



A conversation with Gottfried Schatz, Basel

## “Faculties divide more than they unite!”

Gottfried Schatz, retired biochemist from the University of Basel, talks about the poor condition of European universities, the difficulties of young researchers in starting a career, and his own life after retirement.

**A**t the recent meeting of the European Life Science Organization (ELSO) in Dresden, you said that university professors should retire around the age of 65. That’s quite a provocative statement in an era when universities are changing their employment rules to keep professors longer in the research business, isn’t it?

**Gottfried Schatz:** I have often been misquoted on this point. On the one hand, I feel strongly that we professors should have to retire at a certain age, because most of us become less innovative and less productive as we age. On the other hand, I also suggest that universities should have the flexibility to make exceptions for exceptional people and offer rolling contracts to those few who continue strongly in spite of their age. Some of our Swiss Nobel laureates such as Rolf Zinkernagel or Kurt Wüthrich may be such examples. However, this is really quite rare.

*That sounds like a well-defined position, but one with the potential for creating enemies.*

**Schatz:** Indeed – but making enemies was easier than losing friends and I did lose some friends because of my position on this issue. Some accused me of trying to rationalize my own early retirement but in reality I tried to do what I preached. Also if you are in science politics and never make enemies, you must be doing something wrong.

*You retired at age 63. Why didn’t you want to stay in research?*

**Schatz:** I was always passionate about doing research and gained a lot of satisfaction from interacting closely with my research group. However, at the same time I missed the emotive aspects of life – and of myself. If you are in research and have a family, there is little room for anything else. Retirement seemed to me a good way of exploring that other part of me and of giving more of myself to the people close to me. I

also longed for the chance to reflect – and perhaps write – on matters which I considered to be important. All these plans needed not only time, but also silence – and the life of a professor is full of noise. My “retirement” has so far been one of the most exciting and satisfying periods of my life.

*In your lecture at the ELSO meeting you also warned that today’s universities are in danger because they are no longer places of science and education.*

**Schatz:** Unfortunately our universities are beyond being in danger – they have already missed the boat. Most of them are not very exciting places. Universities should be hotbeds of new ideas. They should be ticking intellectual time bombs that constantly shake up our society with new ideas. Instead, they are now among the most conservative of our institutions. Many of them resist any change, in part because they are being run by bureaucracies that do not know how science works and what science needs. I have attended countless meetings on university reform where discussion focused only on politics, money and organization; science was never an issue. In fact, the word “science” was never even mentioned. This just reflects the fact that many of our universities are not run by top scientists, but by University Boards composed of business leaders, administrators, and politicians. It is, however, essential that some of our best scientific minds lead universities and granting agencies. The priorities of business people, bureaucrats and politicians are usually quite different from those of science. For example, a university leadership should develop long term scientific strategies.

An example of how to do this is EMBO. EMBO (The European Molecular Biology Organization) was founded about 40 years ago by scientists as a private foundation and has consistently upheld the principle of sci-

entific quality over political or administrative expediency. That’s why it has always enjoyed the respect and the support of its constituency – Europe’s best biologists. European universities might do well to follow EMBO’s example. I can only hope that the new European Research Council (ERC) will adopt the same standards – standards that the Framework Programs of the European Union have missed by a wide mark.

*The ERC is only funding young scientists right now. Was that a wise decision?*

**Schatz:** Yes, given the scarcity of funds during this early phase. Young scientists setting up their first independent research group often have trouble getting enough money to do this at the scale that is needed in today’s highly competitive environment. For example, our European universities often fail to attract top young scientists from the USA because the grant support these young scientists can expect in Europe is so much less than they could get in the USA. Of course, there is no guarantee that a US agency would fund them at all, but if their grant applications are successful, they can pull in a lot of research support early in their career. Here in Europe the chance of this happening is essentially zero, except perhaps at the Max-Planck-Institutes or other non-university institutions. Yet these first years are critical, because it is then that a young scientist must show what she or he can do as an independent researcher. This is also the time when grant support is the best scientific investment.

**“Most of our universities are not very exciting places.”**

*Recently, many scientists in Europe have argued for tenure track. However, in the United States, scientists criticize that*

*system. One issue is teaching. Young professors complain that teaching isn’t taken into account when it comes to evaluation.*

**Schatz:** At most good US universities, tenure-track professors have to teach less

than permanent professors. It was a capital sin of the German junior professorships not to consider this important issue.

*Other US scientists said that tenure-track professors are less likely to publicly criticize their university or colleagues because they fear the consequences.*

**Schatz:** There is, unfortunately, some truth in this but most other academic hierarchies are worse. A large department with a strong chairperson gives assistant professors much more freedom to criticize than a small institute where the single institute head often decides on the outcome of a Habilitation and I won't even talk about the dependency of permanent assistants.

