A STUDENT-RUN MAGAZINE OF ACADEMIC WRITINGS AND DIALOGUES

ἱστορία*

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*A Learning by Inquiry

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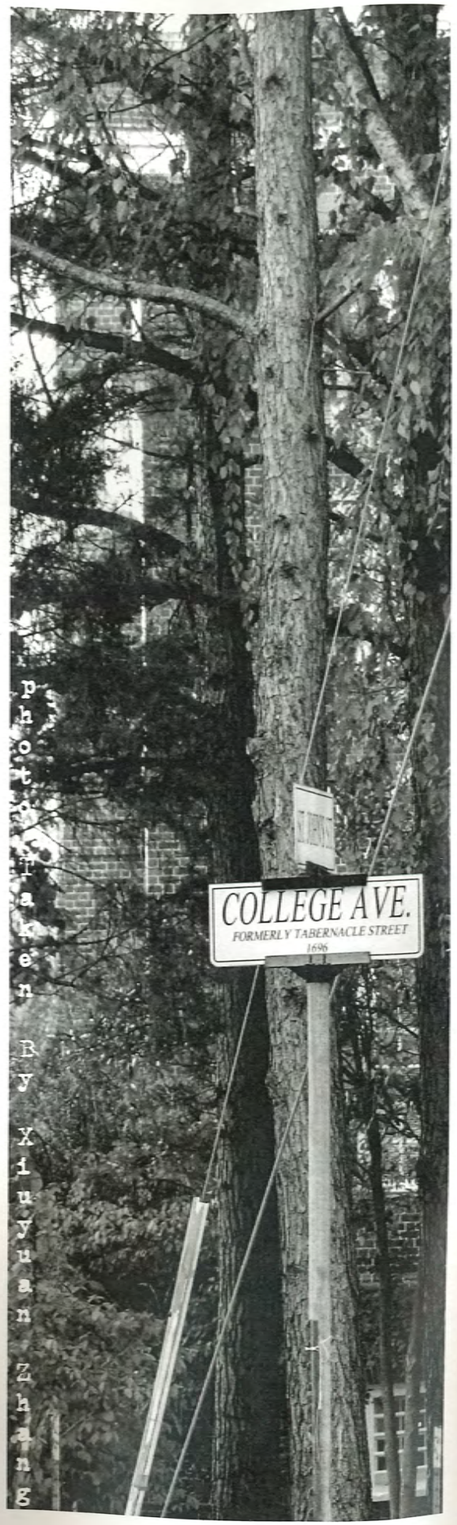

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ἱστορία *currently has three main sections. In the first section, which we call Dialogues, the* ***ἱστορία*** *editor group presents interviews with tutors – and hopefully in the near future with students and faculty on subject matters that are related to St. John's Program, study method, or questions one may have in the classroom. In the second section, there are five subdivisions where we publish short essays from the community members on subject related to seminar books, mathematics tutorial, music tutorial, lab tutorial and language tutorials. For the third section, located on* ***ἱστορία****'s back cover page, we will include 30 to 40 opening questions from different classes, collected between issues.*

Please Note:

In order to be more eco-friendly and ensure everyone who wants to read the ἱστορία would be able to have a copy, we have decided to distribute our publication in the form of subscriptions (It is still free to all polity members). Starting from the second volume, we will send you your copy of ***ἱστορία*** *directly to you through campus mail. If you want to subscribe to receive our publication in your mailbox starting from the second volume, send an email to our email account: historiasjca@gmail.com, and the format is :*
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Content

Submissions:

*I. St. John's Program-Related Academic Essays. Requirement: no longer than 7 pages when double spaced with font size 12.**

II. If you want to respond to the contents involved in the current issue (for example, if you have a thought on an essay or on one of the opening questions), that is always welcomed. Please submit your thoughts to ***ιστορία****'s email account. ***

& Both can be hand-written as long as they are legible.* ***ιστορία*** *encourages you to submit your sketches and graphs if they are related to your essay.*

For Prospective Staff:

I. If you have a good work ethic (required),

*II. If you are a photographer (send us an email with three photos).****

III. If you are interested in becoming a contributing editor of ***ιστορία*** *(no prior experience required; send us an email including two of your writing samples along with why you want to be part of the ιστορία group).*****

****&**** Part I of this section is required if you want to join* ***ιστορία****.*

From Left to Right:
Sihui Ma
Nathan Huey
Xiuyuan Zhang
Jonathan Llovet
Ripley Stroud

Photo Taken by Elizabeth Akhvlediani

Foreword

Dear readers,

Allow me to introduce to you ***ιστορία***, a new student-run publication for the St. John's community. The publication's goal, as implied in its title, is to create an opportunity for every member of St. John's College to inquire further into their thoughts related to our Great Books program, to share their ideas with others, and, through writing, to interact with the whole community beyond the bounds of the classroom.

One of the reasons I was inspired to start ιστορία was that, for the past two years in seminar and tutorials, I have encountered many excellent questions that we could not sufficiently address in class. These fascinating lines of thought were, in a way, abandoned and might therefore be forgotten. Every day at St. John's we ingest so many new ideas and so much new information from the books, tutors and fellow students; to prevent some of these good questions from slipping away, ***ιστορία*** would like to foster them and to explore them further.

As the books we read, which are often full of surprises and entirely new perspectives, show us the power that lies in written works, we encourage each person who feels that his or her question was not fully addressed in the class, who regrets that his or her answer was not fully or methodically expanded, or who simply wants to say more about an idea that really fascinates them to write down their thoughts and send them to us. Not only do we want to read what you have to say, so do lots of students who come here for the sake of learning.

I would like to give special thanks to everyone who has submitted their writings for our first issue; also to Mr. Matthew Holtzman, Mr. David Townsend and Mr. James Beall for agreeing to be interviewed by us and for giving us helpful advice throughout the preparation process; and most of all to the ιστορία editor group for their support and hard work, which is what made this publication possible!

Yours truly,
Xiuyuan Zhang

Dialogues with St. John's Tutors

Mr. David Lee Townsend
Mr. James Howard Beall
Mr. Matthew Holtzman

Tutor: Mr. David Lee Townsend Interviewer: Xiuyuan Zhang (A17)

Mr. David Townsend has been a tutor at St. John's College since 1974. He is teaching sophomore music, sophomore seminar and participating in a study group this academic year. Main Interests: Poetry, Law, American Studies, Philosophy, Theology, French, Evolutionary Biology, Painting, and Sculpture.

Ms. Zhang: Mr. Townsend, thank you for making the time to have this interview with me. I would like to start with some questions related to your September 18th Friday night lecture on The U. S. Constitution. During your lecture, you cited the three fundamental liberal arts – grammar, rhetoric, and logic – to make an analogy to the three branches of the government: legislative, executive, and judicial. You also emphasized that it is important to learn and understand liberal arts. **In what ways specifically do you think the students here at St. John's College are learning these three different skills of liberal education?**

Mr. Townsend: We learn dialectic in theory and practice. We practice thinking and speaking critically and clearly. We study touchstones of profound thinking, modes of logic, models of rhetoric, and the imagination, which is strongest way to build community through narrative, poetry, and music. And we practice the moral reasoning and courage of stating our ideas and arguments publicly, as is essential for a democratic republic.

Ms. Zhang: It seems that sometimes in the St. John's education, rhetorical skill has a negative connotation. **Can you say more about why rhetorical skill is an important part of a liberal arts education? And how should we look at rhetorical skills differently?**

Mr. Townsend: Yes, from Plato's writings we perceive a difference between Socrates and the sophists. We see the sophists using rhetoric to market themselves and turn teaching into a profitable venture. However, the outcome of rhetoric is not necessarily bad, and the practice of persuasion is not necessarily a skill so much as a fundamental moral aspect of the soul. There is a conventional sense of thinking that says that rhetoric is wrong and that dispassionate thinking is better. But cold logic alone risks immoral actions and can be an excuse for cowardly refraining from acting. Rhetoric plays an important role when making a moral argument. Literature is a very rhetorical art; the narratives of books such as the *Iliad* and the *Aeneid* require great rhetorical power. Rhetoric is one of the three basic liberal arts. It should not be undervalued.

In a classroom where people feel safe to discuss their opinions, with the help of rhetoric skills you can gradually learn how to think clearly, how to ask questions, and how to be more persuasive when speaking. Moreover, you can help other classmates to see the elements of their thinking through conversation that is both logical and warm.

Photo Taken by Nathan Huey

Ms. Zhang: **In which books can we find and observe closely the use of rhetoric skills?**

Mr. Townsend: When you read Plato's writings, pay close attention to *who* is saying *what*. And consider the richness of narratives by Homer, Virgil, and Dante that present deeper insights and thinking than most philosophers.

Ms. Zhang: **How does the St. John's education help students understand the core of the American spirit, such as the pursuit of liberty and the necessity to engage in dialectical method to address people's different opinions?**

Mr. Townsend: America is an experiment in the dialogue of democracy and self-government. The success or failure of this democratic-republican experiment depends on the willingness and ability of every American to be a statesman and to seek progress in the peaceful, reasonable, legal resolution of legitimately conflicting interests. St. John's is a leader in modeling and practicing dialogue. We believe that people in profound disagreement can have reasonable civil dialogue and find common ground. This is essential for the more perfect union we seek, as stated in the Preamble of the United States Constitution.

Ms. Zhang: **What do you think are the pros and cons of our Great Books Program? What is the aspect of St. John's College you find the most attractive?**

Mr. Townsend: Dialogue works best when we have a common text. It behooves us to select the best texts. A text gives every seminarian a common experience and the written word has a strange otherness which discomforts the certainty of everyone in a seminar. This aids discussion.

This said, I am in favor of crossing the artificial borders of "Western Civilization" to include readings such as the Bhagvad Gita, Confucius, the Qur'an, and other excellent texts that would enable us to broaden and deepen our discussions. To think of "The West" – and especially of America – as a hermetically-sealed "culture" outside of the common fertile streams of global influence is not intellectually sound, in my opinion. Mortimer Adler, one of the intellectual founders of our program, agreed when I led seminars with him and designed curricula at the Aspen Institute.

Ms. Zhang: **How would you characterize how our liberal arts program differs from others?**

Mr. Townsend: We do not stovepipe learning into dubious "departments". We have the American insight that learning is an egalitarian enterprise, not hierarchical in the sense of the nobility lecturing to the peasants. We believe, with Socrates, that in all the significant ways of knowing, "the power of learning exists in the soul already."[1]

Ms. Zhang: **What would you say is the competitive advantage of a St. John's education?**

Mr. Townsend: Training for a job is really precarious. We don't know what the world is going to be like in five or ten years. Popular fields like technology also change really fast. St. John's teaches you to have flexibility and to see the big picture. It trains you in a way so that you have the courage to learn something new by yourself. It helps you to not be intimidated by something unknown, and to trust yourself that you have the ability to put it together. The St. John's education forms you to become a lifelong learner.

Moreover, in our current economic structure, lots of people work for companies and try to put together deals. It is important to know how to engage with others and make progress in a conversation when there are ten or twenty people in a room. We have terrific training here on how to talk with each other regarding topics that people profoundly disagree with and to find a way forward. It is crucial to have the ability to reason with people and get them to understand each other when they are from different cultures and have dissimilar beliefs.

Ms. Zhang: **Do you find the curriculum at St. John's is helpful as regards to understanding the subjects that concern you the most – that is, in exploring your major study fields (be that philosophy, language, mathematics, or fine arts, etc.)?**

Mr. Townsend: Yes, studying in a non-departmental way helps you understand more about the subjects you have specialized in. I studied literature, philosophy, theology, French, and law myself, but the way I learned them is very specific. When it comes to real life, there are no separate categories. Most of the time, we are being compelled to package ourselves as a commodity – to market ourselves. This diminishes our humanity. A worker who is specialized certainly can do one task really well. But we at St. John's College resist this way of thinking. We believe knowledge is not divisible, and one should not turn oneself into a commodity. The business of academics mostly trains one to specialize and divide into ever narrower subjects. This is how most universities work. But skills in one narrow area may become obsolete since things change really

really fast.

So one may go into college to learn a career, but when she graduates, the skill she specialized in might already be outdated.

We should be learning what holds the world together even though the mode of our economic system creates more and more specialization. Workers should not be dehumanized. This is especially true in education. Because what ends up happening is we would have doctors who are great at their expertise, but do not know how to interact with their patients.

Ms. Zhang: **Why do you want to be a tutor here?**

Mr. Townsend: It's a vocation. It's great fun. I love learning, I love sharing the experience of others' learning, and I like books, experiments, logic, and music.

Ms. Zhang: **Which class do you find most difficult when you first started teaching in St. John's College? Are there any classes you still find challenging after years of teaching? How do you o**vercome the difficulties?

Mr. Townsend: I don't think any class is too difficult, and having little experience or skill can often be a benefit. And tutor-error reminds you that you are learning along with the students. Lifelong learning enables us to flourish continually. Learning involves the courage to make mistakes, the humility to really listen to others, and the willingness to let go of authority in the classroom and let others take the lead in learning and teaching.

Ms. Zhang: **Why do you think it is important that the tutors are learning and teaching more than just their expertise?**

Mr. Townsend: Expertise is vastly overrated in all that really matters in life. Give me an amateur with an eager mind and a willing heart.

Ms. Zhang: **When do you feel like the students and you are engaging or working together the most? Can you tell by the way students talk whether they were well-prepared? What do you think when people talk without doing the readings?**

Mr. Townsend: Seminar is the heart of the program. I do not see myself as policing students' preparation. Students at St. John's, in my experience, come here to learn. And everyone learns in their own way as well as in the community. It is a common enterprise, and students are often effective at monitoring their peers to encourage effective prepar-ation. I am a perfectionist myself, so I can't imagine coming to class without having read and reread the material. But perfectionism as a character trait is not necessarily optimal.

Ms. Zhang: From what I know, St. John's College has always been against using exams and tests to evaluate students' study progress, but we still sometimes have quizzes for language and music tutorials. While I find quizzes helpful, I still want to ask about your opinions on **the place and importance of quizzes in the St. John's teaching method. Do you find quizzes helpful? Why is memorizing the vocabulary crucial for students studying a new language?**

Mr. Townsend: Quizzes give tutors a measurement of the success of their tutorial in the common and individual tasks. I hope that tutors do not decide students' grade based on their quizzes. At St. John's College, we are not learning ancient Greek or French; instead, we are studying language. In order to understand what language is, some facility is required. However, whether one memorizes vocabulary or looks it up on the computer does not make a lot of difference for me. Understanding the structure of a language is more important. I do not think memorization is particularly helpful, but it does save time when one is translating sentences. I think students understand the importance of learning basic facility.

People learn in very different ways. There is more than one way to learn Greek – some people like to read and some people like to memorize. What St. John's College is trying to do is to enable each individual to find the best way to learn for themselves. We are not trying to train people to become experts in ancient Greek or calculus; instead, we are giving them the facility to make learning more interesting. The best way to learn a language, in my opinion, is total immersion.

Ms. Zhang: **Which do you think is a better way to get started learning a new language: memorizing vocabularies or reading books and sentences in the target language? Does reading out loud help?**

Mr. Townsend: Each person must find their own best way to learn. There are many paths. Reading books in the target language is an excellent goal. Children's books can be helpful. We studied *Le Petit Prince* in junior language last year, and I think it was a wise use of our time. When I was young, I learned French and German by reading comic books.

Ms. Zhang: **Do you have some method you would recommend to students when learning a new language?**

Mr. Townsend: Are there ancient Greek graphic novels? If not, I offer you this as a business plan.

Ms. Zhang: **When you study a language privately, are your methods the same or different than those you use in the language tutorials?**

Mr. Townsend: By far the best method of language acquisition is residence in the country and native conversation. Of course this is difficult with a classical language.

Ms. Zhang: **How should we choose our annual essay topic?** Some people say that you should choose a topic that interests you the most and then choose the book that relates to it, but others say that you should know which book you want write about first and then decide the topic.

