect while still cultivating a sense of duty to the State. The USSR had taken philosophy, or science in hand. The centralized nature of their regime meant that they could ensure that their educational program would be used to strengthen the State vis-a-vis their ideological rivals.

After Sputnik, American public attention became focussed on their system of education. The fact that the Soviets had accomplished something that both countries had set out to accomplish indicated a "gap" in the capabilities of the respective countries. Sputnik aroused a fear that the United States was not doing enough to cultivate the intellect of their young people. Concern was expressed about the ability of educational institutions to provide young Americans with the skills that they required to protect their way of life in the age of science and technology.

The crescendo of public concern culminated in a call for reform of American

education. If the Soviets had taken the cultivation of the intellect in hand, then America must ensure that they do the same. This chapter examines the public debate over education as a public re-examination of the goals of American education which was inspired specifically by a concern for national security. That is, the call for improvements in the American educational system were not inspired by an argument about the merits of an education toward the fulfilment of individual desires.

### **Sputnik and the Failures of American Education**

After recovering from the initial shock of Sputnik, Americans began asking themselves how they had allowed this to happen. How had the United States fallen behind the Soviet Union? Dr. James R. Killian, the prominent scientist who became the First Special Assistant to the President for Science and Technology, suggests that the American public almost instinctively made a connection between Sputnik and education:

*Sputnik* not only raised fears about our military strength; it posed a sharp loss of confidence in the American educational establishment. The public came to the conclusion that the Russians had outdone us by the application of professional skills. They found it easy to believe that Russian scientists had somehow "beaten" American scientists. From that point the line of reasoning was simple and direct; it was education that had made the scientists; it was American education, therefore, that was at fault. A storm of criticism directed toward

American education blew up with astonishing rapidity.<sup>57</sup>

Sputnik was an embarrassment for America. Schools were quickly blamed for failing to encourage young people toward an appropriate sense of the importance of education for the protection of their way of life.

American commentaries generally presented the Soviet educational system as a particular challenge to the security of the United States. The essence of this challenge was reflected in the Soviets' determination to be prepared for the new technological age. A report issued by the United States Office of Education emphasised the orientation of the Soviet schools: "In creating the technical-scientific base on which the development of the country and the consolidation and expansion of communism depends, training of manpower and womenpower for the use of the state is considered of major importance"<sup>58</sup> Both internal and external considerations would be served by adapting Soviet society to the demands of an increasingly complex global environment. Soviet schools were designed in such a way as to give a well-rounded education to its young students; students received a firm foundation in literature and languages.<sup>59</sup> However, it is no surprise that the desire for preparedness in terms of technological proficiency manifested itself in the emphasis on science and mathematics in the schools.<sup>60</sup>

American reports listed the attributes of the Soviet curriculum. Mathematics

<sup>57</sup>James R. Killian, *Sputnik, Scientists and Eisenhower. A Memoir of the First Special Assistant to the President for Science and Technology*, (Cambridge, Mass: The MIT Press, 1977), 191.

<sup>58</sup>"Education in the Soviet Union. . .Emphasis on Science," *Physics Today*, January 1958, 12.

<sup>59</sup>"Schoolboys Point Up a U.S. Weakness," *Life*, 24 March 1958, 28.

<sup>60</sup>"Education in the Soviet Union. . .Emphasis on Science," 13.

instruction was an important part of the curriculum through primary (grades one through five) and secondary school (grades one through six). No less than one quarter of class time in secondary school was devoted to the study of mathematics and physics, which were prerequisites for higher education and advanced learning. Algebra and geometry began in the sixth grade; chemistry began in the seventh grade; trigonometry and calculus were offered in the ninth and tenth grades respectively. The last three grades of secondary school marked "an emphasis. . .on the application of theory in solving problems in physics, astronomy and other subjects."<sup>61</sup> Tenth-grade astronomy courses included "the movement, structure, and development of celestial bodies."<sup>62</sup>

Given the abstract nature of such instruction, Soviet teachers included practical examples of all theoretical principles. Considerable effort was devoted to encouraging students' association of theory and practice in all formal lessons.

Teachers are instructed to take examples from agriculture and from such industries as radio, telephone, and plumbing as the basis for lectures and demonstrations; required excursions illustrate the practical application of physics to industry and agriculture. Closely associated with the physics courses are the practical study groups (practicums) devoted to agriculture, machine construction, and electro technology with variations in emphasis for urban and rural students. The practicums are intended to acquaint pupils with machine driven implements, methods of mechanized processing, use of electrical measuring instruments, and

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<sup>61</sup>Ibid., 13.

<sup>62</sup>Ibid., 13.

to provide opportunities for practical experience.

As the *New York Times* reported in the spring of 1958, Khrushchev called for "greater attention to practical experience in education and for removing class distinctions between educated citizens and workers." The new Soviet education would explicitly address "the main shortcoming in education at present--a gap between theory and practice."<sup>63</sup>

American commentaries on Soviet education did not fail to exploit the rhetorical value of emphasizing that Soviet education was decisively aimed toward the realization of State goals. All educational endeavours were subordinated to the interests of the regime, and service to the State was exacted in return for State support of educational activities. The State presence in Soviet schools was subtle, but comprehensive. One report described the extent to which the State would go to secure the predominance of national interest.

In every possible way--particularly through art, music and literature--the people are reminded of what has been done. Everywhere, in every school we visited, we saw pictures or statues of Lenin, and less frequently, Marx or Stalin, even in kindergartens. From infancy, children are taught that the highest good is to serve the State; school children through their clubs or circles, in classes, and in games are taught to identify all good things with the State; on class excursions and tours of museums, shrines, factories, they are taught the history of the revolution and to honour its heroes, underplaying the pre-revolutionary achievements and

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<sup>63</sup>"Moscow Outlines School Reforms," *New York Times*, 19 May 1958, 6.

emphasizing Soviet progress.<sup>64</sup>

Through serious play, and through controlling the influence of environmental conditions, the regime extended its interests over the all aspects of the citizen's education.

American scientists had suggested that Soviet science had succeeded within an atmosphere of intellectual freedom. However, American reports of Soviet education suggested that intellectual pursuits were given careful state supervision. This supervision seemed to enable the focussed development of intellectual resources which the state could directly benefit from. American commentators could indeed wax eloquent about the questionable means employed by Soviet educators. The results of vigilant supervision of studies, however, were quite remarkable. Soviet intellectualism had flourished and it was this success that Americans educators had to concern themselves with.

### The Critics of American Education

Sputnik delivered American society into a public wrangling over the strengths and weaknesses of the American educational system. The critics of American education questioned the efficacy of the current trends in American education. They attempted to focus the attention on the aspects of a system which they believed were stifling to the development of more promising students. The supporters of current trends, they charged, had decided to forego intellectual rigour in the interest of providing all students an equal and uniform basis for becoming well-adjusted members of the social community. By

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<sup>64</sup>"The Soviet Union: A Nation Committed to Education," in Sol Cohen, ed., *Education in the United States, A Documentary History*, vol. 5., New York: Random House (1973), 3155.

contrast, the defenders of the life-adjustment programs suggested that current trends in American education were the jewel of the American way of life. America's life-adjustment schools were a symbol of what a developed and prosperous society could give even its most unfortunate members. American education could serve as an example for other countries wishing to employ the power of education to persuade their citizens of education's role in making insecurities based on distinctiveness a thing of the past.

Most commentaries about the connection between Sputnik and education readily recognized a principal strength of what was considered to be the essence of American education. In the United States, "constitutional representative democracy characterizes the philosophical base on which the people of the USA govern themselves. In theory and in practice, the individual is of surpassing worth and the goal of education is the development of each person as an individual with freedom and with opportunity to choose his life's work in his best interests."<sup>65</sup> The requirements of representative democracy demanded that the average citizen exhibit a certain capacity for judgement in political matters, and educational institutions were expected to fulfil this need.

Discussions about American education after Sputnik, however, tended to emphasize the ways in which the American educational system had failed to provide what the American people required of it. They did not dispute the notion that American education should foster individual interests. However, they did suggest that excessive dedication to this fundamental principle had led educators to neglect the cultivation of important capacities and skills. Sputnik encouraged Americans to focus on the lack of proficiency

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<sup>65</sup>"Describe USSR Education," *Science News Letter*, 23 November 1957, 326.

of their schools, and this gave rise to accusations that American educators had led the public astray.

We Americans must realize that our schools are departures from the norm and differ from those throughout the rest of the world. Somewhere along the line, the American people were persuaded that a system of education can only be implemented by a lowering of academic standards, by hiring some teachers who have a superficial knowledge of the subject matter which they are supposed to teach, by allowing students to eliminate science and mathematics from the curriculum, and by permitting the parents to interfere with the development of special programs for talented children.<sup>66</sup>

Scrutiny of foreign systems of education had afforded Americans the opportunity for self-evaluation. Americans were provided with the opportunity to determine whether or not the original intentions implicit in the adoption of certain educational practices had been neglected or forgotten along with the country's general misplacement of a concern for matters of national security.