*So you're saying that tenure isn't an optimal system but we don't have a better one?*

**Schatz:** Exactly!

*Some more words about European universities. Are they all in the same poor condition?*

**Schatz:** There are differences, of course, but only few of them are doing well. If we consider prominence in the basic sciences, Oxford and Cambridge come to mind first, but others, such as the two Swiss Federal Institutes of Technology or the Universities of Stockholm or Munich are clearly above the European average. Also many other universities have at least one great department. However, as most of Europe's publicly funded universities are not allowed to select their students, they cannot compete on an equal footing with their US counterparts.

*Do you see any way out of this dilemma?*

**Schatz:** Yes, if all parties concerned – and that includes the political leadership – could focus on the needs of science and arrange everything around these needs. Until this happens, many of our best young biologists will attempt to start their career either in the USA or at privately funded European institutions, such as the Friedrich-Miescher-Institute in Basel, the Institute for Molecular Pathology in Vienna, a Max-Planck-Institute in Germany, the MRC Laboratory for Molecular Biology at Cambridge and other such places. These



Schatz as PhD student in Graz

usually offer excellent facilities, a minimal bureaucracy and a strong commitment to excellence. Most of our public universities are weak on these counts. Faculties are a striking example of how universities are out of sync with modern science. Faculties are historical relics that have very little to do with the way science works today. They divide more than they unite and are too heterogeneous to serve as instruments for maintaining high scientific standards. I hate to think of how often I, as a biochemist have had to pass judgment on a candidate who presented a talk on geophysics or geography to our science faculty.

*If you could, would you close all faculties?*

**Schatz:** Yes, and I would replace them with large departments which unite scientists with similar research goals. Such structures are also indispensable for tenure track to work properly allowing professors to take sabbaticals without undue disruption of the teaching obligations. Then the department not individual professors would be responsible for meeting all teaching obligations. This is much better than entrusting this important duty to individual professors. Finally, a large and well-run department is also a good defense against the possibility that a single individual dictates the fate of young staff members.

*Do you see a chance for a change?*

**Schatz:** Yes, but I am afraid that the changes I see are happening too slowly.

*Is this because those people that should be removed are usually the decision makers? They will not kill the goose that lays the golden eggs.*

**Schatz:** Older professors could do a lot of good here. They have international connections, experience, often a lot of power – and nothing to fear. They should spend much more time trying to improve their universities and help their younger colleagues. New ideas are the life blood of a university – and young people are a prime source of new ideas. For this reason it is very important to give the younger faculty as much say as possible in academ-

ic decisions. They are not yet accustomed to the status quo and could tell us which university structures and university habits do not serve science – and should be discontinued.

*In your essay on the "Ideal University" you argue also for more emphasis on teaching.*

**Schatz:** Yes, I feel very strongly on this point. We older professors give most of our young colleagues the idea that teaching just takes time away from research and therefore endangers an academic career. When I was young and looked at a job offer, I always asked about the "teaching load", but never about the "research load". I am afraid that most young scientists behave that way. And you cannot really blame them, because tenure and international recognition come with success in research rather than success in teaching. Our universities have largely neglected their main mission of helping young people to develop critical and independent thinking. The main "product" of university teaching should not be experts for the job market, but autonomous minds. To fulfil this mission, teaching should not only convey factual information, but expose the students to strong scientific minds who will share their insights on science, the world, and themselves. To reach this goal, performance in teaching should routinely and anonymously be evaluated by the students; the evaluations should be made public and be given great weight in decisions on tenure or other promotions. Then all professors, including the young ones, will give teaching the role it deserves.

*Good idea. If you consider teaching so important why didn't you stay at the university to give courses?*

**Schatz:** Because I passionately believe that university teaching should be tied to research. When distinguished scientists give scientific lectures long after they have stopped doing research, I can nearly always sense that a certain spark is missing. When I retired from the lab, I immediately stopped giving scientific lectures. Instead, I now lecture to the public, to politicians and other decision makers, and to students on the nature of science, on scientific problems worrying the public, or on what it takes to be a successful scientist. I am spending much of my time writing articles on science in the *Neue Zürcher Zeitung*, Switzerland's most prominent daily, and sometimes receive dozens or even hundreds of responses from readers around the world. There is so much to do – and so little time to do it!