Mr. Townsend: It really depends on the person. However, you should always write on what you truly care about instead of what is manageable for you. You should be able to learn from the essay-writing process and let it take you further on the road of your own intellectual journey and help you become a more flourishing human being. *Essay* means literally "an attempt." Sometimes a failed attempt is far superior to a tidy little effort.

Ms. Zhang: **What should we be more careful of when we speak in class? How should we adjust for the biases of our religious beliefs or our cultural backgrounds? How can we continually overcome ourselves?**

Mr. Townsend: I think pure objectivity is impossible. It's a false goal, often put forward by someone who smugly believes he has no biases. I think the claim of pure tolerance is a mask of moral isolationism which is actually a practice of immorality. It's a justification for inaction and cowardice.

We are all biased. We are all bigots based on our experiences and passions. I think it's better to try to be a turnip-sized bigot rather than pumpkin-sized. We make progress when we continually engage with others and when both we and others can say what we really think, including saying that the tutor or any other "authority" is wrong. Democracy is a dialectic way of life, a personal process that never ends in regard to all the deep questions. Recognize that we disagree. Respect one another. Speak clearly, frankly, succinctly, and simply. Listen carefully. And be willing to change your mind. But don't abandon your moral compass in seminar or have such an open mind that your brains fall out.

Ms. Zhang: **When we feel reluctant to speak – and not just because we are trying to listen, but rather out of anxiety or some other factor – how can we engage the class productively?**

Mr. Townsend: Ask a question. Try to help clarify the elements of a conversation or the assumptions of someone's contribution. Students should practice saying what they really think as succinctly, clearly, and authentically as possible. Following one's passions is good for intellectual flourishing. Don't separate your heart from your head. One can start with asking some clarifying questions, such as: "Is it the case that you think this?" It is also better to put your disagreement with someone as a question rather than simply saying, "You are wrong."

Ms. Zhang: **Is there such a thing as 'a stupid question'?**

Mr. Townsend: Probably not. Don't censor yourself. The most elemental questions sometimes can be the best! Philosophical thinking depends on the clarity of language; the meaning of words such *being*, *essence*, and *nature* should be carefully discussed. It is a good thing to read the text and do the work. When you ask a question or state your opinion, citing something in the text to accompany your point is always helpful.

Ms. Zhang: **How can we create a safe environment in the classroom?**

Mr. Townsend: The students should work together with tutors to create a safe environment. As a tutor you can learn from students. Students can tell the tutors that they are wrong. I like when my students disagree with me. And I think the process of how the class is going should always be a legitimate topic for discussion.

Ms. Zhang: **If a student feels uncomfortable about the class environment, what should he do?**

Mr. Townsend: He should talk to the tutors. There is really no formula. The tutor should be able to sense the discomfort if there is any, and then help to control the situation. This can be done overtly, directly, indirectly, and even with body language to build the group. There are two metaphors I like to use. We are making a small republic. Everyone is involved, and no one should be left behind. A classroom should be a community where everyone has to become a statesman and a leader.

The other metaphor is we are like a jazz improv group. Everyone gets to play, and sometime we end up making something really beautiful. Everyone may get to riff, but no one dominates. The tutors should be ultimately responsible. However, the class should be able to run without the tutor present.

Ms. Zhang: When there is a question or discussion going on in class, **what are the moments that the students should refer to the text for an answer and when should the students try to answer it themselves?**

Mr. Townsend: This is also a judgment call. People are the most important text in the classroom. However, referring back to the text will keep the discussion from degenerating into a nasty argument or a gossip session. The text can help us bring back the discussion so that we can have a civil and structured conversation. But that is not the only way. We also should respect the people in our classroom more and listen actively when other students are talking.

Ms. Zhang: The way we read the great books in the Program sometimes make me feel a little bit disoriented.We do not know the background information of when the books are composed and why the authors are talking in certain way. **Is this the most comprehensive way to read these books?**

Mr. Townsend: Having contexts does not work really well in our classroom since the text is our only common ground. Using the republic metaphor, when someone in the classroom starts to bring outside knowledge, then he or she is setting themselves as an expert. When other students have no idea of what is going on, suddenly he becomes the authoritative figure, which is not effective for the class as a whole. Moreover, history is not always clear – it is sometimes divisive. It divides up our perception rather than helping us to build conversation together. It is really a judgment call, but personal anecdotes or historical context seldom help the progression of the class as a whole. Each student should have a sense of community.

However, that being said, sometimes you have to say something personal. And sometimes you may make the pedagogical decision to attempt authority. I encourage you to read everything – though if you have time, you should reread the text first. Reading other scholars' essays or Wikipedia about a book before forming your own thought is not a good idea. As Socrates says, "the power of learning exists in the soul already."

Ms. Zhang: Thank you, Mr. Townsend, for your time.

(Endnote)

1 Plato, *Republic*, line 518c

Tutor: Mr. James Howard Beall Interviewer: Nathan Huey (A17)

Mr. James Howard Beall has been a tutor at St. John's in Annapolis since 1982. He is currently teaching junior laboratory tutorial, junior mathematics tutorial, and junior seminar. His specialty is relativistic astrophysics.

Mr. Huey: Looking at your résumé, it seems like you've done a lot of interesting stuff. **I'm curious to hear a little bit about your background and how it led you to St. John's.**

Mr. Beall: As an undergraduate, I did a lot of reading in philosophy and literature. I was an undergraduate at the University of Colorado; before that I was in the Air Force and spent a couple years working on some other projects. So I'd always had a wide range of interests and had managed to pursue those independently of pursuing the undergraduate and graduate work in physics. My officemate when I was a graduate student at the University of Maryland in the physics program was Joanne Murray, and Joanne Murray was a graduate of St. John's. It was during the Watergate summer, and every now and then she'd slam her fist onto the desk and she'd say, "If these people had been educated at St. John's College, this would not be happening!" So I finally leaned back in my chair and said, "Joanne, what is St. John's College?" She turned to me and her jaw dropped, and she looked at me like I had just said something incomprehensible. So she began to explain to me very slowly and carefully, as one would to a child, what St. John's was. And I said, "My goodness, what an interesting place." And I had that in the back of my mind.

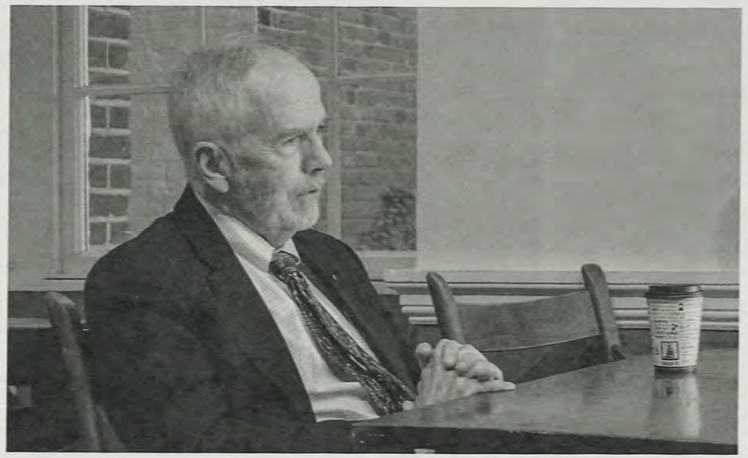
Then I went off and I did a Congressional Sciences Fellowship, which is where they bring scientists in to work on public policy stuff, and I actually worked for the Congress of the United States, and then I did some work on export control policy at the Department of Defense, and then I went back into research and did a post-doctoral fellowship at the Naval Research Lab in the space sciences division there, and I'm still there, so that worked out fine. I was looking for something to do after the post-doc, because they're typically two years, and I saw this ad in *Physics Today* for someone to come and teach at a small liberal arts college, and in boldface: "Warning! Send for and carefully read the college catalog before you apply!" I said, "My goodness, that's St. John's College." So I called Ed Sparrow here – the dean at the time – and I said, "I'd be happy to send the ticket for the catalog and read it, but I know Joanne Murray – we were officemates when we were in graduate school." Now, Joanne had taught herself differential equations the summer before she entered graduate school, so I was pretty impressed with the place even in the very beginning.

The rest is history. I've maintained the affiliation to the lab because they have a lot of fast computers and launch spacecraft and stuff like that, so I can do things like that, too. I've done things that were interesting to me. I'm very interested in teaching and education and also very interested in astrophysics and those kinds of things, and I have an abiding interest in public policy as well. And so the college is nice – it allows me to pursue all of those.

Mr. Huey: **Of your experiences before you came to St. John's, do you have a favorite one that sticks out to you?**

Mr. Beall: No, I kind of like them all. [One of the things I was pretty happy with] was when I was with [the Office of Technology Assessment during my Congressional Sciences Fellowship], I did a study on the economy of scale on wind turbines, and we discovered a minimum in the economy of scale of wind turbines. If you make a machine, the bigger it becomes, the more efficient, until you get to a certain point where you have to use different technologies or stronger materials. Then it starts getting more expensive. So there's a dollar per kilowatt installed capacity, or a cents per kilowatt hour cost. When you go from small, two kilowatt turbines, where it's enormously expensive, all the way up to 40 or 60 kilowatts, the cost of the turbines gets cheaper, and then eventually begins to get more expensive. So there's a minimum in the economy of scale there at about 40 to 60 kilowatts. We knew that there was also a minimum in the economy of scale at about one or two megawatts, and what we discovered was that there was this other minimum of 40 to 60 kilowatts.

As I was a Congressional Sciences Fellow at the time, and an employee of the U.S. Congress, I had two groups of people coming to lobby me. One group was guys in three-piece suits with very short hair from McDonnell Douglas, Northrup Grumman, and Boeing, who wanted Congress to pay the development costs for the megawatt-class machines, and there was some money given to that enterprise.The others were people in three-piece suits and ponytails who wanted Congress to focus on the study and development for making wind turbines so they could go cut themselves off from "The Man". My study made both groups unhappy, because



Photos Taken by Xiuyuan Zhang

what it said was that the thing that most made wind turbines uncompetitive with other generation was the need for battery backup when the wind doesn't blow. The best backup battery for wind turbines is the utility grid, which means the guys with the ponytails were unhappy. And it turned out that we didn't need to do any R&D to make the wind turbines competitive – they were competitive *at the time*. (This was during the Carter administration.) So we promulgated this to the power companies, through the Department of Energy, and the 40-to-60 kilowatt wind farms were the first ones set up by utility companies. So I'm pretty happy about that – I mean, I had a lot of fun with other stuff, too, but as a matter of public policy, that was one of the really fun ones.

Mr. Huey: **What are your favorite books on the Program and why**, and also **what math and science stuff do you think will be on the Program in 50 years that isn't now?**

Mr. Beall: It'd be hard for me to pick a favorite book. I think Plato's *Republic* is wonderful; I love *The Brothers Karamazov* for entirely different reasons, and *War and Peace*. I think if I had to pick a book that changed my view of the world, it would be *The Peloponnesian War*. It just utterly transformed my understanding of how the world works – and that was somewhat surprising because I thought I knew. But I would be hard pressed to give up any of [the books.]

Mr. Huey: **How did Thucydides in particular change how you thought the world worked?**

Mr. Beall: It was during a time when I was talking in great detail with a friend of mine, Andrew Schmookler, who wrote a book called *The Parable of the Tribes*. He had read Thucydides, and a lot of his arguments were based on that kind of thing. So he and I sort of went back and forth a bit about whether or not peace as a possible condition between nations. The parable says that peace is a condition of unstable equilibrium, and therefore you always have to be prepared to engage in war and the possibility of war, at least to a certain extent. He also said that if you are too quick to go to war, then you become part of the parable – become part of the thing that pushes things to becoming more unstable. So what I learned from that – and I keep hoping that everyone will – is that power must walk in the world, but you must apply it with art and with care in order to keep those wielding it from becoming a problem to themselves or others.

Mr. Huey: **So are you not necessarily a fan of how Hobbes views power, then?**

Mr. Beall: Well, regarding Hobbes, it's important to note that the first book he published was a translation of Thucydides, and it's probably *the* best translation available. I think Hobbes' analysis is a very accurate one. But I think one can do a different way of thinking about the condition between tribes, if you will.

The Parable of the Tribes says that if you imagine nations as tribes living in contact with one another, then if everyone chooses to live peacefully, everyone can live in peace. But what happens if one tribe chooses the way of power? The tribes living in contact only have five options: they can be killed, they can be enslaved, they can flee, they can fight back – and the fifth is a variant of the fourth: if they see the tribe building up armaments, they can build up armaments as well. We know that well – it's called an arms race. The parable is that none of those is a choice for peace. Once one tribe chooses the way of power, no other society in contact with it can choose peace, and any choice they have spreads the geographic reign of power to areas that had not previously been occupied by it. So it's like a seed crystal in supercooled liquid: once that original sin occurs, it never goes away. And since I'm a physicist, I immediately think about that as a condition of equilibrium, but in this case *unstable* equilibrium. If it were stable, it would be like a ball in a bowl: if you put it at the center of the bowl and perturb it, it rolls back down to the center. But if you take the ball out, flip the bowl over, put the ball on top, and perturb it, it never comes back. But if there's someone there to push it back up to the top – and the art is to not push it too hard, because at that point you're pushing it over to the other side. You become the tribe that has chosen the way of power rather than the way of peace between nations. Hobbes' argument militates against that argument that there can be a condition of even unstable equilibrium between nations.

Schmookler and I disagree about gain peace between societies. He thinks the way to do this is to change the plastic nature of man; I think we are actually a little bit less mutable and less malleable. I think we ought to know how to wield power. That's one reason Thucydides has kind of changed my view of the world: at one time I thought you could just choose peace.

In terms of the scientific stuff, I think that most of what we read now will be on the Program in 50 years. There are a couple things in senior lab after you get past Einstein-Podolsky-Rosen paper, which talks about the

incompletenessof quantum mechanics. There's a paper by a physicist named John Bell who worked in the 1950s and wrote about different possibilities for the interpretation of quantum mechanics. One of the results is called Bell's theorem; that theorem is one that actually I think will be on the Program in 50 years, because it's intrinsically interesting. I'm not sure what paper we'll be reading – there's one by Henry Pierce Stapp, and he wrote a paper on Bell's theorem and on the Einstein-Podolsky-Rosen paper that's been used in senior lab toward the very end of the first semester.

We do some work on general relativity, and I think that'll probably still continue. If there's a major breakthrough in our understanding of gravity, then I'd hope that would go on the Program, too. And I think that the work in biology that we do in second semester of senior year is also very important. At some point, I would really hope we go back to four years of lab. It's just too compressed.

Mr. Huey: **You'd prefer to take the music off the Program?**

Mr. Beall: No, I think we should do music as well. We'd need to be very careful – the tendency is if you make space for something it gets filled up by all sorts of wonderful things – but I think [we could do] four years of lab [by] having a sophomore year that would be somewhat lighter in terms of the reading pace for the laboratory work.

Mr. Huey: Now I want to ask some questions about how it is to be a tutor at St. John's. **Do you find that there's an ideal dynamic for tutorials or seminar – or typical dynamics that you experience?**

Mr. Beall: Classes tend to take on lives of their own and they form themselves pretty quickly. I obviously like teaching, and I enjoy watching how the conversations evolve. Of course, sometimes there'll be people at loggerheads with one another and fighting matches; freshman seminar often is reliving the battle of Troy, with the walls around your opinion. But to see that actually evolve into a conversation where we try to figure out what Odysseus meant when he laughed when he came back across the ramparts – to see people genuinely horrified and perplexed and somehow enlightened by that is really interesting. So I think that they're always very different. I've literally never had the same conversation twice, and I've been here more than 30 years.

Mr. Huey: **What do students not know about how tutors work that might surprise them?**

Mr. Beall: In some ways, how unprepared we are for the kind of questions you guys ask – but how much fun that is. It's something where you have to be light on your feet and be able to follow things through seriously. And it's annoying when you can't figure out a way to address the question, but then you realize we're all in this together so it's not just your responsibility to figure it out. And that, I think, has a great deal of virtue, so I like that.