The increasing amount of attention paid to calls for general reform in American education after Sputnik should not give the impression that the perceived "crisis" in education began with the Soviet launch of the first artificial satellite. Quality of education was a perennial political question in American history, and the subject of reform in education began to gain momentum in the time of relative peace following the Second World War. Many critics of popular methods introduced into American schools

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<sup>66</sup>Marshak, 158.

after WWI were ignored by the general public. However, they appeared to receive much desired vindication in late 1957 when virtually all Americans began to take a renewed interest in educational matters. One constant spokesperson against recent innovations in American education was Arthur Bestor, professor of history at the University of Illinois.

Back in 1952, in an address to the American Historical Association, I referred to the danger as "anti-intellectualism in American Schools." By this I meant that the tendency of professional educationalists to "pooh-pooh" the idea of mental discipline, and to say that the aim of public education ought to be "life adjustment" instead of thorough training in fundamental fields like science, mathematics, foreign languages, history and English

In light of Sputnik, "life-adjustment education" turns out to have been something perilously close to "death adjustment" for our nation and our children.<sup>67</sup>

For Bestor, "progressive educators" had "jumped the rails a quarter of a century or so ago" by offering students courses meant to appeal to the everyday interests and concerns of young people, and at the expense of more fundamental subjects.

Time is limited. Whatever is done in school is done at the expense of something else that might be done. We have wasted an appalling part of the time of our young people on trivialities. The Russians have had sense enough not to do so.

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<sup>67</sup>"Against the 'Life Adjustment' School," interview with Arthur Bestor, in Grant S. McClellan, ed., *America's Educational Needs* (New York: The H. W. Wilson Company, 1958), 34.

That's why the first satellite bears the label "Made in Russia."<sup>68</sup>

Citizens concerned with quality of education thought of Sputnik as more than a scientific success. It was a demonstration of Soviet seriousness and determination. Critics of American education could hardly escape the fact that most of the Soviet scientists working on the satellite project were educated well before the recent reforms in education had been implemented. However, Sputnik was an example of what was to be expected from an education system that had geared its entire operation toward achieving this kind of success. By contrast, American schools seemed to lack the drive of Soviet schools and this was thought to hinder the possibility of the United States participating in a competition that they could not afford to loose, or forfeit, in the interests of maintaining a course so demonstrably inferior in terms of perceived world education standards.<sup>69</sup>

Attacks against the "life-adjustment" schools abounded in the popular press. Admiral Hyman G. Rickover was an outspoken critic of American schools. "Sputnik," he said, "has from the first been seen as a triumph of Russian education."<sup>70</sup> His speech was openly provocative and urged the American people embrace any anger that they might feel at the thought of the defeat that the United States had suffered at the hands of inept educators.

We are in our present predicament because education in America has deteriorated in quality for lack of standards. You can send your boy to college to

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<sup>68</sup>Ibid., 35.

<sup>69</sup>I recognize that "world education standards" are as susceptible to being established on the basis of individual countries' propaganda efforts, and should be treated accordingly.

<sup>70</sup>H. G. Rickover, "Russian Schools Can Teach Us a Lesson," *Popular Science*, March 1958, 107.

study Flycasting or Advertising Layouts, your daughter to study Etiquette and How to Be a Hostess. Every American child has the God given right to march in commencement procession, clad in mortarboard and academic gown, the rolled-up parchment degree clutched in his hot little hand.

It matters not which courses you take. Everything is grist to the American educational mill. "You, too, can have a degree."

Let not men of little vision with the soothing words hold back our righteous anger. We must sweep clean the temple of learning and bring back quality.<sup>71</sup>

As Chief of the Naval Reactors Branch of (Division of Reactor Development) the United States Atomic Energy Commission--and father of the atomic submarine, Rickover could be considered by Americans to possess a wisdom that gave him leave to speak on matters relating to education. Who better than a man on the frontiers of science to instruct Americans as to what they should blame and praise about their educational system. By attributing blame to American schools, Rickover sought to arouse the righteous indignation of the people against a readily perceived enemy of progress in science education.<sup>72</sup>

<sup>71</sup>Ibid., 250.

<sup>72</sup>Not all criticisms were as vehement as Admiral Rickover's, but others gave credence to the general impression that the American education system was not providing the guidance that young people required. As a part of *Life* magazine's "Crisis in Education" series, Sloan Wilson's "It's Time to Close our Carnival" surveyed a number of prevailing opinions about the state of American education. A report by Secretary of Health, Education and Welfare Marion Folsom, demanded that there be a sharp reduction in the number of "so-called popular or easy courses," and "less chrome, less country-clubbing." Lester Vander Werf, dean of Northwestern University's College of Education, blamed teachers for not being intelligent enough for the functions that they perform. A survey by anthropologist Margaret Mead and a group of Purdue University scientists concluded that most young people avoided taking science courses because they did not think that a science career would be worth all of the effort. The blame for the ills of American education was not restricted to the schools themselves. Dean Henry D. Bonham of the University of Alabama cited "too much

According to critics of the American education system, the greatest evidence of failure was exemplified in the characters of the young. American children did not approach their studies with the same desire for knowledge exhibited by their Soviet counterparts. Reports from the Soviet Union suggested that school had a place of central importance to students. The lives of the best and brightest students were characterized by an emersion in learning and the cultivation of habits conducive to future success in their intellectual development. The strength of Soviet schools lay in their encouragement of exceptional students; Soviet schools demonstrated the importance of creating an environment which treated intellectual capacity with the respect it needed and deserved. By contrast, American schools did not appear to cultivate an appropriate respect for the gifted student. Students who exhibited extraordinary abilities were discouraged by a lack of recognition by others. The pressure of "fitting in" with other students encouraged the gifted to neglect the full development of their capacities.

The opinion that anti-intellectualism plagued American schools was well represented in *Life* magazine's series on the "Crisis of Education" in America, which began its

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"parental laxity" in encouraging youngsters to develop constructive study habits. Dean Thomas Clark Pollock of New York University suggested the local communities too often failed to adequately understand and support schools properly. Wilson's presentation of opinions about American education formed a crescendo that culminated in the implication of all: "And finally the whole nation has been accused. A Dartmouth professor of chemistry wrote recently: 'I am concerned about the easy living in this country. In the past, classes relieved from physical labor--the leisure class--always had some demanding ideal, bravery in war, social grace, or the responsible wielding of power. The only commanding ideal in US society that I can make out is being a good guy.'" Wilson's account concluded with the startling assertion that, in attempting to do everything for everyone, American schools succeeded in doing almost nothing well. The future of the arms race, he said, as well as the possibility of cultivating the kind of understanding that would make arm races a thing of the past depended on education. American schools were falling short of the mark that society had set for them. According to Sloan, it was time to "close the carnival and go to work" (Sloan Wilson, "It's Time to Close Our Carnival: To Revitalize America's Educational Dream We Must Stop Kowtowing to the Mediocre," *Life*, 24 March 1958, 36-37).

assessment with a comparison of two sixteen-year-old students--one from the United States and one from the USSR.

The pictures on these pages reveal candidly what happened in the lives of both boys during a recent school week. Stephen is an average student, likeable, considerate, good-humoured--the kind of well-adjusted youngster US public schools are proud of producing. Alexei is hard-working, aggressive, above average in his grades--the kind of student that the Russian system ruthlessly sets out to produce. For Stephen, the business of getting educated seldom seems too serious. For Alexei, who works in a much harsher intellectual climate, good marks in school are literally more important than anything else in his life.<sup>73</sup>

Academically, Alexei is two years ahead of Stephen, and has a "fierce determination" to get to college. During the regular school day, he excels in all aspects of the challenging and well-rounded curriculum. Three to four hours of his evenings are spent doing homework. Stephen takes respectable courses like English, American History, Geometry and Biology, "but on a much less advanced level than Alexei's." Students in Stephen's classes seldom bother to read assigned books, and sometimes do book reports on comics. Stephen has mediocre grades, and when asked about this responds: "I worry about 'em," he admits, "but that's as far as it goes." He has particular trouble with chemistry, and draws laughter from his fellow classmates when he "wisecracks about his ineptitude" in failing to complete a problem in front of the class.

Although this comparison emphasized the differences in the school lives of Soviet

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<sup>73</sup>"Schoolboys Point Up a U.S. Weakness," 27.

and American youths, it went even further by speaking about the non-academic lives of Stephen and Alexei. Alexei's seriousness in school was reflected in his personal tastes and habits. In times when formal school released its hold on his time, Alexei returned to school to dance, play games like chess or ping-pong, or dance a fox-trot with young girl that caught his fancy. Alexei's favourite composer was an American: Edward MacDowell. Often, he would make trips to the Moscow science museum, the theatre, and "on more frivolous occasions," he might watch a movie. Alexei's extra-curricular activities never interfered with his studies, and even complemented, or supplemented them. Stephen, on the other hand, placed great emphasis on his life outside of school. Stephen was a "star swimmer and a leader in student affairs. His true interests were in his extra curricular activities, and they left him little time for hard study.

