

*the by-laws of the awards, relationships in science-subjects and areas, family-trees and branches all over the scientific world, influence strongly the areas of science, which receive the prizes.*

*And now I invite you to proceed to the tribune and deliver your lecture.*

## NOBEL AND THE PRIZE FOR EXCELLENCE

ΟΜΙΛΙΑ ΤΟΥ ΓΕΝΙΚΟΥ ΔΙΕΥΘΥΝΤΟΥ ΤΟΥ ΙΔΡΥΜΑΤΟΣ NOBEL  
ΒΑΡΩΝΟΥ STIG RAMEL

*I am deeply honoured being invited to address the Academy of Athens. I am also deeply conscious of the fact that it was here in Greece more than 2000 years ago that our Western civilization was born. It was the spirit of Greece that started it all. The restless spirit challenging the conventional wisdom, daring the Gods, the spirit that makes man sail out of the peaceful harbour out to the stormy seas to discover new horizons. The Nobel Prizes are the natural offspring of that spirit and, therefore, in one sense, we are all children of Greece.*

*The Nobel Foundation came into being at the turn of the century, and the first Prizes were given in 1901. The origin of the Prizes go, however, back into the 19th century. They were conceived by a scientist and industrialist, Alfred Nobel, who was born in Stockholm in 1833 and who became a citizen of the world. He wrote his last will in Paris one year before he died in 1896. He willed his enormous fortune to further what he had most closely at heart: science, literature and peace.*

*During the past 80 years the Nobel Prizes have undoubtedly come to play an important role in promoting these endeavours throughout the world. It is, however, surprising that prizes originating in far away Scandinavia have been able to play such an important role. This, I believe, can be explained in the following way.*

### 1. THE FIRST TRULY INTERNATIONAL PRIZE

*The international philosophy was clearly stated in Nobel's Last Will. The Royal Academy of Sciences, the Karoline Institute, the Swedish Academy and the Norwegian Parliament, entrusted with the responsibility of making the awards, followed Nobel's intentions by introducing an interna-*

tional nomination procedure for the Prizes. Every year many hundreds of scientists and scholars around the world are engaged and invited to nominate those most worthy of the Prizes. By choosing this international nomination procedure, the Nobel institutions from the very beginning put the Nobel Prizes in a class by themselves and gave the whole world a stake in the venture. In fact, there were many well-established scientific and cultural prizes at the beginning of the century. So for example, the French Academy alone awarded more than sixty prizes every year. But in France, as in all other countries, the prizes were reserved for citizens of their own country, and the idea of an international nomination procedure never struck their minds. Here the Nobel institutions had a stroke of genius, an invention that gave the basis for the coming success.

## 2. THE CANDIDATE EVALUATION SYSTEM

Already from the very beginning the prize awarding institutions put the Prize at the centre of their activities, even if they in the beginning were unhappy with the task entrusted to them. But as soon as they after years of hesitance had accepted the job, they moved into it whole-heartedly.

By choosing the right people already from the start and by making very few mistakes afterwards, the prize awarding institutions have slowly built up a system, in which the new recipients of the award so to speak inherit the prestige of their predecessors from the beginning of the century and onwards.

## 3. THE AMOUNT OF MONEY INVOLVED

The original Prize sum of 150,000 Swedish Crowns, at that time the equivalent to 25 times the annual income of a university professor, was of course impressive. It was a princely gift at a time when only very limited financial resources were made available to finance scientific research. The Prize amount is of less importance today. It is this year \$ 157,500 for each Prize. (In addition, the Nobel Prize is tax free in most countries - in my country this is considered especially attractive). But what is more important today is that the Prize has become a golden key, of which the gold of course is interesting, but more important is its function as a key which can open the treasure boxes of governments and private foundations.

## 4. THE HOME OF THE PRIZES

Sweden and Norway, small northern countries outside the great-power-struggle, and untouched by war since 1814 (with the exception of Norway's participation in WW II), became the ideal home for Prizes of the kind Nobel created. I doubt whether the Prizes, if they had been based on institutions in big nations could have survived two world wars. Furthermore, it is easier for institutions of a small country to win a reputation of independence and impartiality, which I believe has become the trademark of the Nobel institutions. Our independence is one of our most coveted possessions - independence also from our own government. The financing of all the Nobel institutions is entirely based on the economic strength of the Nobel Foundation, which now is worth about 50 million dollars. We do not have to ask for help and assistance from our government.

Of course, the success of the Prizes has also led to criticism. The surprising fact is, however, that criticism has been so scarce. I will, however, bring up some of the arguments raised against the Nobel Prizes, thereby hopefully throwing some light on the Prizes and their father.