Mr. Huey: **What do tutors know about students that students probably don't think tutors are aware of?**

Mr. Beall: If Ms. Brann were answering this question, she would respond – and *has* responded – as follows: you think we don't know when you're not prepared, but we *do*. I'm less laser-visioned about that. I also think that it's the case that sometimes it's the students that think they haven't prepared enough [who] ask a question that seems like it can't possibly go anywhere [but opens] up a whole [new] possibility of the conversation.

Mr. Huey: For the final part of the interview, I want to ask about some advice you have for students. In particular: **when we read a work, maybe multiple times, and just *can't* understand it** – for me, things like Leibniz, or the *Timaeus*, or Plotinus – **what should we as students do when we're dealt with that sort of situation?**

Mr. Beall: It certainly sounds a little wild-eyed, but later, [juniors] will read Hume – *An Essay on Human Understanding* – and Hume gets to a point where he can't prove that our consciousness – our minds – aren't illusions. He can't dispel his skepticism that we're not just a collection of loose parts flying in formation – that the idea of the self is an illusion and that's all it is. And then he goes and has a beer with his friends or plays backgammon or something like that, and then he goes back to work. That's not bad advice to give when you're at loggerheads with anything. It's a very hard Program, and we do a lot of different things, but there's a way in which that kind of pacing – just allowing yourself a bit more time so that you can actually say, "I don't understand this," walking away, sleeping on it, coming back to the problem – is always very helpful.

And then along comes Kant, who read Hume, said, "This can't possibly be right," and said of Hume that Hume roused him – Kant – from his dogmatic

slumbers. So sometimes a partial characterization of the problem, even to yourself (as a member of the tutorial or seminar), is enough to get somebody else further to the point where they will put something together. Some of the best conversations I've had in my whole life have been in classes and in archon meetings at the College where somebody came in with that kind of a question – "I can't figure this out." And that's really the way the world works.

Mr. Huey: Another question about reading: our education doesn't have a lot of context when we're going into the books that we read, and many of us go into most of the books not having any idea what they're going to be about or what's going to be important. And at least for me, that makes it challenging at the beginning of a book – how to approach it at the very beginning. **So how do you start reading a book?**

Mr. Beall: I tend to look at the author's preface – not an [editor's] introduction, because I've never much liked them. Just rummaging around in it – just picking up the *Principia* and leafing through it and realizing that volume three is a system of the world – and just begin rummaging around in it. And then commit yourself to it and start reading. Because they're great for a reason; they're the central thoughts, both the heart and the intellect, of the Western understanding of the world. In my view, they sort of make their own way.

Mr. Huey: **How does one go about writing an essay on something like Apollonius?**

Mr. Beall: I think it's important in any sort of thing like this to pick a small enough region of it– like, how does he make the curves that are called conic sections? – and from there to get *just that* as the part you're trying to describe. Then, to go through ananalysis of what he does to show that, you get all the pieces in front of you and in front of the reader. And that's part of the writing of it. Bring over to the reader of the paper enough of the material so that they don't have to have the text in front of them – so that you bring the reader (and yourself) along to your point. And then think about why you wanted to write the essay, too, and describe that. Don't be afraid to use *I* or *in my opinion*. It shouldn't be in third person; it's your essay – as in *assaying*, or weighing, the work. That's ballpark advice which you're perfectly at liberty to ignore; but I do advise bringing the reader along with you in terms of what parts of the text you thought were really important in the mathematical papers.

Mr. Huey: One last question: **what's the most important part of St. John's – or college life in general – outside of the classroom, and what should we at this time in our life not forget to do?**

Mr. Beall: Don't forget to have fun. Seriously. Granted, some of that is just arguing about whether or not the Forms actually exist, or playing soccer. Enjoy it – enjoy the possibility of such friendships. It's rare in the world that everybody you talk to has gone through the same sort of experience that you have and has wrestled with the same sorts arguments and same sorts of questions that you have. And that's a privilege. That'd be my first piece of advice.

Second is to realize that we're all in this together and that it is a community. And that's kind of precious in a good sense.

Mr. Huey: Thank you very much for your time.

Tutor: Mr. Matthew Holtzman Interviewer: Sihui Ma (A17)

Mr. Matthew Holtzman graduated from St. John's College, Annapolis in 2000, and he has been a tutor here since 2013. He is currently teaching junior laboratory tutorial, sophomore mathematics tutorial, and sophomore seminar. His specialty is the history of philosophy.

Ms. Ma: Hi, Mr. Holtzman. Thank you for accepting our request for this interview. We will start first with questions concerning your general views of our college. So, could you tell me **how you initially found out about St. John's College?**

Mr. Holtzman: I was fortunate to grow up in Maryland where St. John's is very well known, and my father was a librarian at a local university and he knew the local colleges. So from the time that I was about ten, people were telling me that I should consider St. John's, including, for instance, two of my fifth grade teachers. Unexpectedly, I agreed with them – at the time I made my decision I was a contrarian, and telling me what to do was one of the best ways to ensure I wouldn't do it. But St. John's was my first choice, primarily because I thought it would be the place that I could lock myself away in my room for four years with my books (which turned out to be a mistake). I still might not have attended if my wife and I had been accepted by any of the same schools, but we weren't, so we both went to the schools we loved most.

Ms. Ma: It is an interesting fact that both you and your wife chose to study [at] liberal arts colleges instead of big universities. **[W]hat do you think it is that distinguishes our liberal arts program from that of other liberal arts college?**

Mr. Holtzman: Before I came to St. John's I taught at five other colleges and universities and I've attended meetings at several of those schools in which members of the faculty attempt to explain the aims of their schools to themselves. My colleagues at other schools said many of the same things my colleagues say here – for instance that we hope to offer the kind of liberating, transformative education that will place graduates in a better position to learn about themselves and the world around them. But what sets our college apart, I think, is that we don't believe that these aims must be pursued in the context of a program of study designed to provide students with vocational training. So we agree at some level about the aims of a liberal education, but our views about how those aims should be achieved are distinctive in just about every possible respect: our views about the role of the instructor in the classroom, the method by which students should be evaluated – right down to the words we use to talk about who we are and what we do. So it's very easy to point out examples of what sets us apart, but challenging to articulate the reasons that we do what we do, and I can't do that completely – and certainly can't do it completely here. But I will say that I think many of us believe with Plato that education isn't a matter of "putting knowledge into souls that lack it, like putting sight into blind eyes," and that our distinctive approach to education is, in part, an attempt to do justice to this. So, for instance, my job as a tutor, I think, is not so much to instruct, but to help students get to a place where they can learn for themselves.

Ms. Ma: **Could you tell me more specifically about the pros and cons of our Great Books Program? What is the aspect of St. John's College you find the most attractive?**

Mr. Holtzman: As I mentioned earlier, I was initially attracted to the program because I thought this would be a good place to continue doing what I did best – that is, reading alone in my room. I found out only recently that there is word for Johnnies like this: "room Johnnies". Of course the "room Johnnies" are the ones least likely to know that there is a special name for them because, well, they are always in their rooms. If I had been born in the 11th century I would have wanted to be a monk and might have been just as wrong about what it means to be a monk, I guess. Anyhow, it turned out for me at least that what was initially most attractive was not what was ultimately the most rewarding. This school forced me to articulate myself, to talk about the books that mattered to me – I would have found a way to avoid this at another school, I'm sure. Now, though, as a tutor, I think that I primarily value the opportunity to keep so many of my interests alive. At another school I'd only get a chance to translate, something that brings me great satisfaction, after I had fulfilled all of my requirements as a philosophy professor – so, in my spare time. Not to say that no philosophy professors translate, but I probably wouldn't have been able to find the opportunity for many years, if at all, because of my particular area of specialization. Here, though, translation is a requirement. So here I'm required to do many of the things that I would most want to do whether I was required [to] or

not. I guess that this "pro" might imply a "con": I now have much less time to work *within* my area of specialization, but this doesn't concern me.

Ms. Ma: **Do you have any favorite books in the program?**

Mr. Holtzman: Here's a safe answer: the works of Plato. The best dialogues are inexhaustibly rich; every word matters and in more than one way. I have to add that while I was a student I might have said Schiller's *Letters on the Aesthetic Education of Man.* But that isn't on the program anymore. So that's my controversial answer.

Ms. Ma: **Do you know which one your favorite Platonic dialogue is?**

Mr. Holtzman: Probably the Phaedrus, but I'm not sure I have a favorite.*Ms Ma:* Now we are moving onto the second part of our interview, which is about your experience here as a tutor. So **what makes you want to be a tutor here?**

Mr. Holtzman: Apart from the sentimental reason that I am an alumnus, I want to be a tutor here in order to keep a lot of my interests alive [from] when I was a student here. I enjoy teaching students here who share similar personalities and academic interests with me insofar as I am also a product of this education. I feel like I am at home here.

Ms Ma: **How is being a tutor at St. John's College different from being a Johnnie? Which experience do you think is better?**

Mr. Holtzman: I really like an apocryphal origin story that circulated when I was a student according to which the original plan for St. John's didn't include tutors: there would be examiners who would come in from time to time to evaluate students' progress, but the students would hold classes by themselves. The introduction of tutors according to this story was a concession in light of the difficulty of finding enough students who were sufficiently self-disciplined and motivated to make the original plan work. And I tended to think of tutors that way while I was a student – the primary aim was to do one's best to do without them (that is, to do without them *as tutors*). I think I've really enjoyed both roles in this process, the process of making it possible for everyone in the class to contribute to learning in the same way and at the same level.

Ms. Ma: **What do you think an ideal dynamic of a seminar should be like?**

Mr. Holtzman: I don't have anything like a settled answer to this question, I'm afraid, so I'll say in a provisional way that it seems to me that one of the primary aims of a seminar is to lay groundwork –the foundations for an understanding of a text – so I think that students will come away from a good seminar with a sense for the kinds of questions that would be worth asking about a text, a better sense for what might be required to read it well. If members of the seminar are fully invested in this project, the seminar goes well. It does not yet seem clear to me whether a seminar that goes well has a particular dynamic, though there might be such a dynamic for a particular group of people at a particular time reading a particular text. I mean, there are basic issues having to do with civility, and what I like to think of, hopefully, as freshman problems – problems associated with just figuring out how to be in a seminar (how to sustain an inquiry for more than a few minutes, how to avoid ping-pong matches or shouting matches and so on) – but once those issues are taken care of, I'm just not sure that all good seminars should tend to take the same form. Moreover, the texts we read embody very different movements of thought, and if we succeed in the attempt to think with them our seminars should turn out to have very different dynamics, I think.

Ms Ma: **Can you tell whether the students were well-prepared from the way they engage themselves in conversation? What would be your reaction when some people in your class express their ideas without doing the readings carefully?**

Mr. Holtzman: It's often possible to bluff – and some students are better bluffers than others. A classic bluffing strategy is to make comments about a conversation rather than about the text on which the conversation is focused. These can be truly helpful comments – demands for definitions, observations concerning the logical relationships between ideas put forward – but tutors are on to this strategy and so I have often heard in don rags something like "She contributes fruitfully to the discussions, but it is unclear from the nature of her remarks whether she's read the text." So if someone is bluffing, and I know that they are bluffing, the next thing I typically want to know is whether they are ashamed to be bluffing. If they are then there's good hope that talking to the student will help; if not, then there's a real problem.

Ms. Ma: **Which class do you find most challenging and why? How do you overcome the difficulties?**

Photo Taken by Nathan Huey

Mr. Holtzman: Challenging classes are classes in which some large subset of the students are not fully invested in the project of learning together about the texts. It has a lot less to do with the difficulty of the material than I would have thought as a first year tutor. I develop most of my approaches to addressing these challenges in conversations with the students who *are* invested in the course. But while there isn't much I can say in general about this, I do believe in trying to be the enthusiastic student I would most like to teach or, on my bad days, at least impersonating that student.

Ms. Ma: **Why do you think it is important that the tutors are learning and teaching subjects besides those in which they specialize? Do you find learning other unfamiliar subjects helpful in understanding the subject that interests you the most?**

Mr. Holtzman: If you teach all the courses regularly then you can be a kind of perpetual senior: a person who can have a conversation with any student on campus about anything they are reading. And I like to hold on as best I can to the classical understanding of philosophy as the project of understanding how "things" in the broadest possible sense of the term "hang together" in the broadest possible sense of the term – the philosopher would be the one who understands this.So if I want to pursue philosophy it's hard to know what it is that I shouldn't study so long as I keep an eye on the whole.

Ms. Ma: **Do you enjoy communicating or working with students outside of class? What do you think these forms of communications such as "Taking a Tutor to Lunch" Program, and study groups?**

Mr. Holtzman: Yes, more than any other aspect of my work – though I'm glad you mentioned the lunch program so that I can register a complaint. During the glory days of this program, a student could take a tutor to lunch off campus. I think that there was a list of acceptable restaurants and some limit about the number of times you could do it in a semester, but some of my fondest memories of my time at St. John's are my memories of lunches off campus with my tutors. I guess it's clearer to me why such a program would be discontinued than why it would ever have existed in the first place, but I always thought it was great and wish it could be reinstated. Study groups are nice because they are more informal and more leisurely than tutorials. Mine has been at least: I ran a logic study group the first two years I was here and the group spent most of last year reading just two relatively short (but very difficult) texts.We can linger as long as we like, reread as many times as we need to reread – it's luxurious.

Ms. Ma: Yes – I really enjoyed attending the logic study group meetings in my first two years here, and it will be great if it can happen again next year.

Now we proceed to the last section, in which I would like to invite you to share your advice for students. So **what should we be more careful about when we talk in class? How should we avoid being biased when students are from different religious and cultural background?**

Mr. Holtzman: I've advised a few students in the time I've been here to be more careful about how they contribute to discussions, but usually students have problems because they are *too* careful. Maybe it's just that I have a better eye for this because I was such a quiet overly-careful student myself, but I also think that even if over-carefulness weren't a more common problem it would be a bigger problem. Usually we can still learn quite a lot from someone who jumps in too quickly, but we can't learn much from those who are silent.

Ms. Ma: **When we feel reluctant to speak – not just because we are trying to listen, but rather due to anxiety or some other factor – how can we contribute to the class better?**

Mr. Holtzman: At some point in sophomore year I promised myself that I would talk in every class, and when I pulled this off (as I sometimes did) it was usually by bracketing all judgments about the quality of my contributions. Otherwise, I can't say that I have a recipe that would work for everyone. The best thing to do is to talk to your tutor about how they think you could better contribute to their class in particular if you think you have problems with anxiety.

Ms. Ma: **Should we evaluate our contribution in class according to the quantity of speech? What is the right amount of our participation?**

Mr. Holtzman: To some extent you have no choice. It's hard to contribute without saying anything and it is inevitable that tutors will evaluate work, at least in part, in terms of the frequency of your remarks.
But it's not necessary to contribute frequently in order to contribute well. What I want is evidence that you are learning and evidence that it is important to you that your classmates learn along with you. The quality of your writing is evidence of this; your work at the bench in lab is evidence of this; in seminar, the oral – which is a very different kind of conversation – is very important.

Ms Ma: **How should we choose which books to write on for our annual essays?**

Mr. Holtzman: It's helpful to think of every book you read, as you are reading it, as a possible candidate, and it is a good idea to keep a record of the questions that interest you in the seminar while they are still fresh in your mind. It can be helpful to work with an advisor, and your advisor will usually be willing to offer help even at the first stages of the writing process, when you're still choosing a topic. I'm of two minds about advisors actually. I never worked with one until my senior essay and that was standard practice at the time. Now this of course was closer to the golden age when students could hurl rocks that a whole class couldn't lift now, so take this with a grain of salt, but I tend to think that if I had worked with advisors I might have written papers that were more polished – maybe even more successful in some straightforward sense – but also less strange, and writing strange papers was an important formative experience for me, one I have come to cherish as a part of the process of discovering my voice as a writer. Maybe a good compromise is to find the advisor who you think will demand the right kinds of things from you. That can be difficult especially when you're not quite sure what the right things are.

Ms Ma: This is the end of our interview. Thank you again for sharing your thoughts with us.

