

Convocation Speech, December 8, 1996

Ladies and Gentlemen,

to begin with I would like to thank the College of Natural Sciences for the most honouring invitation to address its newest flock of Bachelors on this most festive day. I shall do my best.

Your past is your inalienable property, you cannot deny it, and, for better or for worse, it will shape the rest of your lives until death follows. In a sentimental moment, you may long for the lost innocence and bliss of ignorance, but that ignorance is lost forever: you are now Bachelors and you will have to carry the burden of your college education every waking hour of the rest of your lives, nay, even in you sleep you will be pressed to have dreams full of responsibility. A main purpose of this commencement speech is therefore to help you to live with your academic past: I'll try to give you some advice on how to remember your university.

It is not only persons that are shaped by their pasts, so are institutions, so are whole peoples. I am Dutch, and for the Dutch, a formative experience has been how they liberated themselves several centuries ago from the Spanish occupation. (To give you an example: their national anthem dates from those days.) Since that war dragged on for 80 years, you might feel that the Dutch were not very efficient at liberating themselves, but they succeeded with the tools of the time.

In 1574, the Spanish tried to conquer one of our cities, but they could not because the town was defended too well; so they laid siege to it, trying to starve its population, an effort in which they partly succeeded. But water is our foe & friend, and on the 3rd of October 1574 some other Dutchmen caused a flood by the simple device of cutting a few dikes, and the Spanish soldiers that surrounded the city were just washed away.

Because the lifting of that siege was a turning point in our struggle for freedom, William the Silent wanted to reward the city's population for its bravery and endurance, and gave them the choice between two prizes: either a full year

freedom from tax paying, or the right to a University, and the citizens chose the latter. Within a year, in 1575, the University of Leyden, my Alma Mater, was started in a former nunnery, a building that, thanks to the Reformation, was on the market anyhow.

I told you this story because it so neatly symbolizes the tight link between the concept of a University and the practice of intellectual freedom. In the dozen years that I am now here, I have learnt to appreciate UT as a place where that link is in full vigour, and my first remark to you, both as advice and as request, is to remember and cherish your university as a place dedicated to the practice of intellectual freedom, where the combination of exercising your brain and opening your mouth is encouraged.

A next characteristic of the University for which it should be cherished and protected is its openness. Let me explain that by referring briefly to the University's place along the whole spectrum of techniques by which one generation transmits its insights and abilities to the next.

At the one extreme we have the techniques of the guilds which treat their insights and abilities as valuable property, as a treasure to be kept secret. Their technique for protecting the secrecy is by keeping the secret knowledge unformulated; therefore, the apprentice has to join a master for seven meagre years, during which he can absorb the craft by osmosis, so to speak.

The university is at the other end of the spectrum: it is the professor's task to bring the relevant insights and abilities into the public domain by explicit formulation. It is no accident that the universities as we know them now, started to flourish after the art of book printing had been established.

There is more to be said about that spectrum of educational techniques, but I shall not do so now: I mentioned it to remind you why the absence of secrecy, or, more positively formulated, openness and honesty are characteristics that touch the hart of the academic enterprise: a university that hides or cheats can close its doors.

I beg you to remember the essential role of academic openness when consider-

ing academic/industrial cooperation, I urge you to remember it whenever a government invents so-called reasons of national security or prosperity for the prevention of free publication of the results of academic research. Universities are not part of the nation's security organisation, they are not the nation's research laboratories either: they are the nation's Universities.

In passing I would like to mention that for a completely different reason such openness is a precondition for academic survival. Just for being different and doing things the uneducated cannot understand, the academics are hated and feared, vide Socrates, executed in 399 BC, Archimedes, killed in 212 BC, and, more recently, Hypatia, AD 415 barbariously murdered by a Christian mob in Alexandria. The original Oxford Colleges were buildings fortified in order to protect the students against the rabble, and if you think that all that is old hat, I refer you to the recent histories of the DDR or the People's Republic of China. These days, it is a miracle whenever the academic world is tolerated at all, and personally I am convinced that what tolerance there is would completely disappear, were the academic world to become secretive.

The University with its intellectual life on campus is undoubtedly a creation of the restless mind, but it is more than its creation: it is also its refuge. The University is unique in that on campus, being brilliant is socially acceptable. Furthermore the fabric of the academic world is so sturdy that it can absorb the most revolutionary ideas.

But it is not only a refuge for the restless minds, it is also a reservation for them. It does not only protect the restless minds, it also protects the rest of the world, where they would create havoc if they were let loose. To put it in another way, the fence around campus is essential because it separates two worlds that otherwise would harm each other. The fence ensures that we have relatively little direct influence on the world "out there", but we would be foolish to complain, for our freedom to be as radical as we like is based on the fact that, for at least the first 25 years, industry and the world-at-large ignore our work anyhow. Currently, there seems to be a world-wide tendency to try to lower the fence; the effort strikes me as ill-directed.