### **The Advocates of Life-Adjustment**

The vehement criticisms emphasizing the alleged failure of American schools provoked a defensive response from educators. Commentators who were fearful of the extent to which American schools had come under such zealous attack attempted to moderate public opinion about American schools. Sam M. Lambert, National Education Association Director of Research, suggested that "life adjustment" was an idea that arose in response to a specific problem in American education. Certain students did not benefit from the standard college-preparatory curriculum. Some, who desired to go to college but could not learn, had left school in discouragement to lives where it was difficult to find regular employment. Others had no desire to go to college, but were not particularly

well-suited to vocational training. Life adjustment had emerged to deal with such students who seemed to slip through cracks of the standard educational system.<sup>74</sup>

Defenders of the American educational system attempted to remind the public of the particular strengths of their own schools. Howard G. Spalding, a high school principal, warned of the dangers that went along with outward-looking speculations about the weaknesses of American schools. He urged readers to consider the implications of following the Soviet example of eliminating one third of the nation's young people from advanced education.

The most dangerous educational mistake that could be made in a democracy would be to assume that only the gifted are worth educating to their full potential. It is this assumption that has guided the European schools for generations. The bitter social cleavages and the lack of political stability which today threaten the very existence of France, and which hamper the operation of democratic government in many other nations, are a direct result of the class education which the schools of these nations have provided.<sup>75</sup>

Spalding urged that the current educational structure must be maintained if there was any hope of avoiding the "evils of 'thought control' and the use of government power to shape the opinions" of Americans.<sup>76</sup>

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<sup>74</sup>Sam Lambert, "From An Educational Researcher," in Grant S. McClellan, ed., *America's Educational Needs* (New York: The H. W. Wilson Company, 1958), 48.

<sup>75</sup>Howard G. Spalding, "An Answer," in Grant S. McClellan, ed., *America's Educational Needs* (New York: The H. W. Wilson Company, 1958), 47.

<sup>76</sup>Ibid., 47.

Defenders of American education urged the public to be sceptical of reports about the superiority of Soviet education. Given the fact that statistical reports and other data about the Soviet Union was likely tampered with by the State in order to give American audiences the best possible impression about Soviet schools, it was not wise to place too great a trust in speakers who based their opinions on them.<sup>77</sup> Nor should the public trust those who attacked life-adjustment programs for being the source of American educational ills.

The [life-adjustment] school has not abandoned sequences of learning in order to cater wholly to current interests. . . .

Nor does the [life-adjustment] school neglect its students who have superior capacities for intellectual achievement in leadership. Quite the contrary. These teachers well know that the complex problems of the post-war world will require the best efforts of the best minds, disciplined to thorough study and clear thinking. . . . Because students' programs are individualized, the student of superior intelligence is encouraged to work well beyond the average of the class; and if he has special interests in government, history, science, mathematics, or in any other field of study, he is allowed extra time to pursue those interests.<sup>78</sup>

If Sputnik had uncovered a problem in American society, it was not to be found in the schools. Americans should recognize that the schools were doing everything in their

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<sup>77</sup>Herbert Rudman, "Are Soviet Educational Methods Appropriate For American Schools? (Part II)," *Education: A Monthly Magazine*, December 1958, 249.

<sup>78</sup>Ibid., 255.

power to ensure that young people would be able to respond to any security challenges that might emerge in the present or future.

Some educators recognized that it might seem sensible to seek a cause for the public reaction to Sputnik in the failure of the schools to produce students with abilities that would ease public apprehensions about America's ability to defend itself. But in order to address this anxiety, the public had to recognize the fundamental insecurity that Sputnik had caused regarding the very purpose of education. According to Roy M. Hall, ". . . we haven't quite decided whether we want to follow the Soviet pattern of using education to foster national goals and to extend them, or whether we want to use education to develop the individual to his fullest potential."<sup>79</sup> Educators who expressed concern about the rashness, ignorance and awkwardness of intolerant attacks on the schools felt that the forcefulness of calls for reform in education would eventually jeopardize the defence of the principles Americans sought to secure through decisive action.

According to Hall, if Americans were to recognize the importance of education, they must see in it the possibility of coming to an understanding of the desire for peace experienced by all human beings.

We must set an example for the world--or someone else will. Similarly, we must identify ourselves, our destinies, with the goals of others if our nation is to be true to its promise. . . . Out of this concern [for our fellow men] we would hope that there would grow a commitment to purposeful democratic action. . . .

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<sup>79</sup>Roy M. Hall, "Soviet Education and Ours: Some Observations," in Anthony Scarangello, ed., *Education and Our National Goals* (Newark: University of Delaware, 1962), 80.

Couple to this commitment a desire for participation in the world's work with an insight into the nature of man and an effort toward international involvement for peaceful pursuits and possibly those of us who continue to place our faith in education rather than the sword, in freedom rather than force may come out triumphant.<sup>80</sup>

Hall's dichotomization of education and brute force demonstrated a belief that education should only be used as a tool for the preservation of an ideal that hoped to bring human beings together in a harmony that would make all consideration of war obsolete. Defenders argued that if the sword and education became one, there was little chance of developing a peaceful temperament in the young people of the United States.

### **Conclusion**

American insecurity brought about a closer scrutiny of the behaviour of America's future citizens. Americans wondered if their schools were providing their children with the skills that would enable them to preserve what their parents had worked so hard to establish and maintain. The seriousness of the Soviet challenge even led some to speculate that drastic measures were needed. To these critics, the young people of America, the product of the nation's system of education, seemed emasculated; they seemed both unwilling and unable to do what was necessary to ensure a continuation of the American way of life. The young people seemed happy and well-adjusted, but there did not seem to be a sense of urgency accompanying their studies. This attitude seemed

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<sup>80</sup>Ibid., 82.

indicative of an education system that had lost its way. America's education system seemed to be suggesting to its young that defence of their way of living was not required.

Advocates of life-adjustment reminded harsh critics of American education of the seriousness of their charges. Their concerns about anti-intellectualism in the schools seemed to carry the implication of treating equal citizens as fundamentally unequal. They asserted that all Americans were equally entitled to a way of life flavoured by the best education. They implied that critics' remarks threatened to impose an immoderate solution upon unwilling participants. Americans, they believed, trusted the strength of their institutions in bringing about the conditions of peace for all everywhere. The pride exhibited by critics may serve limited defensive ends, but the cost might be the very thing that their actions intended to preserve.

Plato's *Republic* suggests that an adequate defence of the city requires that the best and brightest young people be habituated in such a way as to extend a sense of themselves to the entire city. One of the first and most important lessons learned by the guardians is that they must be able to moderate a tendency toward the satisfaction of selfish desire. If there is a conflict between their own desire and what is best for the city, their concern for the city should emerge as having a stronger pull. With respect to the intellectual endeavours, Socrates suggested that the city would be justified in compelling those who became forgetful of their obligation to the city to serve the city's interests.

As with all issues of great importance, the debate over the schools drew passionate participants on either side. Each of these represented a rather extreme formulation of what their opponents had forgotten. It seemed that each side required the other to be

complete. Critics of American education after Sputnik suggested that educators had forgotten their duty to help ensure a continuation of their way of life. The citizens had accepted the notion that the cultivation of the intellect was an important undertaking, and had supported education on the basis of the expectation that education would contribute to the well being of the country. Thus, after Sputnik had demonstrated failings of the schools, citizens were justified in compelling education to serve the city. Defenders of American education attempted to moderate the spiritedness of their critics. They saw the danger of abandoning the attempt to cultivate personal freedom and expression, and sought to find a middle ground. Their voice, however, was not as loud, and did not have the same success, as their interlocutors'.

## **Chapter V - The Flourishing of Intellectual Pursuits**

The Eisenhower administration's initial comments about the Sputnik crisis suggested to Americans that they should trust the scientific establishment. Government representatives attempted to alleviate the anxiety of the public by urging the importance of looking to America's own position of strength with regard to scientific advances. Subsequent statements demonstrated the administration's determination to organize and focus a concerted response. Sputnik had demonstrated that Americans could no longer ignore the importance of keeping abreast of technological innovations. All Americans were called on to join the federal government in creating an atmosphere of learning. If the United States was going to adopt a long term program to ensure that they would never again run the risk of lagging behind their rivals, average Americans had to become the supervisors of the nation's studies.

In the *Republic*, Socrates suggests that if efforts to cultivate the intellect become an important consideration for the public based on a concern for an ability to defend against enemies, public funding will become available for education. The examples of the National Defence Education Act and the National Science Foundation provide evidence confirming Socrates' supposition.

The National Defence Education Act of 1958 emerged as long-term federal

commitment to support of education. The Act inaugurated a new era of federal involvement in what was hitherto considered a state matter. The government encouraged the standardized, regularized promotion of studies--especially those studies concerned with applied science and technology. The Act represented a substantial expenditure from a federal government which repeatedly emphasized its commitment to fiscal restraint.