The criticism, as I have been able to register it during my ten years as Executive Director of the Foundation, is of two kinds. One, with a basically positive starting point, criticizes the Foundation for the fact that there are too few prizes, or charges the prize-awarding institutions with not handling their job sufficiently well. The other is based on hostility to the prize as a symbol of Western civilization and its values.

The most common criticism of the prizes is of the first kind, i.e. that there are too few of them. Notwithstanding the fact that there are more than 2000 national and international prizes awarded throughout the world, the Nobel Foundation is urged to establish new Nobel prizes, for instance in mathematics, astronomy, environment, music, architecture and ballet, to mention but a few of the proposals sometimes supported by promises of substantial endowments, which the Foundation has received during the past couple of years.

Our board of directors decided that there should be no new Nobel prizes established in the future. This decision is based on our respect and reverence for the man Alfred Nobel and his last Will. The five prizes in

*Physics, Chemistry, Physiology or Medicine, Literature and Peace were natural offspring of the childless donor. Nobel was a scientist and inventor who himself had worked in physics, chemistry and medicine and who had strong literary interests and ambitions. His passion for peace was manifested during his lifetime in a "pincer-operation" against war in which the one part consisted of his support of the peace movements and the peace congresses of the late 19th century, and the other part comprised his efforts to find the ultimate weapon which would make war impossible.*

*The Board of the Foundation finds it impossible to create new prizes without direct bearing on Nobel himself. The only exception to this rule was our decision in 1968 to accept a donation from the Bank of Sweden, to celebrate its 300th anniversary, of a "Prize in Economic Sciences in Memory of Alfred Nobel". The prize was accepted, as economics also belonged to the world of Alfred Nobel. During his lifetime he created one of the first truly multi-national industrial empires with 90 companies spread all over the world. But the prize for Economics is the exception that proves the rule. I believe that this restricted policy is a wise policy also because there otherwise would be inflation in Nobel prizes, which would mean that they all would lose their value.*

*Another criticism is that physics, chemistry and physiology or medicine are only some of the branches of the great growing tree of natural sciences. The prize-awarding institutions have, however, in recent years adopted a broader and more liberal way of interpreting what belongs in the prize fields. So the prize for physics was gone to astronomers, the prize for chemistry to biochemists and the prize for medicine to ethologists. In this way the prize-awarding institutions have established a policy by which the Nobel prizes today cover more than 90 percent of the natural sciences.*

*The decisions by the prize-awarding institutions for the scientific prizes are seldom attacked. The mistakes made are surprisingly few. One of them was when in the 20s the Dean of a Canadian University got the prize for a discovery made by one of his collaborators. But since then the revolution in international communication has brought the Nobel committees in Stockholm closer to the world and makes repetition of such mistakes highly unlikely to occur. It is the prizes for peace and literature which seem to arouse the most controversy.*

*The peace prize, which in many parts of the world is considered the most important of all the Nobel prizes, has run into strong criticism when it has been given to politicians. A number of prizes during the 1970s caused great havoc. It is not surprising that these decisions have become controversial. Politicians are controversial; it is part of their job. During recent years the Nobel committee in Oslo has focused on people and organizations fighting for human rights and other humanitarian causes, on organizations like Amnesty International and the High Commissioner for Refugees and on individuals like Mother Theresa and Adolfo Perez Esquivel. These decisions have met with more or less universal approval (except in the case of Esquivel, from Generals in Argentina). This year's Peace Prize to Mrs. Alva Myrdal and to Ambassador Alfonso Garcia Robles, prominent leaders in the fight for peace, it was much in the spirit of Nobel.*

*When it comes to the prize in literature it must be remembered that it should not be looked upon as a "gold medal" in a literary world championship. As world literature is a tower of Babel with hundreds of languages and dialects, such a competition is impossible. How do you compare a book written in English with one in Japanese? Instead, the prize in literature has been used as a spotlight to draw attention to highly qualified authors off the beaten track and to voices in languages which have difficulties making themselves heard and understood. I am thinking of authors like Isaac Singer, Czeslaw Milosz and last year's prizewinner, Elias Canetti. I am also thinking of the two great Greek authors Giorgos Seferis and Odysseus Elytis, writing in a small language of a great tradition.*

*In literature we are all experts — that's the problem. I have often myself, as many of you undoubtedly have also, been surprised by the prize announcement. Like so many others I have then read the books by the new Nobel Laureate and have become enchanted. In this way the Nobel prizes have broadened world literature by, to quote an article in the *Economist*, "bringing the occasional unsung classic author from coterie obscurity into the international limelight".*

*But as criticism is impossible to avoid — and indeed should not be avoided — the prize-giving institutions can take comfort from the words of Oscar Wilde: "There is only one thing in the world worse than being talked about and that is not being talked about".*

*The prizes in natural science, however, are as I said rarely criticized and yet talked about. In the world of science they are evidently very*

well aware of the extraordinary meticulousness with which the work of prize adjudication is carried out. They know that more than 200 highly qualified experts are engaged in different stages of the process. It is an all-year-round affair, starting in October each year with the invitations of several thousand persons around the world to make nominations.

