

Emilio Segrè

The Nobel Prize in Physics 1959

Banquet Speech

Emilio Segrè's speech at the Nobel Banquet in Stockholm, December 10, 1959

Your Majesties, Royal Highnesses, Ladies and Gentlemen.

My eloquence is totally inadequate to add anything to the thanks so well expressed by the laureates who preceded me on this rostrum. I am sure that apart from our ability to express them, our feelings are similar and very deep indeed.

Alfred Nobel, as an idealist and as a man living in the second half of the 19th century, had high hopes for the future of mankind through science.

To use his own words:

The conquests of scientific research and its constantly enlarged fields of activity arouse a hope in us that microbes - both those of the soul and body - will gradually be eradicated and that the only war to be waged in the future by humanity will be the war against these microbes.

Sixty years after his death, after two world wars and other terrible experiences that have affected a large part of mankind, we might find his hopes too optimistic, based as they possibly were on the extraordinary period of peace and progress during the last part of the 19th century. Thus we find that in some respects his hopes for science have even been surpassed by the events. Indeed, the microbes of the body, in the literal sense, have suffered some defeats from which they will not easily recover. Also in other fields the progress of science during the last fifty years has been astonishing. Things which were unknown in my student days such as the neutron, have become of decisive importance to all mankind. At my age - and I'm only 54 - I find that I have known and met persons which my students consider no less historic and almost as remote as Columbus.

But what about the microbes of the soul?

Here, after the lessons of the first half century, I think we are less optimistic than at the time of Nobel. It seems that the influence of science on human affairs has been different from what was postulated in Nobel's time. Instead of being an unmixed blessing, it has brought out primarily a great increase in human technological possibilities, but whether they would be used for good or evil was left to Man to decide. The use of the tools was not prescribed *a priori*.

However, it is here that men of science have given us an interesting and profitable lesson. First of all, let me immediately make clear that I do not think of them as supermen or even as men who are in any way morally superior. They are like their fellow humans, sharing the same passions and weaknesses, but they have learned to use the appendages on their necks a little better, or at least differently, from other men. This skill is not too painful to acquire, but it demands some courage and some effort. The novice must be prepared to try to look at things in a detached way and to use his intellectual faculties, even if they sometimes collide with his desires. He must try to be honest with himself. "Bleibe Dir selbst treu" (To thine own self be true) was a principle emphasized by Max Planck, although it was not original with him.

The results reaped by the scientific habit of mind have been impressive, even with respect to some of the serious political problems confronting us all

Scientists over the whole earth have been able to converse easily with each other. I do not think that this is due as much to their having the common language of mathematics as to their common mental attitude.

To a large extent, they have escaped some of the worst aberrations and collective insanities that have afflicted mankind in recent years, and when the very foundations of civilization seemed in peril they generously welcomed their fellow scientists to the islands of safety then prevailing. I, for one, cannot forget my debt of gratitude for this.

They have been able to select and appreciate good things in their field, wherever they were to be found, and thus brought about true international cooperation. If my English is not perfect (as you see, I am an optimist) my colleagues have consoled themselves with my passable knowledge of Italian, and similarly I have been able to help scientifically just because my physics was in many ways different in outlook from what I learned in California.

Finally, scientists have tried to alert everybody to the serious dangers we are facing and have spent much effort and energy in order to make these dangers clear to governments and populations.

I think that this attitude which I have briefly outlined is one of the most valuable aspects of science and the humanitarian Nobel might have liked to see these prizes foster not only great intellectual and technical achievements but also this way of thinking and living which perhaps approaches his lofty ideals. Once more my deep gratitude.

Emilio Segrè's Address to the University Students on the Evening of December 10, 1959

Students, Ladies and Gentlemen:

Although we have a poet in our midst who would be far more eloquent than I could be, I've been chosen to answer your gracious and heart-felt greeting, and I will do my best.

We Nobel laureates, although we work in widely diversified fields, share at least one thing in common: we spend a good part of our lives teaching and working with students and young people like you, the new generation on which the future depends. Usually we are before you to discuss our special fields of interest. Tonight we may well speak to you in broader terms.

It has almost become a custom to tell animal fables on this occasion. Two years ago perhaps you heard a wise Oriental one from my friends Lee and Yang. I do not know the origin of the one I'm going to tell you. Perhaps it's Swedish and so you may have already heard it. The person who taught it to me was an old Quaker lady from Pennsylvania.

Two frogs were leaping and frolicking in a meadow when they spied a strange object. Being curious, they decided to investigate it, and the way frogs investigate things is by jumping into them.

In this particular object they found themselves very much at home because it was a pail of cream. For a while they had a splendid time swimming about. Then they felt tired and began to seek solid ground, because as you know, frogs can't live indefinitely in a liquid.

Much to their consternation they found that there was no island in this pond of cream. Panic stricken, they tried to jump out of the pail, but the walls were too high and too slick and they fell back. Again they jumped and fell back, and then again and again. The situation became more and more desperate.

At last one of the frogs gave up. The walls were far too high; the surfaces were too smooth to climb up, he reasoned. Clearly there was no hope. He fell back and drowned.

The other frog, perhaps a little less intelligent, but far more stubborn and persistent, continued jumping. Over and over he leaped up and fell back. He was at the point of complete exhaustion and nearly resigned to joining his fellow.

And then he felt something firm and hard under his legs. A little island of butter was forming. With a few more jumps he churned an island that was big enough so that he could rest, and so he was saved.

I leave the moral to you, but it must be a powerful one because I still remember that old Quaker lady in Pennsylvania as she told me the story in 1940, during the darkest days of the war.

From *Les Prix Nobel en 1959*, Editor Göran Liljestrand, [Nobel Foundation], Stockholm, 1960