

ASSIGNMENT 11
(due Nov 30)

Most of your time, for this course, should be directed towards finishing your project and preparing the final report on it. More specific instructions on the details of the report will follow. In addition, you are required to do the following reading for class on November 30.

READING due at class time

Read the three documents on the following pages. These deal with ethical issues in science, technology and academics. For each of these, you will be assigned to argue one side or the other, or to be someone who sits in judgment. Be prepared to play any of these roles for any of the cases.

Albert Kaline is an outstanding electrochemist, the only person to have twice won the prestigious *Phil D. Beaker Award* from the American Electrochemical Society. For more than twenty years, Kaline has been Professor of Chemistry at Sollit State University, somewhere in the midwest. He is well known on campus, respected by his colleagues. He is known as an excellent lecturer, though a demanding teacher. All in all, he has the stature on the Sollit State campus somewhere between legend and beloved father figure.

Big Ivy University is a major research university on the east coast, and is known for its outstanding electrochemistry department. Ethan DiLemma, the President of Big Ivy wants the university to do something that will *really* get attention for itself (and for him). As a former electrochemist, DiLemma knows the importance of developing a new high energy-density battery. Indeed, this is the only piece missing from the puzzle of how to develop a totally practical electric car. DiLemma persuades an ecologically sensitive, very wealthy alumnus to give \$150 million to Big Ivy for the express purpose of developing the battery that will make such electric cars possible. DiLemma knows that this money will allow them to carry on a focused crusade that will very likely be successful, but they need the right leader. Although Big Ivy has many excellent electrochemists, they don't have the shining star who can lead them to victory.

The most obvious shining star is Albert Kaline, so DiLemma makes him an offer he can't refuse: a huge salary; the right to hire four other faculty members of his choosing; virtually unlimited laboratory and staff support. Kaline does not refuse and, with regrets, moves to Big Ivy to take up the position of head of the "Institute for Clean Power." But all does not go well. It turns out that Kaline, though a brilliant scientist, is a rotten manager. He cannot delegate authority and insists on dwelling far too long on any decision, no matter how trivial. All connected with the Institute feel that Kaline's procrastination is slowing progress. Scientists and technicians in the Institute have become so frustrated that several have left, and others are threatening to leave.

After giving Kaline many stern warnings, President DiLemma feels that the time has come for action. To satisfy his obligation to the alumnus, and to Big Ivy, the battery project must go forward, and Kaline is an impossible roadblock.

He calls Kaline into his office and tells him that he, DiLemma, is using his authority to remove Kaline as director of the "Institute for Clean Power." DiLemma goes on to tell Kaline that he, Kaline, will retain the high salary he was promised. He will also be given a million dollars a year to support whatever research he wishes to pursue, except that he is not to interact with people at the Institute. DiLemma steps in to head the Institute himself. Though he claims only to be a temporary head of the Institute, after three years of searching no plausible replacement has been found, so DiLemma remains at the helm. Meanwhile, progress at the Institute has been dramatic; a prototype of a new battery has just been presented at a press conference, and has received an overwhelmingly positive reaction.

Negotiations between Kaline and Big Ivy break down, and Kaline files a lawsuit against Big Ivy claiming that the battery project will certainly win the Nobel Prize (a near certainty) and that he was removed as director so that DiLemma could win the Prize. The lawsuit makes the point that Kaline uprooted his wonderful academic life in order to help with a good cause, and has been abused and exploited. He sues to be reinstated as head of the Institute.

THE CASE OF THE BASIC SPY

The National Science Foundation (NSF) is under pressure to fund more research that has applications to “relevant” problems. One result of this is that 10% of the NSF budget is shifted from support for “basic” research to a program, “SPYSCI,” that supports technology for espionage and counterespionage.

Debil Ondas is a professor of physics whose research centers on calculations of gravitational waves. Funding is very hard to get for any basic research, and a loss of 10% of the budget is particularly galling to her. To her, there is a moral issue in this shift of funds, in addition to the threat to the financial support she will need to continue her own work: She doesn’t believe that scientists should be doing defense related work and, to her, research on espionage is especially outrageous.

She knows that funds will be much easier to get from SPYSCI than from the basic research program. She writes a proposal to SPYSCI based on the following statement (in her own words, from the abstract to the proposal):

Unlike electromagnetic waves, gravitational waves cannot be shielded. Monitoring gravitational waves, therefore, is the ultimate way to detect covert activities. At present, the sensitivity of gravitational wave detectors is far too low for gravitational wave communication to be of practical use, but this technology will certainly improve. I propose to study the properties and propagation of gravitational waves so that gravitational wave eavesdropping will be better understood when adequate detector technology becomes available.

“There!” she says. “I have not written an untrue word, and I will put the money to good use in basic research, where it should be.”

She has underestimated the intelligence of the NSF program monitors. They know that gravitational waves are extraordinarily weak, and have no conceivable technological application in the foreseeable future. They write a letter to the Research Vice President of her University pointing out that Prof. Ondas is much too good a scientist to have made a naive error in her proposal, and hence it was an intentional, though subtle, attempt to deceive the NSF. Although no explicit threat is made by the NSF, the Research VP understands that the NSF expects the University to monitor the ethics and honesty of its faculty, that the NSF will be watching what the University does, and that the University’s actions might have some influence on subsequent negotiations between the University and the NSF.

THE CASE OF THE TOLERANT REFEREE

Nathan Weiner is a young assistant professor in the chemistry department of a major research university. He is being reviewed for tenure. The case is marginal; it could go either way. In the past, around 70% of cases of this strength have led to the granting of tenure.

One thing that seems to be positive is that Weiner is a “referee” for several important journals, *Chemical Review*, *Journal of Organic Synthesis*, *Chemical Review Letters*, and *International Journal of Organic Chemistry*. Assistant professors are usually not given many refereeing assignments. Tenure is based primarily on research accomplishment, future potential, and acceptable teaching. But it is a sign of some recognition, and of conscientiousness that he is asked to referee for these journals.

Several faculty members are skeptical, and ask to see the record of the referee reports he has filed. He delivers the record, and they are shocking. He has refereed on the average two papers a week. Where does an assistant professor find the time to do this!? You ask Weiner why he is sent so many papers to referee and he says “I return them quickly. I guess the editors really like that.”

Tenure committee members later look carefully at the files and discover that he has approved every paper sent to him for refereeing. Every report that he has written has been a recommendation to publish the paper, and each report is very similar, saying more-or-less “A worthwhile and well-written paper. I recommend publication.” Not a single report contains a detailed analysis, or a mention of any technical error, or an overlooked reference, etc. The committee members know that on the average a journal like *Chemical Review Letters* accepts only one out of four papers submitted. The committee brings to the attention of Weiner the generally high rejection rate of the top journals. He admits that he was aware of this, and explains that he believes that any paper that is not completely crackpot should get a chance to have the community at large judge its validity and importance.

This issue has been brought to the attention of the University Provost who has asked for a faculty panel to investigate the matter. The decision of the panel is extremely important since this is Weiner’s seventh year and his last chance to get tenure. If he does not get tenure he will be given a terminal contract and have to look for another position.

The faculty panel splits into two factions, one for denying tenure and dismissing Weiner without even a terminal contract. The other faction judges Weiner’s missteps to have been minor, and recommends that they be excluded from tenure consideration.