Reflections in Writing

Seminar
Language
Mathematics
Music
Laboratory

"The unexamined life is not worth living"-Socrates

Happily Ever After: Paradise Regained in John Milton's *Paradise Lost*

Elizabeth Akhvlediani (A17)

After committing the Original Sin, Adam and Eve lose the right to dwell in Paradise. Although the typical Christian view of the fall is that it is an eternal punishment for man's having sinned, John Milton's *Paradise Lost* suggests a different view of the problem. At the end, the poem takes a very interesting turn, creating an atmosphere that leaves us hopeful as Adam and Eve are about to physically leave Paradise. At the very end of the poem, in Book XII, we read the conversation between Angel and Adam, where Adam says:

"Henceforth I learn, that to obey is best,
And love with fear the only God, to walk
As in his presence, over to observe
His providence, and on him sole depend,
Merciful over all his works, with good
Still overcoming evil, and by small
Accomplishing great things, by things deem'd weak
Subverting worldly strong, and worldly wise
By simply meek; that suffering for Truth's sake
Is fortitude to highest victory,
And to the faithful Death the Gate of Life;
Taught this by his example whom I now
Acknowledge my Redeemer ever blest."[1]

According to Adam's speech, it is clear that there is a hope for "highest victory" and "the faithful Death the Gate of Life." It seems that Adam knows it is possible for him and Eve to achieve this victory if they live their fallen lives in a certain way. As we read in the speech, obedience is the most important condition to this assent; after this comes praise of God and of His deeds by acknowledging them as supreme. Obedience is something that can be practiced, and something we, as humans, can be in control of. But what about praising God? Is this something that can be exercised? It seems that acknowledging God as a supreme being is something that should be coming sincerely from within.

It must therefore be that Adam, while saying those words, has already internalized supremacy of God and honestly thinks His deeds and words are worthy of glory. It is surprising to hear praise of God from someone who was just expelled from Paradise. Evidently, Adam must be realizing that their fall should serve for them to ascend higher. But what does it mean for humans to ascend higher, and how is it possible for us to re-ascend after committing the original sin?

There are two places in Book XII where the archangel Michael mentions the promise of Paradise on Earth:

"…For then the Earth
Shall all be Paradise, far happier place
Than this of Eden, and far happier days."[2]

"…only add
Deeds to thy knowledge answerable, add Faith,
Add Virtue, Patience, Temperance, add Love,
By name to come call'd Charity, the soul
Of all the rest: then wilt thou not be loath
To leave this Paradise, but shalt possess
A paradise within thee, happier far."[3]

In the first speech, Michael describes the Earth after Judgment Day – as it shall be after Christ comes to Earth. Thus there is a promise of Paradise on Earth that will make it a happier place than Eden itself was. This kind of Paradise is only possible through the interference of divine powers. But the second speech talks about the Paradise that can be found within oneself if one lives a life with Faith, Virtue, Patience, Temperance and Love.

The way of finding the second type of Paradise is very similar to Adam's way of rising to the "highest victory." If it is true that it is possible to find Paradise internally, inside ourselves, how does it redefine our understanding of Paradise proper? Can we still think of Paradise as some physical place where God dwells? According to the suggested reading of the lines from *Paradise Lost,* Paradise seems to be something like a spiritual state that one can establish within oneself on one's own, if one lives one's life according to God's Law, which seems to be to obey God, to believe in Him, to Love, and to be virtuous, patient, and temperate. Giving Adam and Eve this formula for ascent makes their fall seem less tragic and gives more hope to men of regaining Paradise by obedience, just as they lost it as a result of their ancestors' disobedience. But if the new Paradise that we find is to within ourselves, does it make our salvation more of an act of assent or ascent? In order to answer this question, we should think about how are we to find God within ourselves. If we find God by mentally assenting Him, then this kind of spiritual or mental assent will be a guarantee of our spiritual ascent. This ascent will bring us back to the Paradise Lost – not a physical one, but the one that will be found on Earth and, more specifically, inside ourselves.

(Endnotes)
1 Milton, *Paradise Lost*, Book XII, lines 560-575
2 Milton, *Paradise Lost*, Book XII, lines 460-465
3 Ibid., lines 580-587

Seeking Death in the *Phaedo*

Nathan Huey (A17)

In the *Phaedo*, Socrates enumerates the many advantages death holds in comparison to life – and since he offers a number of proofs of the soul's immortality, there is no reason to fear that death will be the soul's end and that we will thus fail to experience these rewards. Given these conditions, one might think that there is no reason to live at all, and that someone who is wise will try to die as soon as he or she is able. However, Socrates cautions against suicide, calling it unjust and likely to prevent the offender from experiencing the rewards of being dead. Moreover, those souls who do not practice philosophy are too impure to make the journey to the underworld, so it is not death alone that we should seek, but also a soul cleansed by philosophy. If, then, we come to practice philosophy rightly, should we always be trying to justly orchestrate our own deaths, thereby to free ourselves from the shackles of our body?

For Socrates, the soul of the philosopher who practices the art correctly "follows reason and ever stays with it contemplating the true, the divine, which is not the object of opinion"[1]. This contemplation seems to be active rather than passive, as when Socrates tries to understand the true meaning of a recurring dream he has[2] even though he had thought previously to understand it, and even though he was soon going to die. In this pursuit of truth, the philosopher must allow his soul to "withdraw from the senses"[3] as much as possible, and he should not take physical discomfort into consideration. Socrates exemplifies this when he chooses to continue an intense discussion with his friends even though it might make the poison for his execution work less effectively and thus cause him more suffering[4]. Similarly, the philosopher will make every effort to avoid physical pleasure, which he "despises"[5]. It is not enough, however, simply to be an ascetic, and in this way to *seem* like a philosopher. Men who are good by means other than philosophy are not rewarded in the afterlife in the same manner as true philosophers; the true philosopher not only acts as a philosopher should, but does even this through reason and understanding. Philosophers

> do not travel the same road as those who do not know where they are going but, believing that nothing should be done contrary to philosophy and their deliverance and purification, they turn to this and follow wherever philosophy leads.[6]

The philosopher does not care for physical pleasures because they are perceived through the senses, from which he is trying to remove himself.

Just as it teaches the philosopher to avoid physical pleasure in his pursuit of reason, philosophy also leads its true practitioners to become unafraid of death – indeed, to become willing to die. However, the philosopher is trying not merely to assuage his fear of death, but actually "to practice for dying and death"[7]. Since death is the separation of the soul from the body, practicing for death means beginning this separation as much as possible beforehand. The philosopher does not concern himself with the body, but rather "as far as he can, he turns away from the body towards the soul"[8]. Through philosophy he teaches his soul "to trust only itself and whatever reality, existing by itself, the soul by itself understands" because "what the soul itself sees is intelligible and invisible". However, what the senses learn "is different in different circumstances"[9], so that

"the soul of the philosopher most disdains the body, flees from it and seeks to be by itself"[10]. So it is through following reason, which requires avoiding physical pleasures, and thereby separating the soul from the body and practicing death that philosophy is practiced rightly.

Socrates' depiction of philosophy therefore seems a likely method of realizing the benefits of death during life, thus making the answer to the question apparent: though there would still be no necessity to fear death, neither would there be any need to hasten it. He claims that philosophy is "training to die easily"[11] and that it "frees the soul from the body as much as possible"; he goes so far as to describe philosophers as "nearly dead"[12]. However, while philosophy can approximate death in many ways, until the body itself dies the soul cannot entirely separate from it. During life, "the soul is imprisoned in and clinging to the body", and it is beholden to the body's senses and desires. Through philosophy it can be persuaded "to withdraw from the senses in so far as it is not compelled to use them"[13], but while the prison of the body still exists, the philosopher will still be compelled to use his senses as necessary to survive. Only when the prison is destroyed can the soul completely disassociate from human weaknesses[14]. Therefore, no matter how closely one follows the philosophical life, death will always be an improvement.

Even if death is superior to life, we should not seek our death if we cannot do so justly, since "those who have esteemed injustice highly" will not join the philosophical souls with the gods after death[15]. Thus, whether a just suicide is possible must be established as well. Socrates argues that suicide is not just. He says that as we are the possessions of the gods, and as we would "be angry if one of [our] possessions killed itself when [we] had not given it any sign that [we] wished it to die", and would therefore wish to punish it in some way, so the gods would punish a man if he killed himself before they wished him to die. It follows, then, that "one should not kill oneself before a god has indicated some necessity to do so". But this does leave open the possibility that, under certain circumstances, suicide might be acceptable; what sort of necessity might allow one to kill oneself is not explored in any depth by Socrates, who merely says that "the necessity now put upon us"[16] fits the qualifications.

The circumstances that allow for a just suicide might be broad indeed given Socrates' conception of the gods. For him, the gods are "wise and good"[17], and it follows that they want what is good to be done. If, as he says, it is "better at certain times and for certain people to die than to live"[18], and if Socrates' depiction of the afterlife is accurate, it would certainly seem that those who have a soul pure enough to allow them to enter this afterlife would benefit from death. Since, then, the gods want what is good, it seems likely that they would find it pleasing, not upsetting, for such people to die by whatever means – even suicide. However, what Socrates means when he calls these gods "good" is not made clear, and may not be the same as what he means in other dialogues; perhaps they want a general good rather than good for each particular person. Lacking more specific information about the character of the gods, it is difficult to speculate about when we can actively take our own lives.

Even putting aside the vague exceptions to the rule barring suicide, the argument Socrates gives against suicide seems to be weak, and this may be meant to signal that we should not take it seriously. First of all, Socrates' analogy is murky and difficult to understand. What would it mean for a possession to kill itself? Inanimate objects cannot destroy themselves; perhaps we are meant to imagine an animal we own committing suicide. But even then, would our reaction truly be to punish it? Would we not simply want our possession to be returned to us? Socrates himself hints that he is not persuaded by arguments against suicide, prefacing his claim with "they say"[19]. And his actions, even more than his words, suggest that he is not convinced of the injustice of the act. While his imminent suicide is ostensibly inflicted upon him by external forces, he has had the opportunity to escape[20] and avoid his execution. By not doing so, and thus not choosing to live, he is effectively killing himself.

If it is possible for us to somehow end our own lives justly, the question that remains is whether or not we should. Socrates advises that the philosopher will "follow wherever philosophy leads"[21], and as philosophy desires the detachment of the soul from the body, anything that increases this detachment would be consonant with philosophy. However, while we are alive, our souls are imprisoned by our bodies' desires and senses. This leaves us vulnerable to pleasures and pains, each one providing "as it were, another nail to rivet the soul to the body and weld them together". As the body and soul become intertwined, the soul becomes more corporeal, and "can have no part in the company of the divine"[22]. Though we may practice philosophy, as long as our souls are attached to our bodies we run the risk of being fooled by our senses into doing things that increase the corporeality of the soul. Thus, philosophy would seem to encourage us in the same way that Socrates encourages Evenus "if he is wise, to follow [Socrates] as soon as possible"[23]. If we are truly interested in separating our souls from our bodies, we should not want to live beyond the moment that our soul is pure enough to depart to the afterlife.

However, not all souls are able to proceed to the afterlife[24], and unless we can be sure that ours will, it seems that we should not want to die, since we would then be risking punishment. Since no one "who is not completely pure when he departs from life"[25] can join the gods, and since there will be "a much better future for the good than for the wicked"[26], if anyone should seek death, it should only be those who are good and whose souls are pure. But since we cannot see our own souls, we cannot know when they become pure, and therefore we would necessarily be taking a risk should we cause ourselves to die. Still, though, if we are at least *good*, the risk will not be too great. Socrates says that "those who have practiced popular and social virtue" will "again join a social and gentle group"[27] when they die. Thus, at worst they'll make a lateral move, and at best will receive the ultimate reward in the afterlife.

If the argument is approached purely logically, then, the answer would seem to be that, if we are good, we should try to create some external excuse to kill ourselves, as Socrates has. If we have rightly practiced philosophy, then our soul will leave Earth to join the gods. If not, we will eventually have another chance at life as "moderate men"[28], and during this life we can try once more to become true philosophers. However, there are signs that Socrates does not want us to approach his argument so straightforwardly. Phaedo says that Socrates "was pleased" by the arguments Cebes made against seeking death[29]. Even though Socrates proceeds to offer a rebuttal to the argument, it may be that he is being at least somewhat insincere, perhaps in an attempt to make his audience give their own arguments for themselves about why living is important, especially since they are in deep despair over the impending loss of their beloved friend. Even if he truly means what he says, though, by making it necessary for our souls to be entirely pure to gain the benefits of the afterlife, he creates a puzzle which might prevent us from trying to end our lives. He may suggest a solution to this puzzle in his decision at the end of his life to take up poetry: it is safer for us not to leave life until we have exhausted all of the avenues of inquiry into truth and all of the ways of purifying our soul that are available to us, even when death is nearly upon us. Our work as philosophers, then, might never be done.

And while he does not pursue it as his main argument, he mentions as an aside "the explanation that is put in the language of the mysteries, that we men are in a kind of prison, and that one must not free oneself or run away"[30]. Perhaps we are obligated to serve out our sentence due to some intellectual benefit; that is to say, perhaps we become better philosophers through having lived. Since the soul contains wisdom gained through experience[31], perhaps certain wisdom, such as what it is to be a human, can only be gained through doing our time. Still, how can we gain experience in human life if we avoid engaging in it as much as possible by separating our soul from our body? The body is an obstacle to knowledge, and we can only reason clearly separated from the body[32]; therefore, by living in our bodies we only hinder our ability to practice philosophy. So perhaps the reason we must not escape from the prison of the body is the same as the reason we should not escape punishment in life: there is some moral benefit to it. Perhaps in order to truly appreciate the reward of going to "other wise and good gods, and then to men who have died and are better than men are here"[33], we must first understand what the "here" is. Perhaps, as with Socrates, we must first experience the pain of our bondage in order to appreciate the pleasure of our freedom.

(Endnotes)

1 Plato, *Phaedo*, trans. G.M.A. Grube, lines 84a5-7
2 Ibid., 60e3-5
3 Ibid., 83a5
4 Ibid., 63e3-4
5 Ibid., 64e2
6 Ibid., 82d2-6
7 Ibid., 62a4
8 Ibid., 64e4-5
9 Ibid., 83a6-b4
10 Ibid., 65d1-2
11 Ibid., 81a2
12 Ibid., 64b6-65a3
13 Ibid., 82e1-83a5
14 Ibid., 81a4-8
15 Ibid., 82a3
16 Ibid., 62b9-62c6
17 Ibid., 63b6-7
18 Ibid., 62a3-4
19 Ibid., 61c8
20 Ibid., 99a2-3
21 Ibid., 82d5-6
22 Ibid., 83d3-e3
23 Ibid., 61b7-61c1
24 Ibid., 81c7-8; 81d5-81e4
25 Ibid., 82c1
26 Ibid., 63c5-6
27 Ibid., 82a10-b5
28 Ibid., 82b7
29 Ibid., 62d1-62e7
30 Ibid., 62b2-4
31 Ibid., 72e4-73a1
32 Ibid., 65a9-c8
33 Ibid., 63b7-64c1

Pomp and Circumstance:
Embracing My Divine Right Against Those Who'd Rather See Me Deposed

Stephanie Hurn (A17)

Having played Richard several times in my language class, I will honestly admit I looked forward to and enjoyed reading his "Ay, no; no, ay" speech the most. Simply by beginning with "ay, no; no, ay", I was cued into another level of Richard's complex character. Knowing how assertive and decisive he was when king, seeing him hesitate was agonizing and nearly pitiful. Before, I cared little for Richard's character; as a result, I had little care to be associated, by fortune, with his part. I thought him overdramatic, arrogant, and morally bankrupt. But in Richard's formal display of deposition, I strongly questioned whether he was in his right mind to give up the crown. Somehow, he is different in the courtroom than he is on the ramparts. Richard is not intimidated into relinquishing his title by the sheer number of men surrounding him; when he enters, Richard is the center of the drama. He still possesses the ability to hold the attention of the masses. But it is Richard who must address himself: he must assess his own failures as king, and he must come to understand his self apart from his role as king. When looking at the whole of the play, what I say now is unsurprising. What is surprising is that here in this particular speech, Richard drops courtly formalities and invents an entire ceremony for his official subjugation. Rather than examine this speech with a central thesis, my focus will be on a collection of thoughts as an investigation of Richard's emotional, mental, and practical motivations.