The administration's chosen recipient of scientific research funding was the National Science Foundation. The Foundation had endured a difficult existence for almost a decade before the post-Sputnik era. Officials had a difficult time obtaining adequate funding for their basic science projects. The time, however, had allowed the Foundation to develop the solid administration apparatus needed for an organized and effective response to the country's new demands for science. After Sputnik, the National Science Foundation received an unprecedented degree of support.

### **The Eisenhower Administration's Immediate Response to Sputnik**

President Dwight D. Eisenhower and his staff moved quickly to defuse the anxiety caused by the launch of Sputnik. On October 9, 1957, Eisenhower held a press conference in order to field questions about the Soviet achievement. The president's answers were in keeping with the substance of a general statement summarizing America's own earth satellite development program.<sup>81</sup>

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<sup>81</sup>"Statement by the President Summarizing Facts in the Development of an Earth Satellite by the United States," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1957*, Dwight D. Eisenhower, no. 211 (9 October 1957), 733-735.

In this general statement, White House Press Secretary James C. Hagerty sought to explain that the United States' own Satellite program was going according to schedule. He suggested that the principal objective of their own initiative was to develop an artificial satellite for the purposes of scientific exploration only. In keeping with the non-military aspects of the project,<sup>82</sup> any data obtained from successful completion of the US initiative would "be made available to all scientists throughout the world."<sup>83</sup> According to Hagerty's statement, the lag between Soviet and US satellite development could, at least in part, be attributed to the non-military character of the American effort: "Merging of this scientific effort with military programs could have produced an orbiting United States satellite before now, but to the detriment of scientific goals and military progress."<sup>84</sup> The United States had never considered the effort to produce an artificial satellite as a race. They had a well-conceived plan and had every intention of moving along according to arrangements made with the international scientific community. In light of this achievement, congratulations were due to the Soviet scientists.

From the outset of the press conference, the tone of the questions from the press gallery exemplified anxiety about Sputnik. Merriman Smith of the United Press led the attack with an incisive question: "Mr. President, Russia has launched an earth satellite. They also claim to have had a successful firing of an intercontinental ballistics missile,

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<sup>82</sup>Ibid., 733: "The department of defense was made responsible for supplying the rocketry needed to place a satellite in orbit without interfering with the top priority ballistic missile program."

<sup>83</sup>Ibid., 734.

<sup>84</sup>Ibid., 735.

none of which this country has done. I ask you, sir, what are we going to do about it?"<sup>85</sup>

Eisenhower explained that the proposal for the development of an earth satellite was "sold" to him on the basis of an understanding that it would be undertaken to produce a maximum of scientific information.<sup>86</sup> Who "sold" the president on the idea developing an earth satellite? Ike explained.

Well now, let's get this straight: I am not a scientist. I go to such men as Dr. Waterman, Dr. Bronk, Dr. Lawrence, all of the great scientists of this country, and they assured me back in the spring, I think it was, of 1955 this could be done, and they asked for a very modest sum of money compared to the sums we were spending on other research. So, in view of the fact that, as I said before, this was basic research, I approved it.<sup>87</sup>

Eisenhower's plain speech is significant. When it came to a response that presupposed a technical understanding of the subject of satellites from both speaker and audience, the president could not provide one. Substantial information about implications of the Soviet advance was in the hands of the scientific community. Eisenhower suggested that comfort could be derived from the confidence exhibited in the reactions of the scientists: "Now, every scientist that I have talked to since this occurred--I recalled some of them and asked them--every one of them has spoken in most congratulatory terms about the

<sup>85</sup>"The President's News Conference," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1957*, Dwight D. Eisenhower, no. 210 (9 October 1957), 719.

<sup>86</sup>Ibid, 720.

<sup>87</sup>Ibid, 721.

capabilities of the Russian scientists in putting this in the air.<sup>88</sup> Concerning the fact that the Russians were the first in space, Eisenhower did not exhibit surprise. He suggested that "if we were doing it for science, and not for security, which we were doing, I don't know of any reasons why the scientists should have come in and urged that we do this before anybody else could do it."<sup>89</sup>

Members of the press gallery were quick enough to gather that the president "doth protest too much" by downplaying the strategic implications of the Soviet satellite launch. Mrs. May Craig of the Portland Press Herald ventured forth: "Mr. President, you have spoken of the scientific aspects of the satellite. Do you not think that it has immense significance, the satellite, immense significance in surveillance of other countries, and leading to space platforms which could be used for rockets?" Eisenhower responded in a way to disarm the seriousness of the question, while at the same time insinuating dangerousness of any suggestion that the United States had fallen behind due to some inherent incapacity to duplicate the Soviet action.

There is no--suddenly all America seems to become scientists, and I am hearing many, many ideas. [*Laughter*] And I think that, given time, satellites will be able to transmit to the earth some kind of information with respect to what they see on the earth or what they find on the earth.

But I think that that period is a long ways off when you stop to consider that even now the Russians, under a dictatorial society where they had some of the

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<sup>88</sup>Ibid., 721.

<sup>89</sup>Ibid., 724.

finest scientists in the world who have for many years been working on this, apparently from what they say they have put one small ball in the air.

I wouldn't believe that at this moment you have to fear the intelligence aspects of this.<sup>90</sup>

Eisenhower made a concerted effort to address public concern about Sputnik. In keeping with the paramount objective of alleviating public anxieties, the president emphasized the scientific aspects of earth satellite experimentation.

Sputnik was a successful experiment carried out by extremely competent Soviet scientists. This scientific discovery, like *all* scientific discoveries, was in itself neutral.<sup>91</sup> Given this understanding of the event, any victory that could be construed from the successful launch was to be attributed to the *scientists* of the Soviet Union. Because American and Soviet scientists alike act in the interest of science itself, there was no reason to expect that a sinister motivation was necessarily part of the successful experiment. Despite the psychological effects that Sputnik had for people all over the world, Sputnik was not to be understood as a military accomplishment. The calm reaction of the American scientific community exemplified the confidence that all Americans should have possessed.

## The Administration's Plan

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<sup>90</sup>Ibid., 724.

<sup>91</sup>"Remarks at the Dedication Ceremonies of the Atomic Energy Commission Headquarters Building," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1957*, Dwight D. Eisenhower, no. 231 [8 November 1957], 800.

The initial response of the Eisenhower administration to Sputnik exemplified an attempt to speak to the concerns of average Americans. The government recognized that the public was confused and bewildered by the rapid changes brought about by technological advancement. According to Eisenhower, the public reaction to Sputnik demonstrated to his administration that Americans were troubled enough to question the "material and intellectual strength" of the United States.<sup>92</sup> Eisenhower's public addresses struggled to place the Soviet achievement in a perspective which would acknowledge the serious tone of the public response, while also emphasising the special ability inherent in the American way of life particularly suiting them to meet this crisis.

Sputnik emphasized the special problems associated with coming to terms with the demands of modern technology. Most particularly, the crisis exemplified the necessity of keeping pace with modern technological advance in order to be aware of its potential applicability to national defence. New revolutionary devices produced using cutting-edge technology, especially new weapons, were strange and unfamiliar to most people. Along with these new technological developments came new threats to the "cause of freedom."<sup>93</sup> While it was unrealistic to expect that every American should keep up with the latest technological advances, surely everyone had an interest in preparing a defence against threats to the cause of freedom.

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<sup>92</sup>"Annual Message to the Congress on the State of the Union," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President*, January 1 to December 31, 1958, Dwight D. Eisenhower, no. 2 (9 January 1958), 2.

<sup>93</sup>"Special Message to the Congress on Education," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President*, January 1 to December 31, 1958, Dwight D. Eisenhower, no. 24 (27 January 1958), 127.

While the recent vivid display of Soviet ingenuity had inflicted the general public with uncertainty, this event should not convince Americans that the free world was actually far behind in areas of general defence preparedness. However, America had to take decisive action to prevent the possibility of falling behind. While it would be prudent not to forget the peaceful contributions that science had made in giving Americans a comfortable standard of living, proper action would take into account the relationship of science to national defence.<sup>94</sup> That is, the general public had to come to appreciate the fact that the government was growing increasingly dependent on science. All existing defences had to be brought into line with modern technology. Current scientific discovery should be placed in the service of defence. The possibility of producing hitherto unimagined weapons would depend on scientific research and development.<sup>95</sup> Thus, there should be greater recognition of the importance of supporting basic research as the means to future discoveries that could prove significant for the defence of the nation.<sup>96</sup>

The tone of the administration's response to the Sputnik crisis suggested that America's response should be patient and well-thought out. The country's attention should be directed to areas which would not only guarantee an alleviation of the current

<sup>94</sup>"Radio and Television Address to the American People on Science in National Security," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President*, January 1 to December 31, 1957, Dwight D. Eisenhower, no. 230 (7 November 1957), 798.

<sup>95</sup>No. 2, 9.