As a very minor, but recent example: you may have heard of efforts, with the

catchword "post-tenure review", to change the contract between the university and its faculty. We do not discuss the merits of the case, but I would like you to see it as a symptom of the lowered fence, for one of the underlying feelings is that on campus hiring & firing should be possible like everywhere else, thus ignoring that a university should be as unlike anything else as you can think of.

I think that all students should remember the University as a very special place, but the graduates of the College of Natural Sciences should do so most of all, because it is in that School that the hard sciences have found a roof above their heads. It puts a heavy responsibility on those who have gone through that school, for the others have no idea of what is going on there, and hence naturally assume that all science is as ephemeral, as transitory and as fashion-dependent as the rest.

It is in this respect not reassuring that so many legislatures and other governing bodies hardly contain any true scientists. Consequently, strange things can happen.

After WW II, the Dutch industries felt the need of a Dutch business school. Because of its purely vocational calling, but more so because of the perceived lack of intellectual content, none of the existing Dutch universities wanted to have anything to do with it, and a separate business school was founded. So far, so good, but a number of decades later, the need was felt to raise the institute's status, and the Dutch government, which did not know or did not care what it was doing, agreed to raise that business school officially to the level of a university.

And in the Austin American-Statesman of November 8, we could read how that newfangled "Nijenrode University" used its academic status: it bestowed an Honorary Doctorate on Bill Gates, of all scholars, and I haven't figured out yet how, as a Dutchman, I am going to atone for that.

Fortunately, encouraging things sometimes happen as well, as we could read in a frontpage article in the International Herald Tribune of November 27, which reported that Oxford University had just turned down a gift of \$34 million because of the strings attached: the gift was intended for a new business school, but Oxford did not want a new business school. Universities can be Very Special Places indeed.

By the way, if you got the impression that I have my doubts about business management as scientific discipline, you are right: it seems too fickle to be taken seriously. In the 70s, the creed was diversification, in the 80s, the gospel said to concentrate on your core business, and in the 90s the world-wide credo seems to be the intellectual cleansing of the high-tech industries.

There seems to be one thing that, independently of the height of the fence that surrounds the campus, any graduating student can take with him into the world outside, and that is the healthy scepticism that goes with a well-kept immunity for hype, for slogans, for fads and for fashions. And that is important, for the latter seem to pass by in ever increasing frequency.

It is quite amazing --and a bit saddening-- how the gullible and desperate are willing to expect salvation from the next gadget.

I remember how TV was promoted by the theory that a daily dose of Shakespeare in every living room would elevate the culturally deprived to unfathomed heights, thus curing all ills of society, etc.. And what did we get? Soap operas and quizzes.

I remember how the overhead projector was welcomed as the greatest educational innovation since Socrates, as it allowed a much more detailed preparation, and how the new "audio-visual aids", as they were called in those days, would revolutionize the class room and would bring modern teaching to each little eskimo in his igloo. Well, of what the overhead projector did to teaching, you are, I'm afraid, a better judge than I.

I remember how, with the advent of terminals, interactive debugging was supposed to solve all our programming problems, and how, with the advent of colour screens, "algorithm animation" was supposed to do the same. And what did we get? Commercial software with a disclaimer that explicitly states that you are a fool if you rely on what you just bought.

And now we have the multimedia/communication hype: the best bits are those

that just arrived from far away, and if you are not "on line", "on the Net", you just don't count, you are not of this world (which is virtual anyhow...). Apart from a change in vocabulary, it is the same hype, the same snake oil over and over again, and you can do me a favour by not getting excited by all the time you are supposed to save by switching to "home banking".

Recently, James H. Billington, the current Librarian of Congress, remarked that instead of a knowledge-based democracy, we may end up with an information-inundated democracy. I share his concern, so allow me to end with this simple wish.

May, in spite of all distractions
generated by technology, all of
you succeed in turning
information into knowledge,
knowledge into understanding, and
understanding into wisdom.

I thank you for your attention.

* * *

The above talk was prepared for the Class Convocation of the College of Natural Sciences on Sunday, December 8, 1996. The notice was so short that I took the liberty of using some passages of EWD1175. The talk was very well received, but my remarks about the overhead projector did not evoke a response: it is quite possible that my youthful audience had never considered the alternative of lectures without overhead projector.

It was a festive ceremony, but to quote Harry S. Truman "I'm glad it's over."

Austin, 9 December 1996

prof.dr Edsger W. Dijkstra
Department of Computer Sciences
The University of Texas at Austin
Austin, TX 78712 - 1188
USA