Ay, no; no, ay; for I must nothing be;
Therefore no no, for I resign to thee.
Now mark me how I will undo myself.[1]

Without his crown, Richard is nothing. Knowing this, his hesitation is understandable. But it is difficult to tell whether this opening is intentionally theatrical or whether it is Richard actually struggling to register his situation. Clearly, "now mark me" signals the subsequent performance, a firm statement that he understands what must happen by his resignation of the crown. Yet simply giving the crown to Bolingbroke would be an injustice to the internal struggle Richard faces, a struggle (perhaps) expressed with "ay, no; no, ay". Upon hearing of Bolingbroke's return and the twelve thousand men at his side, Richard immediately turns to the subject of death: "and nothing can we call our own but death" – and if this is anything like a political, societal death, Richard must feel he has control over his final procedures as king.

I give this heavy weight from off my head
And this unwieldy scepter from my hand,
The pride of kingly sway from out my heart.[2]

Heavy weights are unbalanced and unwieldy scepters are difficult to hold; it should be a relief for Richard to be giving away his kingship. Yet when Richard says he shall give "the pride of kingly sway from out my heart" he does not sound relieved, but like he has to give away something he was fond of. Head and hand are the physical pillars to uphold a crown and a scepter, but the heart implies an endearing quality, more personal and emotional. It is simple to take off a crown or to let go of a scepter; to take something from within the heart and to expel it: now this is – truly – heart-wrenching.

Although pride is not a virtue, and it would be good to forgo vice, the possessing of "kingly sway" implies the existence of some virtue in the power of authority – especially an authority that comes from the heart. There is at least some virtue in this for Richard; he holds power within his heart, and without kingly authority he loses confidence in his kingly rights. This claim is in conflict with the confidence of his performance. Whether his speech is acted out in anger or grief, he at least holds control of the stage and – in a way – this makes the audience think of him still as a king.

With mine own tears I was away my balm,
With mine own hands I give away my crown,
With mine own tongue deny my sacred state,
With mine own breath release all duteous oaths.[3]

The list goes on as Richard formally recognizes that abstaining is an act of his own volition, as seen by the repetition of "with mine own". While Richard had claimed that "not all the water in the rough rude sea / can wash the balm off from an anointed king," it turns out that it only takes his tears to wash away the balm[4]. His own grief in the loss of his authority deposes him.

Following the removal of the balm, the line "with mine own hands I give away my crown" separates itself from the "heavy weight" said just before. I initially thought that the "heavy weight" referred to the crown (the symbol of the realm), but this second action is separate because they are contained in different lists. Then again, both lists convey similar meanings. The former relinquishes his kingly objects, while the latter is a withdrawal from his divine rights. While the heavy weight may not be the crown, it could be responsibility to the crown. This supposition is congruent with the theme of kingly possessions. The crown itself is a heavenly symbol, second only to that of a halo.

The rest of the "with mine own" list generously frees the noblemen in the room from blame. Richard is especially benevolent when he says, "With mine own breath release all duteous oaths", as if anyone in the room is still left duteous to him. No. Perhaps this release is not for the people in the room; rather, it is for Richard, and it is his own oaths to God that he now releases. So far, he has given up all the things that belong to him as a king and as a representative of the divine. Therefore, it makes sense that these oaths are Richard's own.

All pomp and majesty I do forswear;
My manors, rents, revenues I forgo;
My acts, decrees, and statutes I deny.[5]

The products of Richard's monarchy are now laid out for his denial. This list differs from the other in that in each line it contains several objects rather than a repetition from line to line of rejection. Each line seems to fall under the categories listed in the first: all things to do with "pomp" and things of pageantry are "manors, rents, [and] revenues", and all things to do with "majesty" and royal power are "acts, decrees, and statues". But I am reminded of Richard's mistakes as king from his lists: "revenues" reminds me of the money collected for the war in Ireland; and "act, decrees, and statues" remind me of the Duke of Gloucester's murder and how it may have been arranged by Richard. By saying that he denies these things, Richard may be forgiving himself for his actions as king.

Another point of interest is in the things listed: letting go of "manors, rents, revenues" and denying "acts, decrees, and statutes" are more easily achieved than rejecting "pomp and majesty". If Richard simply means the clothes and luxuries of a monarch by pomp and majesty, then my sense is wrong, because these are fairly easy to give up. But if Richard means the spectacle and stateliness of pomp and majesty, then the disposition of a king appears irremovable. Especially in this theatrical space, Richard has an air of control over the scene, and his speech is not of things merely common. Then again, the subject at hand is much too personal for a monarch to speak of in public. By confronting his own deposition, Richard is casting off any sort of pomp he might have otherwise retained – an appropriate gesture now that he has lost the throne, but an inappropriate one for a man who still retains that divine right.

God pardon all oaths that are broke to me!
God keep all vows unbroken are made to thee!
Make me, that nothing have, with nothing grieved,
And thou with all pleased, that hast all achieved![6]

Each line rhymes in couplets, implying that the word choice in each line was careful and deliberate. The lists have ended and now there appears to be a set of opposites: the things Richard has lost; and the things Bolingbroke, God granted, will inherit. The evocation of God for the sake of oaths and oath-breaking is particularly acerbic in a room of Christian nobleman. Calling upon God puts guilt upon everyone in the room because they all know of his rightful title, and putting another king upon the throne suggests they know better than God. On the other hand, it may also show that Richard is making some kind of sacrifice on their behalf by relieving them from their oaths.

But if the noblemen are relieved of their oaths to Richard, what is to keep them from turning upon Bolingbroke? Thus, Richard's exclamations also serve as a warning. There is no divinely anointed title to preserve Bolingbroke from those dutiful and pious noblemen; Bolingbroke is going to have to find another way to maintain control other than religious means. Even so, if Bolingbroke did have a divine right to the throne, Richard's warning is for naught because his title still has him facing usurpation. Proof of Richard's ineffective title is in his repetition of "nothing," indicating that he really had nothing to his name as one who is divinely anointed, and should therefore grieve for nothing.

There is certainly change within Richard in this section, whether it be a change of tone or a change of ceremony. Richard's tone may have grief in it, but there is definitely a bitterness or even sharpness to "And thou with all pleased, that hast all achieved!" Following this, there is no more reluctant bequeathing of rights and objects; instead, Richard's thoughts transition to what he is now: a deposed king.

Long mayst thou live in Richard's seat to sit,
And soon lie Richard in an earthy pit!
God save King Henry, unkinged Richard says,
And send him many years of sunshine days![7]

Richard the man is no longer Richard the king. He cannot conceive of what he should do next other than die. Not

until this part of the speech has Richard ever referred to himself this way; he must either be narrating his own story or acting as a commoner unassociated with himself. Or he is acting in a way he thinks is expected of him. Saying "God save King Henry" is dramatic and almost extreme for his situation, but not completely unexpected. "Unkinged," however, is such a unique and shocking new word that it must be intentionally used for the purpose of being expressly lashing. In addition to the sight rhyme with the final couplet, Richard's meaning is either sardonic, sorrowful, or hinting at insanity. Here he has become pitiful, far from the image of dignity and command.

What more remains?[8]

The question is an odd ending to such a poetic speech – what exactly does he mean? What more remains for himself or for his ceremony? For himself, he already expects his death to be prearranged – if not by Bolingbroke, then by wasting away in time. For his ceremony, Richard could be hoping for some other task or duty that could give him the stage for a time. But he is a commoner at this point; what else can he do now that he no longer has the power to do anything?

Furthermore, what is this question doing here after a speech full of style and prose? Ending with a question like this speaks to the way Richard's deposition has unfolded. At first, he is unsure of how to react; next, he decides to make a great show of how he will undo himself. The speech rises to an emotional high point of resentment and sorrow and then suddenly cuts off with this question. It is not unlike how the whole situation of a takeover is thrust at Richard very suddenly and his reign is abruptly cut off. After oscillating through such highs and lows, despondency in "What more remains?" is all there is left to feel; it is as if Richard has run out of spirit.

(Endnotes)

1 Shakespeare, Richard II, IV.i.201-203
2 Shakespeare, Richard II, IV.i.204-206
3 Shakespeare, Richard II, IV.i.207-210
4 Shakespeare, Richard II, III.ii.54-55
5 Shakespeare, Richard II, IV.i.211-213
6 Shakespeare, Richard II, IV.i.214-217
7 Shakespeare, Richard II, IV.i.218-221
8 Shakespeare, Richard II, IV.i.222

Guiding Principles: A Perspective from The Knight's Tale

John Richard Moore (AGI15)

The Knight's Tale is the first story in Geoffrey Chaucer's The Canterbury Tales and as such the reader might expect it to provide some insight into the world in which the collection of tales is set. In this matter he is not disappointed. The story is concerned with noble persons and great themes, leading the reader to look for significant "sentence", if not "solaas" – the two measures of worthiness mentioned by the Host in the General Prologue[1]. By the end of the story the reader finds himself asking whether there is a supreme law by which the universe of The Knight's Tale is guided, and if there is, whether that law is driven by Love, War, Chance, or some other force.

The many random events in The Canterbury Tales give an initial impression that the universe may simply be governed by Chance. However, events that appear random to some characters are often the straightforward doings of another. Starting in the General Prologue, the Host declares that it will be the drawing of straws that determines who will speak first:

Were it by aventure or sort or cas,
The sothe is this: the cut fil to the Knyght …[2]

The footnotes to the text state that the words "aventure", "sort", and "cas" all mean "chance" and this starts the reader wondering why the narrator states in three different ways that the drawing of the straws is truly up to Chance. Following the Knight, it is the Monk who is to speak – he being second in social rank to the Knight. The reader now sees that the "chance" of the Knight drawing the shortest straw and thus going first was quite likely more of a certainty, and the reader is motivated to consider the possibility that other "random" events in The Canterbury Tales might have unseen forces behind them. This is made obvious at the end of The Knight's Tale when Arcite, having won the contest and thus Emily's hand in marriage, meets with an "accident" which leads to his death. Clearly, Chance is not the primary cause of events in The Knight's Tale. Many examples implicate War as the governing force in the universe of The Knight's Tale. The story opens with Theseus returning to Athens from a war in which he conquered the Amazons. Before he gets to Athens, a group of grieving widows diverts him to Thebes where he wages another war to set things right for the widows. And it is through a contest of military prowess that Arcite and Palamon determine who will wed Emily. Finally, by praying to Mars, the god of War, Arcite ultimately wins the contest. Thus, it appears that War might be the better choice for the governing law, at least compared to Chance.

Love, however, is a much more likely candidate. At several points in the text it is stated that Love effectively trumps all other human institutions and faculties. First, the reader is told there is no rule of law regarding those in love[3], and later it is stated that reason cannot function in those who love[4]. Further, the reader notes that Palamon directs his prayer to Venus, and at the end of the story it is Palamon who is wedded to Emily and who is "Lyvynge in blisse, in richeesse, and in heele"[5]. However, this does not provide an entirely convincing case for Love, because Love only wins after Saturn intervenes with the tragic "accident" that results in the death of Arcite.

It turns out that Saturn, the character who "[h]ath moore power than woot any man"[6], is clearly the one who is controlling all that goes on in the story; however, the laws or criteria he is using to make his decisions and choose his actions are much less clear. To gain some insight into the nature of Saturn and how he governs the universe, we will concentrate on the section of the story following the point at which Venus and Mars have each promised their knight's prayers will be answered. This section[7] begins with an important observation of Saturn's nature:

Saturne anon, to stynten strif and drede,
Albeit that it is agayn his kynde,
Of al this strif he gan remedie fynde.[8]

If Saturn is the one ruling the cosmos, and if it is against Saturn's nature to stop strife and dread, then the reader can conclude that discord must be a fundamental presence in the universe. This fact is also supported by the many paintings in the temples for Mars and Venus that portray the many different types of discord associated with War and Love.

In his conversation with Venus, Saturn lists the various types of things for which he is responsible. Viewed from the perspective of the victims, these are evil and undesirable acts. In addition, nearly all of them are of very limited scope – the misfortune most often applies to a single individual:

Myn is the drenchyng in the see so wan.
Myn is the prison in the derke cote.
Myn is the stranglyng and hangyng by the throte,
The murmure and the cherles rebellyng,
The groynynge and the pryvee empoysonyng.
I do vengeance and pleyn correccioun
Whil I dwelle in signe of the leoun.
Myn is the ruyne of the hye halles,
The fallynge of the toures and of the walles
Upon the mynour or the carpenter.
I slow Sampsoun shakynge the piler.
And myne be the maladyes colde,
The derke tresons and the castes olde.
My lookyng is the fader of pestilence.[9]

By his own admission, Saturn is responsible for all manner of bad things that happen not only to deserving people, but innocent ones as well – after all, pestilence and rebellions always claim their share of innocent victims.

Is the reader to believe Saturn's primary purpose is to create havoc in the lives of men? Is discord and disharmony the guiding principle of the universe? The fact that astrology plays a large role in The Knight's Tale argues against this possibility. Saturn and the other gods are personified planets and follow orderly paths in the heavens. The inherent order of the motions of the planets is in direct conflict with the statement that resolving strife and dread is against the nature of Saturn. The periodic and predictable motions of the planets and stars have served since ancient times as the motivation for the notion of harmony in the heavens and for arguing that mankind should strive to create harmony on Earth.[10]There is something distinctly incongruous between the inherent harmony of the heavens and the seeming intent of the gods to foment discord on Earth. Surely harmony represents a more likely choice for a guiding principle of the universe. Perhaps the acts of discord for which Saturn is responsible are merely tools used to create harmony at some level other than that at which the discordant acts occur. A likely explanation is that the small-scale discordant acts of Saturn are committed with the intent of creating large-scale harmony in some portion of the universe. The "local" acts of discord are essentially precision tools for creating harmony on a more "global" scale. While some of these events might be viewed as tragedies involving innocent victims, it may be the case that these tragedies are actually solutions for far greater problems and will ultimately result in fewer tragedies befalling other innocents. The ending of The Knight's Tale provides an illustration of how Saturn's methods

achieve their objectives and also the various scales at which they work. Saturn resolves the conflict between Mars and Venus by ensuring Arcite wins the tournament, but contrives to allow Palamon to marry Emily anyway. This solves a problem on a grand scale, since harmony in heaven is critical for the proper operation of the universe. Saturn resolves the conflict between Arcite and Palamon by having Arcite die of "accidental" causes – after all, given that Love does not obey any law or reason, we should not expect a knight, even a chivalrous one, to give up the woman he loves just because he loses a contest. This restores harmony at a local level, although at the cost of significant discord. However, Palamon's marriage to Emily provides the means for Theseus to establish a guaranteed peace between Athens and Thebes. For the price of the initial discord between Arcite and Palamon, and the discord suffered by all over the death of Arcite, the people of the region benefit from a global peace between Athens and Thebes – the absence of which would have led to much greater disharmony over time. This broader view also explains the otherwise-inexplicable acts of Theseus, as when he initially takes Arcite and Palamon prisoner without offering ransom, or when he spares their lives in the grove after coming upon them fighting there. Had he ransomed them or killed them at any time, the peace treaty between Athens and Thebes would not have been realized. By traversing the seemingly convoluted path of the imprisonment, tournament, and Arcite's tragic death, Saturn is able, via Theseus, to obtain a greater level of harmony than he would otherwise have attained.