<sup>96</sup>No. 230, 789-790; "Radio and Television Address to the American People on 'Our Future Security,'" in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President*, January 1 to December 31, 1957, Dwight D. Eisenhower, no. 234 (13 November 1957), 814.

malaise, but would also best prepare the United States for future challenges. Among the areas where the government admitted to the possibility of deficiency was in education. The Sputniks demonstrated the strength of Soviet educational institutions, and suggested that American schools had been somehow neglected. If Americans were going to adequately defend themselves they must fight the USSR on their own terms. Scientists identified the greatest threat to be the lack of standards in American education.

Americans must recognize the need for increased support of American education.

We should, among other things, have a system of nation-wide testing of high school students; a system of incentives for high-aptitude students to pursue scientific or professional studies; a program to stimulate good-quality teaching of mathematics and science; provision of more laboratory facilities; and measures, including fellowships, to increase the output of qualified teachers.

The biggest part of the task is in the hands of you, as citizens. This is National Education Week. It should be National Education Year. No matter how good your school is--and we have many excellent ones--I wish that every school board and every PTA would this week and this year make one single project their special order of business. This is to scrutinise your school's curriculum standards. Then decide for yourselves whether they meet the stern demands of the era we are entering.<sup>97</sup>

As leaders of the free world, America had tremendous potential resources to help in the crisis. In particular, while the government did not mean to say that exclusive attention

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<sup>97</sup>Ibid., 814-815.

should be given to science and engineering, citizens should understand the importance of giving these areas special high priority status. Moreover, the United States must work to improve and develop education standards to a more adequate level.

Only the exploitation of two essential resources would assure the success of America's bid to develop educational standards to such an extent as to encourage the pursuit of activities that had hitherto been neglected. The greatest and most valuable thing was time; it would take time to make students into scientists.<sup>98</sup> Further, citizens must take a more active role in the scrutinising of educational practices. Americans had to remember the bond linking home and school and community.<sup>99</sup> All citizens had to contribute to the encouragement of excellence in student performance. All must take part in an all inclusive campaign to create the intellectual capital needed to face the crisis and compete in the future. The public scrutinizing of educational standards must include a consideration of what kind of students were most needed to address pressing concerns. The best talent must be developed and applied to the most important work.

The action that the Eisenhower administration became committed to in the wake of the Sputnik crisis reflected the government's determination of the specific areas where national participation was necessary. Although the recent developments in satellite technology shocked the free world, the United States would not alter their own satellite development program in the interests of encouraging more alacrity. The government's

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<sup>98</sup>No. 230, 795.

<sup>99</sup>"Special Message to the Congress on Education," in *Public Papers of the Presidents of the United States, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1958*, Dwight D. Eisenhower, no. 24 (27 January 1958), 127.

plan for education was an emergency plan which stemmed from the requirements of national security. Thus, federal government participation in an area normally within the sphere of state responsibility was both necessary and justified. While more spending in targeted areas would surely be necessary, the government would continue the attempt to maintain a balanced budget. The general goal of the government was to make administration more efficient, thus decreasing the possibility of oversight and misdirection of badly needed information and resources.

### **The National Defence Education Act**

An increasing awareness of the importance of science and technology in American society resulted in considerations of "manpower" shortages. Society required young men and women to develop specialized skills, mostly in mathematics, engineering and modern languages, in order to meet the increasing demand for expertise in these areas. On the supposition that the schools were not adequately equipped to meet the increased demand, many began to suggest that the federal government should become directly involved in the educational system itself. While education was clearly a state responsibility,<sup>100</sup> it was doubtful whether the states could undertake such a burden without federal assistance.

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<sup>100</sup>As Barbara Barksdale Clowse suggests, resistance to the development of federal legislation for education arose on the grounds of fear of federal interference in state jurisdiction. Thus, resistance to the National Defense Education Act was not a denial of the importance of education for the national interest, but a reluctance to support federal participation. Eventually, Sputnik helped proponents of federal aid to education: "The significance of sputnik for the policymaking process was not that it produced initial interest in such bills but that it disarmed opposition to federal aid per se . . . enabling the National Defense Education Act eventually to pass. It . . . proved shrewd to tie education to another issue: defense," (Barbara Barksdale Clowse, *Brainpower for the Cold War: The Sputnik Crisis and National Defense Education Act of 1958*, Westport: Greenwood Press [1981], 49).

Federal involvement was justified given the recognition of the importance of education to national security. Moreover, only the federal government could ensure the development of uniform standards across the entire country. It was in the interest of all Americans that the federal government aid in the development of areas identified as necessary to the defence of the nation.

The National Defence Education Act of 1958 reflects the areas of education that were considered of fundamental importance to the defence of the nation. The Committee on Education and Labour suggested that the legislation would "assist in the improvement and strengthening of our educational system at all levels and to encourage able students to continue their education beyond high school." American education had "a grave responsibility" to fulfill. The future security of the nation, "the very survival of our free country" depended on what was done for education in the present. The central purpose of the act was "improvement in the quality of education particularly with respect to those aspects which are most important now to national defence."<sup>101</sup>

The committee readily admitted the difficulty in achieving such intangible objectives as encouraging new esteem for scholarship and a new respect for the crucial importance of education. However, if a sense of the value of education could not be assured through governmental decree or action, legislation could act as a guide.

The committee believes. . .that the proposed legislation, through which the Federal Government would give recognition and support to basic scholastic

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<sup>101</sup>"The Report of the Committee on Education and Labor," in United States, Laws, Statutes, etc., *The National Defense Education Act*, H.R. 13247, 85th Congress, Public Law 85-864, 2 September 1958. 1-2.

achievement, would help develop in this country new incentives and encouragement, and new prestige, for academic accomplishment. The committee believes the enactment of this legislation will help to develop a better atmosphere for emphasis on good academic education.<sup>102</sup>

American citizens had to be duly persuaded of the importance of education to their continued well being. The sometimes exaggerated reports in the popular press aided in this enterprise, but an official account freely adopted as a guide for action would demonstrate that citizens were willing to comply with the intention to give American youth a new and improved education.

The general provisions of the act (Title I) established the link between education and national security. The future well-being of the United States depended on the young developing skills which were identified as instrumental to defence.

The Congress hereby finds and declares that the security of the Nation requires the fullest development of the mental resources of its young men and women. The present emergency demands that additional and more adequate educational opportunities be made available. This requires programs that will demonstrate our country's recognition of and esteem for those of our students who have striven to develop their intellectual abilities to the fullest extent, and will make available greater intellectual opportunities that are challenging to our youth.

[. . .] To meet the present educational emergency requires additional effort at

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<sup>102</sup>Ibid., 2.

all levels of government. It is therefore the purpose of this Act to provide substantial assistance in various forms to individuals for study at institutions of higher education, and to States and their subdivisions, in order to insure trained manpower of sufficient quality and quantity to meet the national defence needs of the United States.<sup>103</sup>

The National Defence Education Act is an explicit statement about the connection between education and war, or the role of education in maintaining the conditions of peace and security.<sup>104</sup>

Other Titles of the act enumerated the aspects of education which were considered of sufficient importance to warrant the attention of the federal government. Titles II-IV introduced financial aid in the form of student loans, scholarships, and fund matching for approved programs. Title V provided for increased support development of skill modern languages. Title VI called for the expansion of graduate education through fellowships. Title VII supported the improvement of guidance counselling and aptitude testing methods in the hope increasing the likelihood of identifying and properly channelling

<sup>103</sup>"The National Defense Education Act (Title I-General Provisions)" in United States, Laws, Statutes, etc., *The National Defense Education Act*, H.R. 13247, 85th Congress, Public Law 85-864, 2 September 1958, 3-4.

<sup>104</sup>The Report of the Committee on Labor and Public Welfare included individual and minority views of the legislation, where the Sputniks were cited as a vivid example of the need to recognize the place of education in national defense: "Soviet Sputniks and intercontinental ballistic missiles, as well as the growing evidence of Russian advances in scientific knowledge and intellectual capacity, have struck a severe blow at American complacency. The bill takes cognizance of the vital relationship between a good educational system and national survival" (*Ibid.*, 2-3). Dr. Edward Teller, testifying during the hearings on Science and Education for National Defense, suggested that young people had to be encouraged to move forward and develop as much as possible: "That is what we have to do or I think our way of life will not survive" (*Ibid.*, 3). Dr. Wernher von Braun suggested that "proper training and education of scientists at this time, regardless of cost, "is a matter of national survival" (*Ibid.*, 4).

students with special abilities. Title VIII called for increased utilization of multi- media such as television, radio and motion pictures for educational purposes. Finally, Title IX provided for miscellaneous provisions. The estimated cost of the program outlined in the National Defence Education Act was \$840 million for a four year period, with an additional \$230 million during the next three years.

The areas which the NDEA focussed on were considered of fundamental importance to the security of the nation. The act provided for government involvement in many areas. Not only were specific fields of study encouraged, but the act allowed for government involvement in the discovery of capacity in America's youth and the subsequent channelling of capable young people into areas where they were most needed. The American educational system benefited from this to the extent that government committed public funds to education as useful for national purposes.