**"Faculties are historical relics that have very little to do with the way science works today."**

*Your students may perhaps admire you but the public probably doesn't; irrespective of how famous a scientist is, they only applaud athletes, rock stars, and tenors. Isn't that very sobering?*

**Schatz:** Yes, that can sometimes be a little disheartening. Scientists though should not try to be stars, but individuals whom people trust. Which other authority or organization enjoys the public's trust these days? Once there were priests and kings, and now there are only gurus and television doctors. Europe's public often feels that scientific progress is to be resisted, because it poses unforeseen dangers. This is much less true for the United States which resembles in this respect the Europe of my youth. Most Americans believe that science is something good – and tend to rally behind it, even though highly vocal fundamentalist fringes tend to hide that fact. I get the greatest satisfaction when I talk to a group of business people on, say, future energy sources, and then someone comes up to me afterwards and says "I think you are absolutely trustworthy, because you are not pushing somebody's hidden agenda". That is what we scientists should aim for.

*These days scientists don't only work for pure science, but found and run companies, own stock, or issue fantastic claims or dire warnings. Does that harm their reputation?*

**Schatz:** I see nothing wrong with scientists setting up and running companies, as long they do it ethically and correctly but I do resent scientists who like to grab the limelight with doomsday pronouncements. We scientists should promote the values of the Enlightenment. The Enlightenment is now in great danger, because reason is being abandoned in favour of emotions and fundamentalism. All around the world, political decisions on technology or the environment are often not based on facts, but on emotions: issues such as whether to build nuclear power plants, to give the green light to transgenic plants, or to allow research

on embryonic stem cells. Running complex, technology-savvy societies that way is very dangerous and frightens me.

*Are there more Swiss scientists that engage with the public in this way?*

**Schatz:** Yes, and some are very good at it. I am particularly grateful to three of our Nobel laureates: In 1998, Rolf Zinkernagel and Werner Arber were very active during the touch-and-go debate on Swiss gene technology. Also Richard Ernst often raises his influential voice with thoughts on how to reform our universities. However, too many scientists do not like to get involved in such issues.

*Why not?*

**Schatz:** Because scientists are often self-centered – like most creative people but working for the common good takes selfless people who can look beyond their own career. When some of us were fighting to improve the career structures for young people at universities, most young academics stayed on the sidelines. They did not want to get involved and did not realize that this fight affected their own future. To me this was a great disappointment. Switzerland, and Europe as a whole, needs many more committed scientists willing to tackle the urgent problems of Swiss and European science.

*Switzerland, however, is doing very well in science.*

**Schatz:** That is fortunately true – and that's why I chose Switzerland when I left the United States for Europe thirty years ago. I have never regretted my choice. Doing well, however, is just not good enough. Europe, and particularly Switzerland, has every possibility to be the world's Science Mecca. They offer good general education, peace, prosperity, reasonable governments,

and excellent infrastructure. Switzerland's scientific ambition has always been to rank just behind the United States. However, being Number Two is not a vision. The vision must be to outclass everybody else. I don't see why Switzerland shouldn't be Number One in research and higher education. I say this as someone who is not Swiss himself, but who knows Switzerland well.

*To be Number One you need talent and money. Looking back, with the experience of having met so many scientists, what would you say is scientific talent?*

**Schatz:** Scientific talent has many facets, but the most important one is strength of character. Many highly intelligent people don't succeed in science because they lack courage, passion or patience. They don't want to go abroad for a postdoc, they don't want to tackle an important but difficult research problem and they shy away from a position that doesn't guarantee them permanent employment from the start. This lack of courage, this aversion to risk-taking, is a typical European problem.

*You mean Europeans would rather have a bird in the hand than two in the bush? European scientists prefer permanent positions over tenure-track professorships?*

**Schatz:** Most young scientists would prefer this, of course, but it is important that they are willing to trade security for an excellent and stimulating environment. Placing great weight on courage is not my idea; it was suggested decades before me by Harold Urey...

*.. the person who received the Nobel Prize in Chemistry in 1934 for the discovery of heavy hydrogen..*

**Schatz:** ...Urey said that courage is the most important ingredient of scientific success. I would add to that patience and passion. It is passion that makes you forget all the difficulties you invariably have to face and it is patience that allows courage and passion to exert their force.

*Have you always been patient enough?*

**Schatz:** No. Whenever I failed – which happened often – I had not been courageous, passionate, or patient enough. Too bad that I cannot start all over again! However, I can at least try to give advice to the next generation.

INTERVIEW: KARIN HOLLRICHER



#### Gottfried Schatz

obtained a Ph.D. degree in Chemistry and Biochemistry from the University of Graz. He then worked at the University of Vienna and the Public Health Research Institute of the City University of New York, and subsequently served as Associate Professor and Professor at the Cornell University in Ithaca, New York. In 1974 he joined the newly created Biozentrum at the University of Basel. From 2000-2003 he was the President of the Swiss Science and Technology Council. The photograph shows him at teaching in 1980.