In answer to the question "What is the ultimate law of the universe in The Knight's Tale?" we are led to conclude that the answer is not Love, War, or Chance. It appears more likely that Harmony is the overarching principle by which individual actions are governed, though it may be Harmony acting on a scale that is difficult for mortals to see. At this point the reader may be forgiven for asking why, if the gods are all-powerful, the tool of choice for establishing harmony in the universe is discord. Could the all-powerful gods not find a more pleasant way to do it? It may be that the answer can be found in classical music theory. In music, discord is used to create tension, and it is tension that creates motion– when a discordant tone is reached in a melody, the ear detects this as instability and wants the music to move forward towards a more stable tone to resolve the tension. Might Saturn – also known as Chronos, the god responsible for time – be using discord to move humans through time? If so, then perhaps we need to alter our view of discord. Rather than believing it is something to be avoided, perhaps we should consider it as a necessary evil serving to move humanity through time in the most harmonious manner possible.

(Endnotes)

1 Chaucer, Canterbury Tales, ed. Boenig and Taylor, l.798
2 Ibid., ll. 844 – 845
3 Ibid., ll. 1163 – 1168
4 Ibid., ll. 1798 – 1799
5 Ibid., l. 3102
6 Ibid., l. 2455
7 Ibid., ll. 2450 – 2469
8 Ibid., ll. 2450 – 2452
9 Ibid., ll. 2456 – 2469
10 In Plato's Timaeus (47B, C, D), he explains that man was given vision to view the motion of the stars and planets and thus understand the nature of the harmony of the heavens. The sense of hearing was given to man to hear musical harmony and to model his behavior on this notion.

How a Greek Assistant Translates Ancient Greek

Sally Jankovic (A17)

The way in which I translate is based around the idea that word order in ancient Greek is looser than it is in English, so that in some sense you want to try to distance yourself from the way you structure thoughts in English and be open to the idea that ancient Greek has a completely different way of expressing ideas than English. Separating how I read Greek from how I think in English is crucial for figuring out the main thought behind a sentence. I have slowly come to accept that reading Greek and translating it into English are two distinct, though heavily dependent, tasks. If you understand what a sentence is saying, you should be able to translate it effectively, but you must accept that you might not always fully transfer the effect of particular grammatical constructions (such as the impact of an aorist participle in a paragraph full of perfect verbs.) The most important thing, though, is that you recognize that there is a difference.

To start, I always work from punctuation mark to punctuation mark. If the sentence is incredibly long, I will go from comma to comma, looking at each clause. Then, once I finish the sentence, I review it as a whole. I next look up and parse every word in each clause before attempting to translate the clause as a whole syntactical unit. Since word order is looser, you want to take chunks of the whole and piece it together thought-by-thought, not word-by-word. This helps me avoid seeing the sentence in terms of English word order.

Once I have all the parsings in a clause, I try to figure out its meaning as a whole. I first look for the finite verb, that is, any verb that is not an infinitive or a participle. The reason I do not start with the subject is that sometimes the subject is contained within the verb; by beginning with the verb, however, you might get a pretty good idea of the subject. Thus, you will have an idea of what is happening in the clause, and possibly who or what is doing the action.

There will be some cases when you do not have a finite verb. Sometimes, this is because another construction takes the place of the finite verb; other times, the clause is simply dependent upon another part of the sentence that will contain the main action. For constructions, the two I would advise you to keep an eye out for are the genitive absolute (which consists of a noun and a participle in the genitive) and the predicate nominative (where a noun is connected to another noun or adjective with an implied "is"). These are both pretty easy to spot if you cannot find your main verb, and An Introduction to Ancient Greek by Mollin and Williamson does a good job of explaining them in detail.

If the clause is dependent, I look for participles and infinitives, which will still carry some sense of action. However, there may not always be verbs in the clause, and the clause may simply be modifying the previous or following clauses. I often do not grasp the full impact of a dependent clause until I know what the main idea of the independent clause is. One of the other tricks to ancient Greek is knowing that sometimes, you have to look at the whole to see the parts. If the dependent clause is tricky, it is often easier to have a general sense of the meaning, and then use case, number, and gender to try and match it up with words in your independent clause.

Sometimes there will be an infinitive following the main verb. If you spot an infinitive in the sentence that does not have an article attached to it, it is probably preceded by the main verb, and you can consider this construction as the force of the whole action, such as in the phrases, "It is necessary to consider…," or "I want to go…." At this point, I also attach any adverbs to the main verb. This can be important because sometimes verbs and adverbs combined together can form idiomatic phrases.

Once I know the action, I put together who is doing what. I generally have an idea of the subject already because of my parsing. If the subject is not implied, I look for either a noun, or an adjective with an article attached to it, or a participle in the nominative case. I also translate any adjectives that are clearly attached to the subject. If there are still other nouns and adjectives in the sentence, they will normally have some sort of relationship to the subject, so I translate them next, but I try to make sure that I start with the subject. Keep in mind that not every nominative noun or participle will be a subject. Some verbs, such as γίγνομαι, take the nominative rather than the accusative. If I cannot pick up the subject from context, a general rule of thumb is to try to find the word with the article attached.If I have one nominative noun with an article and one without, I

always translate the articular noun as the subject.

Now that I know what the action is and who is doing it, I look for the direct object, which will be in the accusative case. Sometimes, the direct object will go with the infinitive, not the main verb. For example, in the phrase, "it is necessary to consider this," "this" is the direct object, and it goes with the infinitive "to consider," not with the main verb "is necessary." I also make sure to translate any adjectives attached to the accusative nouns or participles.

At this point, I might not have the full meaning of the clause, but I have a general sense of the main drama contained within it. This can be crucial to piecing together the more obscure parts of the clause.

I next identify any indirect objects, which are generally in the dative case. Of course, the dative is a kind of catch-all case, so not all words in the dative are indirect objects. It helps me to remember that most words in the dative case give me a deeper understanding of the relation between the subject and the direct object.

After that, I look for any nouns and adjectives in the genitive case. More likely than not, they are possessives, but even if they are not, genitives usually denote belonging or origin or connection with or from the subject or object.

By now I normally have a good idea of the clause. Some are more difficult than others, though; if I still do not have the full sense of it, I start searching the previous lines for context, which can be immensely helpful. Then, once I have all the clauses in my sentence, I try to piece them together to form a unit as a whole. This is when I play with word order, etc. When I have every sentence in the passage, I do the same thing, making sure that there is a cohesive flow from thought to thought. I start with the small pieces, look at the whole, and then zoom out a little more and try to put together a bigger piece with the ones I just found.

This is a general approach, not a formula. There are many constructions and idiomatic phrases in ancient Greek that do not fall directly into these rules. Generally, there is no good substitute for recognizing odd grammatical constructions. However, the purpose of ancient Greek here is not to memorize constructions, but to learn about language and expression of thought. Even I have to look things up sometimes. Remember above all else that English relies far more on word order for sentence structure than ancient Greek. You will have a lot more trouble if you try to translate word for word instead of looking at whole syntactical units. But by focusing on how grammatical units form Greek sentence structure, you will have a lot more success, not only in translating, but also in learning how English and Greek express thought differently.

Reflections in Writing-Mathematics

On the Nature of Numbers

Andrew Kriehn (A16)

It must be asked whether number has any real existence. By real existence, I do not simply mean whether there is such a thing as number in the world. Rather, I mean to ask whether number has any concrete existence even within our minds. We first saw the question of a foundation of arithmetic in Euclid in the form of a unit. Cantor's set theory builds upon that, proposing that, by the everyday action of grouping objects and counting them, we form sets of objects. It is then noted that, among these sets, there is a commonality among what otherwise would appear to be disparate sets. This commonality is the number of distinct objects in the set –the set's cardinality. The process of numbering a group of objects is abstracted to the idea of numbers themselves, the change of cardinality by adding or removing objects from a set is abstracted to basic arithmetic, and so on. It is not difficult to sketch how continued abstraction would lead to the rest of arithmetic and number theory, nor is it a stretch to imagine the application of numbers to our everyday experiences, creating geometry and calculus. Is it appropriate for the foundation of mathematics to lie in counting?

The immediate result of this setup is that counting numbers – $1, 2, 3, 500, \aleph_0$ – are given a "primary" status. They appear as the generators of negative numbers, rational numbers, and algebraic numbers. Only through their existence, and the gaps that their existence leaves, are we made aware of transcendentals and complex numbers, as well as many other kinds of numbers that have nothing to do with counting. This, I think, reflects the progression of our understanding; but should we attempt to give that same precedence to the counting numbers in forming a complete mathematical theory? That is, should we consider counting numbers – or perhaps, more fundamentally, just the number 1 – to be primary in theory just because they are primary in our understanding?

What would it mean for the unit, the basis of counting, to be the origin of all numbers? In a generational set, some members are generated by others. For example, in a family comprising four grandparents, two parents, and one child, the child is generated by the other six members, and each parent is generated by two of the grandparents. If we remove one grandparent, the child and one of the parents *cannot exist*. If we accept the unit as the sole generator of all other numbers, then, were we to remove 1, all other numbers would no longer exist. I find it hard to believe that any number – say, 2 – would have any less existence with the exclusion of 1.

Although Dedekind too proposes counting as the basis of arithmetic, the Dedekind cut works just as well with irrationals as it does with rational numbers. Shouldn't irrational algebraic numbers, the kind which Dedekind even gives an example of creating, be seen no differently than counting numbers? Transcendental numbers also satisfy the Dedekind cut, yet, with the exception of a tiny few, they cannot be arrived at through any manipulation of the counting numbers. Both Dedekind and Cantor acknowledge their existence, yet neither gives a means by which we can construct one. This is unsurprising: most transcendentals cannot be expressed by algebraic means. Many cannot even be expressed as an infinite sum of algebraic terms. However, our lack of ability to construct these numbers should not prohibit their placement in a foundational theory of numbers.

The alternative does not look much better. It would require all those that we want to call "numbers" to be equally primary. It would be similar to a consideration of the chemical elements: Hydrogen is – setting aside what actually makes atoms – no more primary than any other element. This is in perfect conformity with what is being sought. $3 + \pi \cdot i$ would be just as fundamental as 20. We quickly come to realize, though, that there are many sets of numbers beyond the complex that present no reason why they should not also be primary. Each "new" set of numbers – e.g. the hyperreals – would be not an invention but a discovery, like new elements in nature or new kinds of planets and stars. The foundation of such a system is merely acceptance of existence, as it would have to be if we wanted to grant all numbers the same level of fundamentality, yet in chemistry and astronomy we allow no such rest. "Here are the elements of our system," these sciences say, "and none of them quite seem to generate the others.Their existences all seem to be on the same level. What, then, imparts onto

them their different qualities?" I think the same question must be asked in mathematics.

The question again becomes one of generation. In chemistry, we answer the above question with the composition of atoms, and we do similarly in astronomy. Earlier, the problems of adopting 1 as the sole generator were discussed, but, if we are to shy away from allowing numbers *simply to exist*, there must be something – whether a number or otherwise – that generates *all* numbers. Moreover, it must be something (or some things) which generate all numbers simultaneously and directly. One of the problems of using a unit to generate numbers was that the counting numbers were directly created by the application of the unit, and rational numbers only indirectly so, and algebraic and transcendental numbers even more indirectly created, thus creating a hierarchy of fundamentality by the order of generation. Instead, for such a system to be satisfactory, each number must be generated solely by that thing(s) that we declared to be the generator(s), rather than being created by a combination of the generator(s) and the more directly generated.

I cannot imagine such a system. The infinite gulf between any two distinct numbers, an abyss widened when we consider numbers beyond the real, defies any attempt to construct them by their parts. The task feels akin to finding something that generates all the Platonic forms: wholes that come together to form our experience, but must maintain entirely separate existences when they are considered in their pure state. Their inability to be simplified was one of the reasons that forms, as Plato proposed them, were abandoned.

Set theory as an explanation of number is unsatisfactory. It provides an historical account of how we came to know numbers, but it lacks necessary insights into how they exist. Any alternative account that seeks to explain their existence simply, rather than as a product of other preeminent numbers, might well be far beyond the limits of my understanding. If no such explanation can be made, then either we must no longer regard different types of numbers as existentially equal or we must discard the notion that we have any kind of understanding of, at the very least, many of the various types of numbers, if not all numbers.

An Inquiry into the Relationship between Music and Numbers

Sihui Ma (A17)

After the appreciation of a certain piece of music, the first impression that comes to people's minds is, "This music sounds wonderful!" That is to say, the first immediate connection between people and the music is established through sensations – namely, through the hearing of sounds. Yet Boethius seems to suggest sensation is not the ultimate approach for music, "for the senses take in nothing of truth itself, but come only to an approximation. Reason is the final judge"[1]. It is likely that arithmetic, which "explores that multitude which exists in and of itself"[2], allows us to approach music through reasoning.

There are two dimensions of the study of music in which numbers render the music more intelligible to us. I prefer to name the first dimension **vertical**; it is represented by the relationship between one tone and the other (that is to say, the interval.) It is striking that not only do we experience the harmony of certain intervals through sensations, but that we could also express them in terms of mathematics through simple ratios. For example, the perfect fifth does not only sound pleasant to us – it also yields, by no accident, the ratio of 3 to 2. It is plausible that the ratio is prior to the sound, insofar as the former serves as the underlying principle for our experience of music as sounds. Meanwhile, numbers are prior to ratios because ratios represent the numbers in relation to each other. In this respect, numbers are prior to music because they serve as building blocks for ratios, while ratios are the principles of music, according to the Pythagoreans, and as portrayed in Plato.

It is also worth noting that music is a motion – a motion *through time* according to Zuckerkandl: "just as a work of the visual arts needs space, and our awareness of space, to come into existence, a work of music needs time, and our awareness of time." [3] Accordingly, numbers also play a very important role in the arrangement of musical tones through the time-span, which is the **horizontal** dimension of music. With numbers, we can set a standard for the relative length of one note to the other. For example, we denote that a quarter note is half as long as a half note. Also, we are able to determine the ways of grouping certain tones by stipulating the numbers of beats in each measure via the meter.

Numbers help us achieve what we could not merely from simple sensations: the intelligibility of music through mathematics. By doing this we elevate our understanding of musicality to a different level. At this level, musicality is no longer understood only as a special discipline concerning sounds, which Boethius calls the music "which is created by certain instruments"[4]; music becomes the pervading principle in the universe and reflects the intelligibility of nature as a whole. This level is also expressed by Boethius as "the music of the universe", which "is best observed in those things which one perceives in heaven itself, or in the structure of the elements, or in the diversity of the seasons." [5] The unity between music and nature is represented by the choice of its elements, namely ratios and numbers. For instance, in *Timaeus* the construction of the musical scale begins with two sets of numbers: 1-2-4-8 and 1-3-9-27. Strikingly, these numbers constitute a "quaternary", which Pythagoreans regard as related to the "ages of man, the seasons, the elements and more"[6]. Obviously, the numbers in the scale also have inherent meanings in nature. In addition, just as the harmonic division yields the perfect fifth in the musical scale, the location of the earth in Ptolemy's astronomy is the harmonic mean between the greatest and least distances on the epicycle. Thus these numbers and ratios do not only exist in sounds, but also in the movement of heavenly bodies, the exchange of seasons, and everything pertaining to nature.

However, there seems to be some danger lurking behind the relationship between music and numbers. In general, the understanding of relationship as such reflects human desire for unity through reasoning: in terms of instrumental music, a harmony – the unity between two tones – is sought after; in respect of cosmic music, humans desire the harmony of nature as a whole. Nevertheless, if we pay attention exclusively to the concordance between different things as a whole, we run the risk of neglecting the individuality of music.

This loss of individuality unfolds itself in both dimensions of music. In the vertical dimension, when we are trying to build up a scale, there is an underlying assumption: there is a value for a certain tone in the scale if and only if it produces a simple ratio related to another

tone so as to create a harmony. In other words, we are only choosing seven tones to build up a scale, because those tones stand in perfect ratios to each other and will therefore produce a unity. On one hand, if we understand the value of the seven tones only as their potency to generate nice intervals with each other, then we will neglect the individual characteristics of each of the seven tones in and of themselves. For example, we can say E should be counted as a tone because it creates a perfect fifth with B, but what can we say about the tone E by itself when it is not related to any other tone? On the other hand, when we choose certain tones to build up one scale through specific ratios and numbers, we are also excluding other possible tones that do not produce harmony (but nevertheless have meanings in and of themselves) from our scale. These are tones we are unable to produce on the piano, which is representative of Western musical instruments: the scale is divided into seven steps, which means there could not be middle ground between two consecutive tones. Therefore it is impossible for a tone between D and E to exist on the piano. Nevertheless, most Chinese instruments, such as Chinese harp, allow those "pseudo"-tones to be created. If you play from D to E, you could pluck the string on D and press it gradually such that there is a continuous transition between the two notes. This transition is more like a slope than a step, inasmuch as some tones between D and E – which are not even counted as tones – are produced. Strikingly, these "pseudo"-tones, though rejected by Western music, do not sound awkward in a piece of Chinese music. In fact, this technique is common in Chinese harp music; it allows the "pseudo"-tones the freedom to express more meanings not through their relationship to other tones, but of themselves.