### **The National Science Foundation**

The new expectations that Americans held for science called for a magnitude of support that could only be undertaken by the federal government. The administration responded by channelling federal revenues through the National Science Foundation (NSF)--the primary government science organization. At the time of the Sputnik launch, the NSF had been in operation for a number of years. With its administrative apparatus having already received considerable refinement, the organization provided much needed structure for government action. Further, the organization had always served to provide a common venue for the scientific community and the interests of the society at large.

The National Science Foundation was established in 1950. The purpose of the new Foundation was, in the words of Alan T. Waterman, to "meet the need for a federal agency to develop national policy in science, serve as a focal point for the support and encouragement of basic research which is carried on largely in the universities and for the training of young scientists."<sup>105</sup> The NSF's primary responsibility was to handle policy concerning federal support for education throughout the country. It initiated a program of direct federal support for basic science through fellowships and scholarships granted directly to individual researchers. Further, the NSF developed the Summer Institute Program, which was designed to "strengthen the subject-matter competence of science and mathematics teachers."<sup>106</sup>

All of the NSF's activities were undertaken in order to encourage the development of "potential" or "latent" intellectual resources in the United States. While America had always prided itself on being one of the world's leaders in science and technology, there remained the assumption that efforts to realize the nation's potential were relaxed to an alarming degree in times of peace and stability.

Discussion regarding the creation of a national science association began in 1942 when Harley Kilgore, Democratic Senator from West Virginia, began annually sponsoring legislation to establish a science agency under the auspices of the federal government. Kilgore hoped to direct scientific research toward tangible, practical public

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<sup>105</sup> Alan T. Waterman, "The Role of the National Science Foundation," *The Annals of the American Academy of Political and Social Science*, January 1960, 124.

<sup>106</sup> Hillier Kriegbaum and Hugh Rawson, *An Investment in Knowledge: The First Dozen Years of the National Science Foundation's Summer Institutes Programs to Improve Secondary School Science and Mathematics Teaching* (New York: New York University Press, 1969), 9.

goals, as well as advance theoretical research "toward the betterment of humanity."<sup>107</sup>

Insofar as the Senator's fundamental concern was that any research promoted by government resources should have centralized direction, he was not insistent about the type of research which would be carried out. Kilgore's perseverance eventually resulted in the creation of the National Science Foundation. The management of the new foundation would be centralized, while containing provisions "to make sure that it would function in a nonpolitical way and that scientific freedom would be safeguarded."<sup>108</sup>

While Kilgore's early agitation for federal support of science was instrumental in the development of the NSF, the mandate of the organization did not ultimately reflect his preference for attention to applied science. Vannaver Bush, a prominent scientist consulting president Truman on the matter, suggested that the National Science Foundation should promote university research and education in basic science. Bush asserted that "practical Yankee ingenuity would no longer suffice in a future dominated by complex new fields, such as electronics and aerodynamics, in which technical advance would be "inseparable" from, and directly dependent on, new fundamental knowledge."<sup>109</sup> As Dian Olson Belanger suggests, the debate between Bush and Kilgore was representative of a persistent tension.

Here between Bush and Kilgore, began an interplay of philosophical differences that forms a running theme throughout the history of the National Science

<sup>107</sup> Dian Olson Belanger, *Enabling American Innovation: Engineering and the National Science Foundation* (West Lafayette: Purdue University Press, 1998), 25.

<sup>108</sup> *Ibid.*, 28.

<sup>109</sup> *Ibid.*, 27.

Foundation. Bush's view, that the agency be devoted to basic research--that is, research pursued "without thought of practical ends"--ultimately prevailed.

Scientists held the view that "basic" was the domain of the scientists.<sup>110</sup>

Although the advocates of basic science prevailed with respect to the establishment of the Foundation's principle objectives, the NSF's orientation initially provided administrators with considerable difficulties. A mandate of applied science would yield readily identifiable products which could help justify public expenditure. "Basic science" was abstract and did not necessarily produce "results" which could serve as proof that Americans had made a wise investment.

While discussions about its establishment began in the early 1940s, the National Science Foundation Act was not signed into law by President Truman until 10 May 1950. This is not the only evidence of early difficulties. In Fiscal Year 1952, the House Appropriations Committee thought it appropriate to reduce the Foundation's budget, arguing that NSF's contributions to the war effort in Korea was "not very tangible." Recognizing the difficulty, the National Science Board countered that "current military applications of science--in such areas as engine metallurgy and liquid fuels production--were slowed by gaps in basic knowledge."<sup>111</sup> Their counter-arguments had little effect.

The Foundation soon found that it would be necessary to emphasise the association of basic research with *applied* research in order to adequately justify itself before its benefactors. As Belanger suggests, president Eisenhower confirmed this association in

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<sup>110</sup>Ibid., 26.

<sup>111</sup>Ibid., 37.

Executive order 10521 on 17 March 1954.

Eisenhower's Executive order 10521 of 17 March 1954 "reemphasised the importance of scientific investigation to national security and welfare, calling for expanded research in basic science in order to support "practical scientific progress." It also delineated a stronger role for the NSF in funding 'general-purpose basic research' and coordinating that of other agencies. The linear progression from basic research to applied research to application was virtually unquestioned at that time, although agreement on the boundaries of these terms remained elusive. [Alan T.] Waterman had decided by then that the intent of the researcher made the difference; basic scientists sought new knowledge, while applied scientists tried to make practical use of it. Two investigators working on the same project with the same title would, with "difference in intent," produce "quite different results." That was the popular view. . .<sup>112</sup>

Representatives of the general public associated science with applied science, or the more tangible outcomes of successful experimentation. To non-practitioners, basic science was understandable to the extent that its results manifested themselves in readily perceivable outcomes. The vague, common-sense connection between applied science and basic science was maintained by the NSF in order to facilitate the public justification of basic science. Although more precise investigation of the matter would surely have revealed a more intelligible division between the two realms of modern scientific investigation, the administration's efforts to give an account of basic science did not attempt to bring the

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<sup>112</sup>Ibid., 38.

non-practitioner further into the world of theoretical science.

Presenting basic science as antecedent to applied science was not the only way that the NSF sought to demonstrate its usefulness. The Summer Institutes Programs supported teacher training, and this was accepted as an area most worthy of public attention. The public quite readily accepted the notion that teachers in the fields of science and technology should keep abreast of the latest developments. NSF officials believed that improvement of teachers' capacity was instrumental to the ultimate goal of adequately realizing the latent potential of America's young. Most conventional science and mathematics courses offered by colleges and universities were geared toward careers in research and development. The Institutes would supplement the formal college training of teachers. Teachers would receive a more practical understanding of theoretical subject matter.

The necessity of maintaining programs that were justifiable to public authority illuminated a tension between two forces which proved difficult for the Foundation to reconcile. As representatives of the public, government officials had a duty to ensure the wise development of public policies which owed their development to public expenditure. As Dorothy Schaffter suggests: "It is their duty to determine wise policies, to plan adequate and suitable programs, to determine the distribution of funds to institutions and individuals, to institute proper procedures, and to exercise sufficient control or review to insure that the expenditures are made legally and honestly by the recipients. There can be no objections to their exercise of this duty. The implementation

is another story, and that is where the problems begin."<sup>113</sup>

With respect to federal support of science, the issue of academic freedom emerged as an impediment to governmental efficiency. Basic science had an abstract orientation which thrived only in an atmosphere of freedom. The government provided for the material well-being of the Foundation, but scientists believed that this should not serve as a justification for any compulsion to conform scientific endeavours to national expectations. As Schaffter explains, representatives of the scientific and academic communities believed that "the federal government should not control academic institutions: research (particularly basic research) cannot operate under any kind of external controls. They hold that academic freedom and unfettered research are not to be protected primarily for teachers and researchers as individuals, but in the public interest."<sup>114</sup> Scientists and academics believed that the public interest could only be maintained if the pursuit of truth (*i.e.* pursuit of truth through methodical scientific investigation) could be released from the bonds of responsibilities associated more with vulgar perceptions of what science should do for Americans than with the more elevated intentions of Science as an investigation in service of a kind of good shared by all human beings as human beings.

In January of 1957, the Eisenhower administration announced that the federal budget had to be reduced. Secretary of the Treasury George M. Humphrey forecasted an

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<sup>113</sup>Dorothy Schaffter, *The National Science Foundation* (New York: Frederick A. Praeger, 1969), 108.

<sup>114</sup>Ibid., 108-109.

economic downturn that "would curl your hair" if taxes were not reduced. Congress was invited to identify areas within the budget where cuts were appropriate.

The NSF was among the government departments selected for reductions. The NSF's initial estimate for Fiscal Year 1958 was \$111, 578, 000, but resistance by Bureau of the Budget director Percival Brundage resulting in the NSF's Alan Waterman to accept a compromise figure of \$75 million or \$80 million. In the past, when the NSF budget was considered, the Senate would usually approve higher figures than the House of Representatives; the actual figure allocated to the Foundation was usually a compromise between the two figures. When the proposal for Fiscal Year 1958 came before the Senate, it did not approve a higher amount than the House, and the NSF was appropriated \$40 million; this figure was equal to total the appropriations for fiscal year 1957.<sup>115</sup>

Waterman perceived that the government and general public alike were experiencing an alarming degree of anxiety over the size of the national budget. While it was tempting to exploit American tensions with the Soviet Union in order to stimulate increased support for science, the NSF director proceeded with caution. Waterman recognized that the members of Congress seemed little concerned over the race with Russia for science supremacy. In an exchange between Waterman and Congressmen Charles R Jonas (R., N.C.) and Edward P. Boland (D. Mass), Waterman was reduced to silence on the matter of the Russian supremacy.