Second, in terms of horizontal dimension, the need for the unity of time is mostly represented in polyphony, which requires the perfect coordination of different voices. Each voice has to sacrifice its freedom in order to preserve the unity of the whole by conforming strictly to one common meter stipulated by certain numbers. If we group music temporally by means of numbers, the music will lose its individuality of expression. For example, in singing a Gregorian chant in which there are no strict rules about time signature, one can go with his or her feeling and make certain notes longer or shorter, yielding a livelier and more continuous progression to the music.As to one chant, different individuals could have different interpretations, which is less likely to happen in poly-phony.Zuckerkandl also acknowledges the perplexity involved in measuring music in time by means of numbers when he asks, "how can a living motion be measured?"[7] When the freedom of music in time is restricted by numbers and ratios, individuality and liveliness of music will also disappear.

There is another fact that might suggest the limitations of understanding music only through pure intellect. Despite the zeal with which the mathematicians try to make the order of cosmos intelligible in terms of simple numbers and ratios, a failure is inevitable. With simple numbers and ratios which entail perfect intervals, the scale still refuses to close. The only way to preserve the incomplete "order" is to sacrifice certain parts of it, such as the major 3rd in the Pythagorean scale. There exist two possibilities in this failure: first, that there is no such order in nature, despite the fact that humans feel the need for an order and try to use mathematics to create an order in terms of musicality; second, that there *is* an order in nature, but this specific approach to the order – that is, arithmetic – which is supported by reasoning, has its own defects. It is plausible that this limitation is reflected in humans' refusal to face a world of mystery and our desire to have a rational account of everything. Besides, when we are trying to reason music only through numbers, we overlook the value of sense perception. Sense perception allows another way for us to appreciate music. It is not an appreciation through understanding, but an appreciation through wonder.

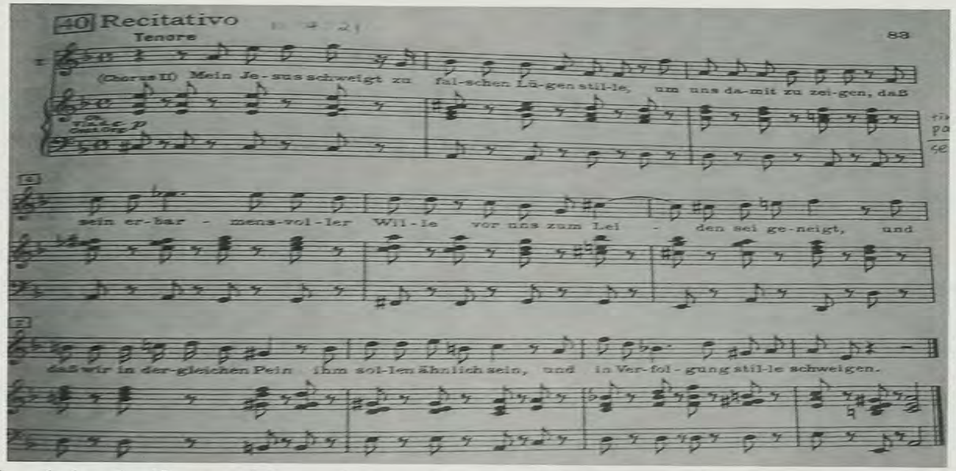
Therefore, the relationship between music and numbers is thus: numbers serve as the fundamental approach to reasoning musical phenomena, while the understanding of music through numbers brings it to a higher level because numbers and ratios reflect the universality and unity of music in nature. Yet there might be risk in the idea of seeking harmony and order of music through reasoning since, in reasoning, the individuality of music is nowhere to be found.

(Endnotes)

1 Boethius, The *Principles of Arithmetic*, Book I, Introduction, Chapter VII, Line 7-8.
2 Ibid., Book I, Introduction, Chapter IV, Line 29-30.
3 Zuckerkandl, The *Sense of Music*, Book III, Page 99.
4 Boethius, The *Principles of Music*, Book I, Chapter II, Line 4-5.
5 Ibid., Book I, Chapter II, Line 7-9.
6 Harmonia: The Building of a Scale, *Materials for Sophomore Music*.
7 Zuckerkandl, The *Sense of Music*, Book III, page 107.

The Sound of Silence

Xiuyuan Zhang (A17)



The relative significance of the words or music in any musical piece is an eternally-sounded debate among musicians and composers. Many say that the words are the essence of a song, and the musical notes serve a secondary role, like a background or a mood adjuster. A language-based communication compared to a musical one is much more comprehensive and thus preferable to an audience, whether through deliberate decision or unconsciously reaction, since people are more habituated to use words in daily life than music. It was not until I listened to the fortieth section, a tenor recitativo, in Bach's St. Matthew Passion, that I realized the capability of music, through its own agency, to directly communicate with human beings on an equal ground with the words.

In the fortieth section, we hear a tenor singing:

> My Jesus keeps amidst false lies his silence, to show us by example that his dear mercy's full intention for us to suffer now inclines, in order that within such pain We should resemble him, in persecution keep our silence.[1]

In accompaniment to the tenor, Bach has designed for the orchestra to feature oboe and viol for this musical piece. Listening to this recitativo, one notices that the oboe has a rather penetrating timbre that, along with the viol's low and deep sound, draws the audience's attention to the musical movement of the piece. Once the audience's attention is divided between the flow of lyrics and musical accompaniment, the interdependent "competition" between words and music has already started. It is common for the orchestra to play a refined version of the simple melody that the chorus sings. In other words, if one were to hear the accompaniment alone, one would still hear traces of the melody. However, this is not what is happening here. In this piece, which is in 4/4, the chords in the accompaniment are eighth note chords throughout except for the last half note; they are also played in a fixed pattern:

> ♪-eighth rest-♪-eighth rest -♪-eighth rest-♪-eighth rest

The tenor line, on the other hand, has its own melody, while the orchestra is playing rather independent chords in its own beats.

One may argue that the fact that there are only chords in the accompaniment furthers the point that lyrics are more important than the musical notes. While this statement holds true from time to time, the rhythmic succession of chords in this recitativo serves a different function than diminishing its own existence to highlight the lyric or the major melody. The arrangement of the chords here almost attracts too much attention with its consistent ticking-clock or heartbeat sound; the chords have asserted a strong presence for themselves that is separated from the tenor line. The chords here actually voice something for the audience that mere language is incapable of accomplishing. As one may recall from the lyrics, this recitativo is about Jesus' silence in front of false accusations. The lyrics are only able to go so far in narrating the event and depicting the sentiment of Jesus' mercy, but the chords are the unequivocal imitation of

the sound of silence: only when the surrounding environment is quiet do we hear the sounds of clock ticking or of our own heartbeats. This affirmation of silence not only suggests a nice correspondence to the lyrics, since the ticking-clock sound is keeping time "in time of persecution," but also further demonstrates the human side of Jesus. The heartbeat could be an imitation of Jesus' own heartbeat when he kept his silence before his persecution. The steadiness of the heartbeats as manifested in the musical accompaniment again shows Jesus' determined and merciful will to suffer for mankind. As shown here, the chords have their own voice and they speak to the audience with meaningful and vivid indication that amounts to no less influence if compared to the words.

Bach has conveyed the sense of silence to the audience in the fortieth section by these simple and rhythmic chords. Even though the chords do not present the audience with words, they nevertheless carry connotations of their own that excite the audience's sensation in a way that words could not. Both words and music seem to be the media of human thoughts. In this piece, words seem to erect a barrier of some sort that blocks the direct communication between the composer and the audience, since the sound of silence and the sentiment behind Jesus' silence in a way requires an expression that goes beyond words. It may be fair now to raise a question about the function of the words and whether or not words are always the most effective way to communicate. Words might provoke different and limited degrees of emotions or recollection in different people because they can be a rather flat and frozen representation of perplexed emotions or continuous actions. The audience might be able to comprehend the meaning of the words here, but the music is what made them feel perceptibly the silence of Jesus. The complex motivation behind Jesus' silence, such as his mercy, his devotion to mankind, and his humanity, could not be better portrayed than using the sound of successive chords to directly mimic the sound of a clock ticking and of a heartbeat – the sounds that one is most aware of when everything is silent. Because these chords, though portrayed as the sound of silence, do not carry one particular meaning in the same way a word does, it is possible for the audience to explore and understand both the human side of Jesus and the effect of time behind the sound of silence without feeling the need to constrain their thought to one explanation. With the guiding narration of the lyrics, these musical elements seem to capture a greater portion of the sentiments and the ongoing activities behind the words "Jesus keeps silent," and to build a more intimate relationship between this piece and the audience. Listening and trying to comprehend this recitativo, it occurs to me that there might have never been a competition over the dominance of words and music: both the music and the words have their own voice: the music expounds the depth of the words, and the words make the music more articulate to the audience.

(Endnotes)

1 "Bach's St. Matthew Passion." Bach's St. Matthew Passion. Accessed October 19, 2015.

An Inquiry into the Relationship between Music and Numbers

Andrew Kriehn (A16)

The octave is the fundamental principle of music. It, and it alone, pervades every tuning system; our desire to preserve the perfect octave prohibits a great number of otherwise potential tuning systems. Let a person listen to an octave, and they will tell of the sameness that it has, even if they can't say precisely why or what that sameness is.

Yet acoustics, or rather, that which acoustics studies, the very nature of sound, creates the consonant ratios with fifths and thirds, as well as less consonant but still mathematically pleasing ratios with sixths, fourths, and so forth. But could we split up 3:2 into parts that also divide 2:1? Well, 2:1::4:2, so what multiplied by itself some number of times makes 3 and, upon further multiplication of itself, makes 4 also? Nothing, or, at least, nothing a whole number of times. Even an irrational number would have to be multiplied by itself an irrational number of times to reach one of those intervals.[1] They must, therefore, be incommensurable. Nor are any other two "natural" ratios commensurable.[2] It is, of course, easy to divide a single ratio up into as many parts as we please – the creation of equal temperament is theoretically and, especially in modern times, practically trivial – yet there is no solution that creates parts of the octave that also compose a fifth or a third (and certainly not both, not to mention the other intervals that, though less important, still compose the harmonies that make up modern music).

So we settle for imperfection, for preserving the octave alone. Sure, the others are close. The well-tempered fifth, the twelfth root of two seven times, approximately 1.4983, is very close to 1.5; the major third, approximately 1.2599 is a bit further from 1.25, yet it is still recognizable as the major third. The justly tuned major chord, or the "chord of nature," is pretty close to the major chord that we have constructed.[3] But the point is this: the octave, by nature, is a pure sound, so pure that we are willing to destroy all other intervals in order to preserve it.

What are the consequences of having sacrificed so much of the natural, simple side of music? The small number ratios from the overtone series seem to be what drove man to find music pleasing in the first place; whether we find something consonant or dissonant can be explained through the natural harmo-nics of tone as a physical being. What have we done to music by moving away from these things? And how can we still claim that music is anything but invented?[4]

Zuckerkandl claims that dynamic quality, and perhaps music, is neither objective nor subjective, neither something physical nor something psychological.[5] That it is not physical, not objective, is clear: the inherent tendencies built upon the harmonies formed within the tone itself have been discarded; the chord of nature has been left for a constructed, imperfect chord; and any tendencies that one might find within overtones are no longer relevant, as overtones are no longer the basis for notes within our scales. However, the claim that dynamic quality – and therefore music as we know it – is not something gained through habituation must be examined.

On the one hand, the scale that we have constructed has been made with a specific end in mind: namely, one of 12 equally spaced semitones, one that allows for a resemblance of the diatonic order to which we are accustomed. Yet this diatonic order at which we aimed is not the one at which we arrived. How can we claim that there is something in our music beyond the psychological when what we have is a system devised by us? We do not hear the major scale and think, "Wow, that was *almost* right," but rather merely that it was that to which we are accustomed; and should we attempt to claim that it is only because we cannot hear well enough to note the difference, we need only to admit that no one besides the mythological "tone deaf" cannot hear the difference between the chord of nature and what we have constructed to be the major chord. In this way, we must therefore be accustomed to our constructed scale; and, as diatonic qualities exist within the realm of that scale which we have constructed, it, too, must be a psychological phenomenon.

But this is a wholly unsatisfactory conclusion. Music often feels like a raw expression of emotion, and it is unfulfilling to say that this expression seems this way only because we have been conditioned to feel as though it does. Surely our emotions are not manufactured; so what would it be to say that something manufactured, something that, it seems, connects with us only on a psychological level, triggers our emotions so powerfully? No, this must be wrong. The habituation of music, the

conditioning of equal temperament into our souls, must have an impact beyond the psychological. It must also imprint onto our emotions, onto our very souls. In other words, if we insist that music is more than psychological – and I think we do – we must recognize that we, as a culture, have conditioned into ourselves a new diatonic order, one not made of small, whole number ratios but rather one made of equal, unnatural semitones; and this conditioning has pervaded our whole minds such that an extreme emotional reaction to this unacoustical music has become in tune with our modified souls. We are, in this state, therefore opposed to nature: our very souls are unnatural.

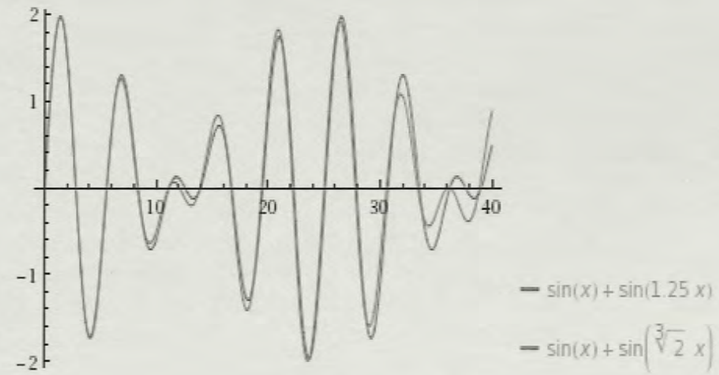
Is this surprising? Technological developments move us away from nature constantly. The move to equal temperament seems akin to, for example, the move to agriculture or cities for primitive man. Perhaps the most notable thing that equal temperament gives us is the ability to move between keys and stay in tune. It is no shock that that which allows us to change keys is somehow opposed to nature. There is something unsettling, something against nature, about a key change; maybe it is this that makes the return to the original key feel so pleasant.

I think Zuckerkandl speaks well in pointing out what is lost by infusing music with meter, namely, the "perfection" of the individual performer and his freedom of movement.[6] In measured music, even an escape from the chains of meter is within the context of that meter. I bring this up because it is another example of the imperfection, of the loss, that composes what Zuckerkandl calls the culminating phase of music. In order to achieve polyphonic and homophonic pieces whose ideas run across vast movements and keys, we must create a musical system whose basis is imperfection several times over. I don't know whether metered music is unnatural, but, if it is a departure from something inherent to the human self, to man as man, to become accustomed to it is, once more, a reconditioning of the soul.