*Mr. Jonas:* When we read scare articles in magazines and the press about how fast we are being outstripped by Russia in scientific knowledge, that does not

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<sup>115</sup>Kirghbaum and Rawson, 214.

take into consideration the \$3.5 billion a year being spent by private industry on research and scientific study and development study; does it? . . . Because industry is doing a magnificent amount of work in this field, and I just wondered if we were overlooking that, and if the people who write these articles about how we are being left so far behind by Russia have overlooked it also.

*Dr. Waterman:* Actually, we have figures--

*Dr. Boland:* Following Mr. Jonas' remark on the question of being scared about being outstripped, what difference does it make if we are being outstripped now? What difference does it really make? What difference does it make if Russia has thousands of young men coming out of high school and going into the scientific field--their particular type of scientific field. They are not really outstripping us in the matter of knowledge, or how much they know, or how much they are about to know. . . .<sup>116</sup>

In mid-1957, it seemed that the NSF would have to settle for the appropriations the government had decided on. Although NSF officials had the option of appealing Congresses' decision directly to the White House, such action appeared unlikely to yield promising results.

### **After Sputnik**

After October 4, 1957, the National Science Foundation was forced into a period of critical self-examination. The public believed that the United States had fallen behind in

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<sup>116</sup>Ibid., 215.

the areas of science and technology, and many interested observers sought out an explanation.

After an initial period of near-panic, investigators and critics arrived on the scene. One of the obvious whipping boys was the nation's educational system. After all, it was the schools which produced the scientists and technicians who came second--so something must be wrong with the schools. A critical examination of the entire American educational system was begun. In the centre of the spotlight was science education.<sup>117</sup>

The federal government became committed to support for education, with a special emphasis on science. As the federal government's preferred mechanism for dealing with matters pertaining to science, the Foundation scrambled to be prepared to meet the increased demand for its services.

At a divisional meeting, Waterman referred to Sputnik as a "scientific Pearl Harbor" and added "that it provided an opportunity for the Foundation to do what it had previously regarded as urgent and to consider what more should be proposed."<sup>118</sup> NSF programs, Waterman forecasted, would serve as a model for those of the Office of Education. Under their mandate, the NSF would carry out initiatives for the improvement of science education which could eventually be adapted as models for the improvement of other specialties in the areas under the purview of the Department of Health, Education and Welfare.

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<sup>117</sup>Ibid., 220.

<sup>118</sup>Ibid., 224.

While recognizing that most people understood Sputnik as an engineering accomplishment,<sup>119</sup> the NSF decided that the best response to Sputnik would be a reaffirmation of the Foundation's commitment to the proper balance between basic research and applied science. Alan Waterman explained that the Foundation looked toward a "desirable balance between applications of science to defence, health and the economy on the one hand, and basic research activity--the 'defence in depth' for our whole economy--on the other."<sup>120</sup> Even though the United States still possessed important advantages over the Soviets with respect to science and technology, they could not afford to neglect basic science at such a crucial time. The country's top scientific minds agreed that developments such as earth satellites required more emphasis on fundamental principles than it did on increased attention to applied research.

The Foundation was afforded the opportunity of reassessing its budgets for the Fiscal Years 1958 and 1959. Under normal circumstances, it took officials roughly a year to develop a budget, but the Sputnik "crisis" left them only one month to propose a revised budget for 1958. Officials of the Division of Scientific Personnel and Education worked frantically to meet deadlines. Howard F. Foncannon, special assistant to SPE Division Head Dr. Harry C. Kelly, recalled the urgency of their task.

We had no real guidelines. The Bureau of the Budget just told us to create a

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<sup>119</sup> Belanger suggests that engineers especially enjoyed the rewards of the Sputnik era: "American Engineers, like scientists, benefitted from the surge of new money and attention--for the moment at a slightly faster rate than some others. But prosperity without recognition would not long satisfy these professionals, who had, as Layton says, so consciously adopted a self-image on science and keenly sought its social prestige as much as its financial status. Engineers were ready to push their boundaries" (Belanger, 50-51).

<sup>120</sup>Ibid., 49.

program that would meet the national interest. We dragged out and reexamined programs that had been proposed in the past and filed away because we didn't have enough money for them at the time. We also wrote some new programs. One of our worries was that, without small trials, some or these might turn out to be lemons. But we didn't have time for trials. On the whole, we were miraculously lucky.<sup>121</sup>

The NSF officials showed not only a willingness, but a determination to use the public reaction to Sputnik as means for augmenting their position with respect to the government: "We must recognize that our ultimate security rests upon the soundness of our system of education and our peoples' respect for science, based upon an understanding of its importance in the modern world."<sup>122</sup> The revised budget for 1959 included this statement:

We are finally faced with the realization that our margin of scientific and technological superiority over the USSR is far smaller than we supposed it to be. Our only course in meeting the problems which confront us today is to make better use of our scientific resources. But it is clear that there is now a strong element of urgency in increasing our scientific potential as rapidly as we can--in terms of both numbers and quality.<sup>123</sup>

The NSF presented itself as an agency that Americans could trust to address America's

<sup>121</sup>Kirghbaum and Rawson, 227.

<sup>122</sup>Ibid., 222.

<sup>123</sup>Ibid., 223.

problems with science education and basic scientific research. The Foundation could be confident about its participation in the growing importance of science in American society.

Immediately after Sputnik, it seemed that NSF would no longer suffer from the difficulties associated with being an agency that advocated the public support of basic research. Whereas previous budget discussions were characterized by a struggle to attain appropriations that barely corresponded to required amounts, current emergencies extinguished any reluctance that public officials might have previously had. Hillier Kriegbaum and Hugh Rawson explain the immediate outcome of reassessments.

The budget finally approved by the President for the NSF amounted to \$140 million. The requested increase for scientific manpower programs was staggering. The September request for this item had been \$18,600,000; the final request was for \$79,730,000. By far the largest single item in the manpower part of the budget was \$35,000,000 for instituted programs. Of this amount, the bulk of the request was for support of Summer Institutes for high school teachers, \$19,750,000, and Academic Year Institutes for high school teachers, \$9,000,000.

While the 1959 budget was being revised upward, Waterman asked for a supplemental appropriation for 1958. The request sent to Congress was for \$9,000,000 with \$1,415,000 of this for institutes programs. The Congress appropriated \$8,750,000 and specified that \$2,367,000 was for institutes, thus again giving more money for this area than had been requested.<sup>124</sup>

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<sup>124</sup>Ibid., 227-228.

The suggestion that the United States could only meet the Soviet challenge through a massive program promoting science education and science research led to unprecedented public support for the National Science Foundation. While it was no surprise that the Summer Institutes Program received special attention (it always had a firm foundation of support), basic science received a much welcomed endorsement from government sources.

For a brief time after Sputnik, the NSF enjoyed a golden age characterized by the relative ease with which it could justify public expenditures in interests of science. A decade after Sputnik, reflecting on the re-emergence of NSF's difficulty in accounting for itself, Dorothy Schaffter looked to the Sputnik era as a standard.

For a time after the Soviet Union launched Sputnik I, Congress--and almost everyone else--succumbed automatically to any proposal that was tagged "science" or "research" and few questions were asked before large appropriations were made. Ten years later, those "good old days" had gone, probably for ever. Only appropriations for health research arouse such enthusiasm in Congress that the National Institutes of Health receive not only whatever they request, but frequently are presented with more than they ask for by a Congress seldom so generous.<sup>125</sup>

The NSF's success in obtaining public funds immediately after Sputnik seemed to reflect a connection between national interest and support for the quest for knowledge. Sputnik had provided the American people with a tangible example of what scientific research

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<sup>125</sup>Schaffter, 111.

could accomplish. As long as the American people could associate the end of science with the end of preserving their way of life, they would be willing to forgo receiving a more precise account of what was entailed in the abstract notion of basic science.<sup>126</sup>

## Conclusion

After Sputnik, science education and research became a thing of beauty for the American public. The whole country seemed to be participating in the development of American technological capacity. Scientists enjoyed a period of unprecedented support for their intellectual endeavours. Never before had the public demonstrated such a confidence in intellectuals' ability to contribute to America's well-being. The nation prepared to provide its young people resources needed to develop expertise in activities that only a year before were an utter mystery. The whole country seemed mobilized in an effort to ensure that they would never again be caught off guard. It seemed that the American people lost their fear of the mysteries surrounding science, technology, and intellectual pursuits in general after having been persuaded of its central role in re-establishing their security.