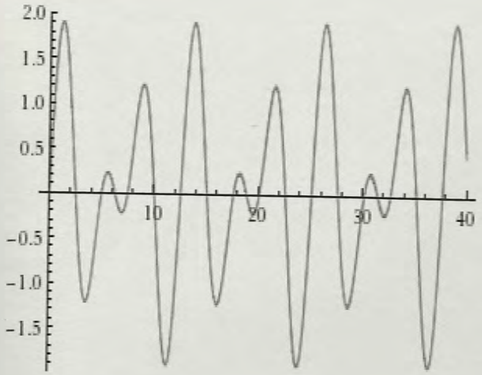
We must have reached the point in our musical development where, were we to demonstrate our music for primitive man, he would not be affected by it; it would be as though we were attempting to create sympathetic vibrations on the wrong string. It is likely that, in the realm of our modern, electronic music, especially the more experimental genres, much of what we can appreciate today would be completely alien to our classical counterparts. Likewise, Eastern music often does not resonate with our souls in a similar manner: not because it is inferior, but because it is tuned to a different soul.

Two things, however, ought to be noted: one, that, because we kept the octave, the most pure of tones, our souls cannot be too different than those before equal temperament or any others who keep the octave; two, that we should not fall into the trap of thinking that, because there has been an accustoming of equal temperament through habituation or conditioning, this change is one only on a psychological level, but that, instead, we must think that the change affects all parts of us so that equal-tempered music moves not just our ears or our minds but the parts of us beyond that. The way that the overtone series must have moved primitive man is the same way that our mathematical, unnatural ratios move us: on a level that is neither purely physical nor psychological but is something other, something more than our natures.

Appendix: to display mathematically the difference between naturally tuned and equal-tempered chords.

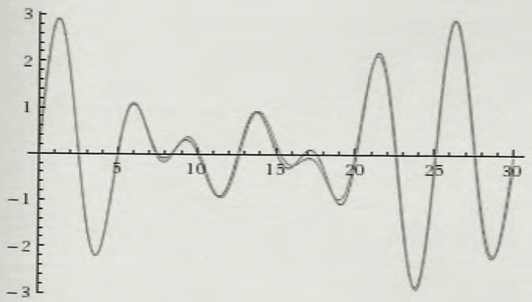


Comparison of the major thirds. Notice how quickly the equal-tempered wave deviates.



Comparison of the perfect fifths. This wave seems not to deviate from its natural counterpart at all.

Over a longer period of time, however, the deviation grows more significant. A major chord whose period is, for example, 110 Hz will find itself out of tune with nature within a second.



Comparison of the major chords. For the first wave, there is little deviation.

(Endnotes)

1 For example, the cube root of 3 would have to multiply itself three times to reach 3, but approximately 3.7856 times to reach 4; but, of course, we can't have 3.7856 half steps.

2 An exception would be between the 9:8 whole step and the 3:2 fifth, in which two fifths, adjusting for the octave, makes a whole step; but one can go no further with this. Besides, what sort of idea is it that the larger interval composes the smaller?

3 See the appendix.

4 We could claim that equal temperament is close enough to that type of tuning, but that seems to be claiming that an imperfection compounded upon another imperfection somehow leaves us with perfection. This cannot be the case.

5 Zuckerkandl, The *Sense of Music*, p. 23

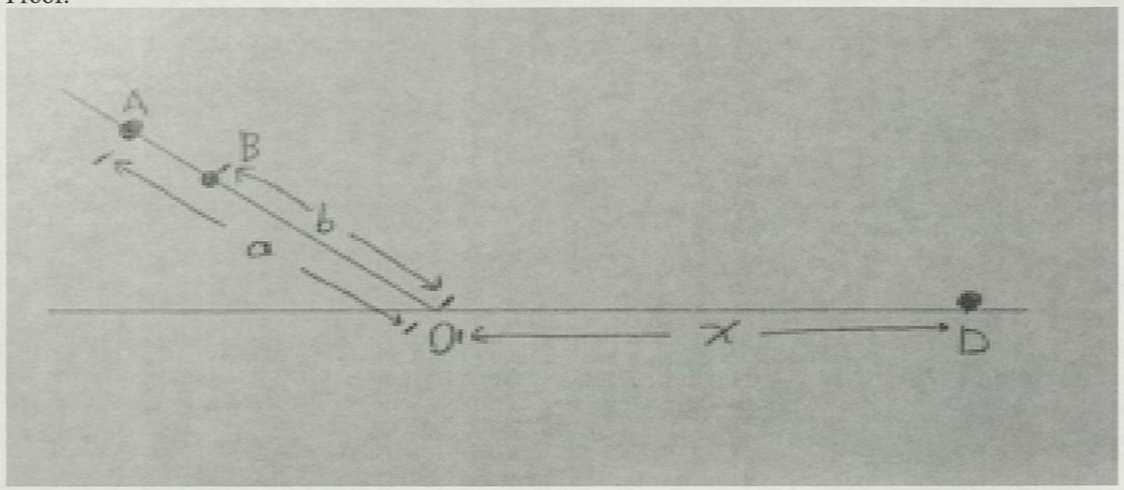
6 Zuckerkandl, The *Sense of Music*, p. 100

An interesting proof concerning two objects falling along the same inclined plane from different heights

Sihui Ma (A17)

In the diagram on page 15 of the junior lab manual, two balls A and B are released simultaneously from different heights along the same plane and collide with each other on the horizontal line at point D. Given values of AO and BO, calculate distance OD.

Proof:



Let AO be a, BO be b, and OD be x. The entire process can be divided into two phases. In the first phase objects A and B travel with uniform accelerated motion, while in the second phase they travel with equable motion along the horizontal track before the collision. Let the time it takes for A to travel from A to O be t_A, and from O to D be t_A'. Let the time it takes for B to travel from B to O be t_B, and from O to D t_B'. Since two balls are released and meet each other at the same time, the total amount of time it takes for A to travel from point A to point D is the same as that it takes for B to go from point B to point D. Therefore, $t_{A+}\ t_A' = t_{B+}\ t_B'$.

Phase 1: Uniform accelerated motion

Since A and B travel along the same plane, they have the same acceleration

Let it be k.

Then we know: $\frac{1}{2}kt_A^2 = a$ and $\frac{1}{2}kt_B^2 = b$

Therefore, $t_A = \sqrt{\frac{2a}{k}}$ and $t_B = \sqrt{\frac{2b}{k}}$

Phase 2: Equable motion

The speeds of A and B can be calculated from the acceleration and time of the phase 1, inasmuch they are the final speeds of their uniform accelerated motion:

$v_A = kt_A = k\times\sqrt{\frac{2a}{k}} = \sqrt{2ak}$ $\quad v_B = kt_B = k\times\sqrt{\frac{2b}{k}} = \sqrt{2bk}$

Therefore $t_A' = \frac{x}{v_A} = \frac{x}{\sqrt{2ak}}$ $\quad t_B' = \frac{x}{v_B} = \frac{x}{\sqrt{2bk}}$

While $t_{A+}\ t_A' = t_{B+}\ t_B'$

$$\sqrt{\frac{2a}{k}} + \frac{x}{\sqrt{2ak}} = \sqrt{\frac{2b}{g}} + \frac{x}{\sqrt{2bk}}$$

Let both sides of the equation be multiplied by $\sqrt{2ak}\times\sqrt{2bk}$

$$\sqrt{\frac{2a}{k}}\cdot 2ak\cdot\sqrt{2bk} + \sqrt{2bk}\cdot x = \sqrt{\frac{2b}{k}}\cdot 2bk\cdot\sqrt{2ak} + \sqrt{2ak}\cdot x$$

$$\Rightarrow 2a\sqrt{2bk} + \sqrt{2bk}\cdot x = 2b\sqrt{2ak} + \sqrt{2ak}\cdot x$$

$$\Rightarrow \sqrt{2ak}\cdot x - \sqrt{2bk}\cdot x = 2a\sqrt{2bk} - 2b\sqrt{2ak}$$

$$\Rightarrow (\sqrt{2ak} - \sqrt{2bk})\cdot x = 2\cdot(a\sqrt{2bk} - b\sqrt{2ak})$$

$$x = 2\cdot\frac{a\sqrt{2bk} - b\sqrt{2ak}}{\sqrt{2ak} - \sqrt{2bk}}$$

$$x = 2\cdot\frac{(a\sqrt{2bk} - b\sqrt{2ak})\cdot(\sqrt{2ak} + \sqrt{2bk})}{(\sqrt{2ak} - \sqrt{2bk})\cdot(\sqrt{2ak} + \sqrt{2bk})}$$

$$x = 2\cdot\frac{2ak\sqrt{ab} - 2abk + 2abk - 2bk\sqrt{ab}}{2ak - 2bk}$$

$$x = 2\cdot\frac{2ak\sqrt{ab} - 2bk\sqrt{ab}}{2k(a-b)}$$

$$x = 2\cdot\frac{2k(a-b)\sqrt{ab}}{2k(a-b)}$$

$$x = 2\sqrt{ab}$$

Therefore, two balls A and B will travel distance $2\sqrt{bk}$ on the horizontal track before they collide at point D.

Is equilibrium motionlessness?

Grady Orr (A18)

Archimedes postulates in his book, *On the equilibrium of planes*, that "[e]qual weights at equal distances are in equilibrium, and that unequal weights at unequal distances are not in equilibrium." Further, "[i]f, when weights at certain distances are in equilibrium, something be added to one of the weights, they are not in equilibrium but incline toward the weight to which something was added"[1]. In the case of a lever, the two factors determining the strength of the downward force exerted on either end of the lever are the weights of the magnitudes placed on the lever and the distances of the magnitudes from the fulcrum. In postulating that a lever is in equilibrium if the magnitudes and their distances from the fulcrum are equal, Archimedes is in effect saying that if opposing forces are equal, equilibrium is achieved. The definition of equilibrium can then be given as *the state of being of a system that is achieved when all the opposing forces within that system are equal* (a system being defined as a medium through which various forces are able to communicate with each other). Yet how can it be determined whether or not all opposing forces are equal? Must each force, and the factors that enhance or diminish it, be identified through experimentation, or is there some universal sign of equilibrium?

In Archimedes' *On Floating Bodies*, there is potential for a universal sign of equilibrium. First, Archimedes postulates that if a fluid is uncontained, the part of the fluid that is pressed less will be thrust out by the part that is pressed more.[2] Archimedes then proves, in Proposition 2[3], that if a magnitude of fluid has the same center of weight as the earth, it will be motionless, and that if a solid magnitude heavier by volume than the fluid is applied to such a motionless fluid, the weight of the solid magnitude will cause one part of the fluid to be pressed more than another, forcing the fluid to move. The reaction of the motionless fluid to the addition of extra weight closely resembles the reaction a balanced lever has to an addition of weight. Both a balanced lever and a fluid with the same center as the Earth are motionless. Applying weight in both cases causes the less pressed side of each system to be thrust outward. Perhaps it follows then that just as the lever, when motionless, is in equilibrium, and when in motion is not in equilibrium, so too the fluid is in equilibrium when motionless, and not so when in motion. Motionlessness might be a universal sign of equilibrium. But is fluid actually in equilibrium when motionless? Were all opposing forces acting within the fluid equal in strength to each other?

It must be proved that, when motionless, all the opposing forces in a fluid are equal. In Proposition 3 of *On Floating Bodies*[4], Archimedes proves that a solid magnitude weighing the same as the fluid to which it is applied will sink until just covered by the fluid. Archimedes proves this by first laying down as given that the fluid is motionless, and then proving that if the solid magnitude came to rest in any position other than as mentioned, the fluid would be pressed unevenly and therefore be in motion, violating the given that the fluid remain motionless. Proposition 3 makes it clear that if a fluid is motionless, all opposing forces are in fact equal to each other. If a force greater than that opposing it is applied to a fluid, as in Proposition 3, the fluid would be in motion. Both in a fluid and a lever, motionlessness then suffices as proof of equilibrium.

Yet there are still many scenarios where motionlessness does not seem to be adequate proof of equilibrium; Pascal's experiment[5] of submerging underwater a copper cylinder suspended in a tube is one example. In this experiment, Pascal says that if the given tube and copper cylinder be submerged at a depth of twenty feet, the copper cylinder will be pressed upward with a force greater than is required it to be in equilibrium with the water, yet the cylinder being pressed against the tube remains motionless. If equilibrium is defined as a situation where all opposing forces are equal, the copper cylinder cannot be said to be in equilibrium. Motionlessness then seems not to be a universal sign of equilibrium. However, it is strange to say that even if motionless, the cylinder is actually being pressed more strongly upward than downward. What, if not an equal opposing force, is preventing the upward force of the water from pushing the cylinder upward?

Edme Mariotte's experiments with the J-tube related in *Relations of Pressure and Volume of Air*[6] might be able to illuminate what is happening, related to the opposing forces, during Pascal's experiment with the copper cylinder. In Mariotte's J-tube, a fixed quantity of air was trapped by a glass tube on one side, and pressed on the other side by a certain quantity of quicksilver and the weight of the atmosphere. When more quicksilver was made to press on the trapped air, the air compressed and then eventually became motionless. Mariotte considered the motionlessness of the trapped air to be proof that it was in equilibrium with the quicksilver and atmosphere.

Are there any circumstances unique to the J-tube which would make Mariotte's claim that motionlessness is proof of equilibrium more reasonable? Mariotte attributed the trapped air's ability to be at equilibrium with increasingly heavier weights to the natural extension of air: air has a point of dilation that it naturally tries to attain, and any force working to compress the air will be opposed by the force of air's natural extension. It would be striking, however, to say that air has a point of natural extension, and that a solid, like a copper cylinder, does not. Clearly any solid has a natural extension, and further, just as the weight of a quantity of quicksilver combined with the weight of the atmosphere was strong enough to compress a quantity of trapped air, so the force of a hammer struck against a piece of copper will compress the copper. It seems likely that, similarly to air, the copper cylinder was exerting force in some proportion to the force applied to it.

It does not seem proper to assert that in a motionless system there can be a force greater than the forces opposing it. If one force is greater than another, it must overcome the lesser force; otherwise, what qualifies that force as being greater? Perhaps in the case of the copper cylinder being pressed into the tube by the water it could be said that the tube is passively offering resistance to the force of the water, rather than actually applying an opposing force of its own to counteract the water, but if a copper cylinder under pressure is being equated to air under pressure, then the cylinder is actively pressing (although the cylinder and the air only press outward when a force opposing their natural extensions is applied, in which case it does seem more proper to attribute their equilibrium with opposing forces as a resistance.) Whether the nature of such opposing force is passive or active, it does not seem reasonable to claim that when motionless, a system is not in equilibrium.

(Endnotes)

1 Freshman lab manual, p. 20
2 Ibid., p. 39
3 Ibid., p. 40
4 Ibid., p. 41
5 Ibid., p. 59
6 Ibid., p. 104

Notes:

On behalf of the ἱστορία editor group, we apologize for the following typographical errors:

1) On the Introduction page, it should be "two main sections" instead of "three". Delete "For the third section... between issues."

2) On the Content page under Dialogues section, it should be "Mr. Matthew Holtzman" instead of "Mr. Mathew Holtzman"

3) On page 24, the sixteenth line from the top on the left side of the page, starting with "Ms. Ma: Now" should be the beginning of the next new paragraph.

4) On pages 38 and 39, the misprints of some mathematical equations are clarified thus:

Then we know: $\frac{1}{2}kt_A^2 = a$ and $\frac{1}{2}kt_B^2 = b$ .....

$v_A = kt_A = k \cdot \sqrt{\frac{2a}{k}} = \sqrt{2ak}$ $\quad$ $v_B = kt_B = k \cdot \sqrt{\frac{2b}{k}} = \sqrt{2bk}$

Therefore $t_A' = \frac{x}{v_A} = \frac{x}{\sqrt{2ak}}$ $\quad$ $t_B' = \frac{x}{v_B} = \frac{x}{\sqrt{2bk}}$ .....

(Continue on the next page)

$$\sqrt{\frac{2a}{k}} + \frac{x}{\sqrt{2ak}} = \sqrt{\frac{2b}{g}} + \frac{x}{\sqrt{2bk}}$$

Let both sides of the equation be multiplied by $\sqrt{2ak} \cdot \sqrt{2bk}$ .....

Therefore, two balls A and B will travel distance $2\sqrt{ab}$ on the horizontal track before they collide at point D.

In the future the ἱστορία editor group will make sure there is no reoccurrence of such instances. Thank you!