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<sup>126</sup>It is interesting to note that the NSF's webpage in 1999 had a presentation of the Sputnik era, when the NSF rose to great prominence in American governance. The last section of the presentation is entitled "Wanted: Another Sputnik" ([http://whyfiles.news.wisc.edu/047\\_sputnik/index.html](http://whyfiles.news.wisc.edu/047_sputnik/index.html)).

## **Conclusion**

In Plato's *Republic*, an argument is presented which suggests that, under certain conditions, the general public will be persuaded to support institutions that are primarily concerned with cultivating the intellect. The argument suggests that the average person can be persuaded of the efficacy of certain intellectual endeavours even though they do not precisely understand how the intellectual endeavours will serve to accomplish the results that they are expected to accomplish. The effective persuasion of the average person about the efficacy of education is contingent on a number of factors.

Just as Socrates speaks of education as something that requires justification, so too must educators recognize that the attempt to gather support for education must avoid relying exclusively on the presupposition that education is good in and of itself. The notion that education is simply good, or that science should be pursued for the sake of science, is only acceptable to the average person if they are convinced that intellectuals engage in study and teaching in order to improve life for everyone. Such arguments are acceptable only if the average person accepts the authority of the intellectual, and the authority of the intellectual is accepted only when their capacities are demonstrably compatible with citizen expectations. Thus, the educator must have the ability to speak about specialized activities in a general and accessible way. Rather than insisting that all

people have a precise understanding, and therefore an appreciation of the intrinsic value, of specialized activities, educators must have the ability to present specialized activities in a way that is consistent with the average person's perceptions about and expectations of the goals that the activities in question are useful in accomplishing.

In the *Republic*, Socrates speaks of philosophy as needing the city. If an organized attempt to cultivate intellectual excellence is to be considered decent and worthwhile, and thus worth supporting by those who will not engage in it, intellectuals must accept standards of evaluation that are external to the educational enterprise. Public support for education is an inherently political question, and thus educators must ensure that education is politically acceptable.

In contemporary liberal democratic society, it is particularly difficult to impress upon those involved in education the importance of remembering the obligation that they have to their political societies. It is usually the case that educators and the educated subscribe to the belief that the individual should be free to cultivate their own tastes, desires and capacities free of compulsion and constraint from their fellow citizens. Participating in education is considered to be good for the individual. Education helps the individual to improve themselves. After spending time in activities devoted to the cultivation of the intellect, the individual will be a more completely fulfilled human being, and will be able to live a more complete life.

While all of these things may be true, it is not likely that these are the results of education that the average person who is going to support education is interested in. These results describe personal fulfilment, and are arguments that are perhaps best used

when geared toward encouraging people to become educated. They suggest reasons why individuals should engage in education, but they do not provide any reason for accepting the notion that anyone except the individual should be responsible for the cost of education. Public support for education can only be justified based on the presupposition that the activities of the educated will be of *public* benefit.

The argument regarding the relationship between the educated and the city as it is presented in the *Republic* offers as advice to educators and potential educators the suggestion that they must find the middle way between two extremes. They must avoid the extreme view that the pursuit of intellectual excellence, whatever its manifestations, is something that exists in complete isolation from political considerations. They must also avoid the extreme view which suggests that all people must become knowledgeable about all things; that all should become philosophers, and thus public support for education is justifiable as contributing to that end. The former suggests that philosophy does not need the city, but it also suggests that the city does not require philosophy. The latter disregards the realities of life in the luxurious city, which require that different people specialize in different things according to their capacities.

Plato's *Republic* aids our understanding the relationship between Sputnik and public support for education because it helps draw our attention to how situations of public insecurity can be used to establish the credibility and authority of intellectuals. Just as Glaucon is willing to accept the various studies of the program of education on the basis of their usefulness--particularly for war, so too will the city be persuaded to support the cultivation of the intellect on the basis of the bi-products of the studies which help train

the intellect. Socrates suggests, then, that obscure scientific studies will receive public support if, and only if, the city can be provided with an account of how the studies are useful for them; especially if the account has to do with issues connected with the city's security and well-being.

Like Socrates' use of military applications, public representatives of the scientific community used Sputnik as a means of turning the public's vague understanding about science into a belief that intellectual pursuits should be supported with public dollars. Sputnik sufficiently prepared the public to accept the new prominence of science in modern society, and the new place of the scientists as honoured personages in society. Sputnik was a technological achievement, and it was clear to most Americans that such an accomplishment required great intellectual capacity. Sputnik worried Americans because this accomplishment seemed to indicate that Soviet scientists had demonstrated greater capacity in their field than their American counterparts. The Americans, then, were presented with a vivid example of how important developing the capacity to intellect well was for their national security. Sputnik also made them recognize that, even though science was in a certain way the cause of their problems, it was the best solution to their problems as well. It may have been the only solution worth considering. Thus, Sputnik provided Americans with an answer to the question "why science?": the answer was, "because the Russians are doing it." The scientists focussed the public's attention on this answer, and their endeavours received increased support.

Representatives of the American scientific community recognized an opportunity. If we were to be somewhat cynical, we might say that they recognized an opportunity to

exploit the American people when, fresh from what was undeniably a Soviet propaganda victory, Cold War fears were sure to be raised to a fevered pitch. However, a more likely explanation is that representatives of scientists saw the situation as an opportunity to demonstrate the capacity of science to improve the lives of their fellow citizens. One thing, however, is sure: they did not let the opportunity pass unnoticed. They recognized the condition of their fellow Americans, and spoke of science as something that would be useful to the average citizen. Science, they said, would be instrumental in contributing to the effort to make America strong again. Americans felt insecure. Supporting efforts to cultivate the intellect would help them to feel safe again.

Plato's *Republic* suggests that if the average citizen is given a reason for believing that even the most obscure studies will benefit them in a direct and recognizable way, then the city will take the lead in supporting the studies. After Sputnik, Americans accepted the notion that something had to be done about their country's efforts to cultivate the intellect, and came to believe that the general public--all Americans--should take an active interest. Support for intellectual activities needed to receive public support in dollars as well as encouragement.

Plato's *Republic* also suggests, however, that public encouragement and support of intellectual institutions implies that the intellectuals will be compelled to serve the city. After coming to the belief that their country had fallen behind a dangerous rival in the effort to cultivate the intellect, Americans turned to the schools. It was the task of the schools to produce intellectuals. It only stood to reason that a shortage of intellectuals, or a shortage of intellectuals that could compete with their ideological rivals, was due to

some problem in the schools. Criticisms of the schools appeared in the popular press.

The argument of the critics rested on simple and clear principles: a) if the schools expected the public to support them, they would have to demonstrate that public dollars were being put to good use; b) the schools were not putting public funds to good use; thus, c) the schools must be compelled to attend to the concerns of national security.

The critics indicated where they thought changes should be made. They suggested that irresponsible educators were not providing students with the ability, nor the inclination, to defend the country. Schools, they said, had become soft on providing students with concrete skills and had failed to provide students with the rudiments that would allow them to develop an aptitude for more difficult studies. Students were not emerging from the education system with any sense that the future of their country was in their hands. That is, students in America did not seem to have any sense of their obligation to serve their country and work for its survival and flourishing. Instead of inculcating a sense of the importance of hard work and seriousness, critics charged, schools gave students a selfish taste for pleasure-seeking and easy-living. Students, that is, were not being instilled with a sense of the relationship between their efforts in school and the well-being of the country. In short, the schools were not performing the task that the public expected them to perform. Thus, the schools had to change in such a way as to conform to public expectations.

The discussion of education in Plato's *Republic* does not begin with the assumption that education is good in and of itself. Rather, Socrates assumes that education must play a vital role and himself ascribes education a role in the war making abilities of the city.

The Eisenhower administration's response to Sputnik accepted the notion that education had a central place in contributing to the defence of the nation, and followed the public recognition of two important areas where changes had to be made. First, the federal government took the lead in supporting the schools' efforts to contribute to the end of better providing for national security in matters where the cultivation of the intellect was a significant factor. The government's initiative took the form of the National Defence Education Act, 1958. Federal intervention in what was considered to be a state area of responsibility was justified given the necessity and importance of the cultivation of the intellect for national security. Second, the government increased its support of government organizations that were responsible for developing scientific and technological proficiency. The National Science Foundation experienced a "golden age" of publicly funded support for its scientific endeavours.

After a close examination of the parallels between Plato's theoretical presentation of the relationship between the cultivation of the intellect and the political community that wishes to make use of it on the one hand, and the relationship between Sputnik and public support for education on the other, we are led to a certain consideration about the *Republic*. If reading the *Republic* can bring us to such an intricate understanding of such a complex problem as the issue of public support for education, and if his analysis seems to be confirmed by, and sheds light on, a consideration of how real people have behaved in a real situation, then what would compel us to embrace a tradition which holds that Plato's *Republic* is impractical, or simply idealistic? Should we instead consider the possibility that the merit of theoretical investigations like those found in the *Republic*

rests on the fact that they give us a broader understanding of concrete events by virtue of the fact that they are not limited by their attachment to any particular concrete event?

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