The nominations are examined, reports are written, investigations are made until the beginning of September, when the Committees make their recommendations to the prize-awarding institutions, the Royal Academy of Sciences and the Nobel Assembly of the Karolinska Institutet. The first votes are taken in the middle of October and the decisions immediately announced. Above all it is this massive effort, which incidentally costs half the Foundation's annual capital dividend of 3 million dollars, which gives the Nobel prize its unique position compared with all other prizes.

It is much more difficult to refute criticism based on the fact that so many brilliant scientists and authors, maybe even peace-workers, have not received the prize. The late Professor Arne Tiselius, former chairman of the Nobel Foundation and Nobel Laureate in chemistry, once said "The world is full of brilliant scientists who never have received the Nobel prize and never will".

The enormous growth of science and culture during the second half of our century has led to a situation where the six prizes, of which each at the most can be shared by three, will not suffice to honour all worthy candidates. Therefore we have to look on the prizes in a different way. They have to be looked on as symbols for our world's confidence in the part that brilliant individuals can play in society's development, a symbol for our trust in the ability of science and literature to shape a better world, and last but not least, as a symbol for our hope of a world without war.

Thus the Nobel Laureates receive their prizes as a proof of the merit of their own achievements but at the same time they receive them as representatives for the many other scientists who equally have contributed but never received the prize. But the Nobel prize can also be looked upon as a symbol of modern civilization, whose enormous success but also dismal failures are contemporaries of the prizes. Science and technology have brought us to the moon and stars but also dangerously near the brink of disaster.

*Negative attitudes towards science are today more articulated and widespread than ever before during this century. Science is accused of being self-centred and self-sufficient and of following its own rules without taking society and the common good into consideration. Sheltering behind these accusations all kinds of myths and superstitions creep into the lives of ordinary people. "Where belief goes in, reason goes out" is an old saying which sounds more up-to-date than ever before. The witches and sorcerers have made a terrible come-back. The predictions by Nostradamus and other astrologists are republished in new editions and have got a tremendous popularity. In the US the Creationists and the Moral Majority are closing in on the teaching of science.*

*Science is an offspring of man and like man it carries the possibilities of both good and evil. People who now turn against science make the same mistake as those who smash the mirror because they do not like their looks. The fundamental question is, of course, how we use the possibilities offered by science. There are certainly two sides of science. The relativity of good and evil is highlighted by the following anecdote I would like to share with you.*

*At the end of the 30s the well-known German scientist and Nobel prize-winner, Fritz Haber, came to England as a refugee. A committee was formed in order to welcome and support the scientist, a victim of Nazi persecution. Lord Ernest Rutherford, Nobel prizewinner in 1908 "for his investigations into the disintegration of the elements and the chemistry of radioactive substance", refused to take part in the welcoming committee. He deeply resented Haber because his scientific discoveries had been used to make possible the German chemical warfare during World War I. A few years later the Hiroshima bomb was dropped, a bomb for which Rutherford had helped to establish the scientific bases.*

*Science and what the scientists do should be watched and discussed. The scientific community should welcome such a debate, provided that it is based on reason and reasonable knowledge and not on religious fervour or hysteria. Furthermore, in my view, the scientists themselves should bring up for discussion those problems with an impact on society. Professor Paul Berg, Nobel Prize in Chemistry in 1980, did so when he brought up the problems and risks connected with genetic engineering, or manipulation, as some prefer to call it, and suggested a moratorium on research until the*

risks had been properly evaluated. Many scientists have criticized Berg because of this. They maintain that precious time was lost. The debate that followed was very difficult indeed. But I believe that the time lost was a price well worth paying for having the air cleared at an early stage. The rules and safety precautions introduced will, I hope, save genetics the fate of nuclear energy, which in my country, for example, has got a political stigma which seriously hampers its utilisation. In Sweden nuclear energy became the number one issue in the 70s, toppling two governments and preventing us from attacking the real problems of our society. If the scientists in the 50s had acted like Dr. Berg and we had had a debate at an early stage on the risks and hazards connected with nuclear energy, much lost time and energy could, I believe, have been spared in the 70s and 80s.

The possibilities for science to make a positive contribution to the future of mankind is, of course, dependent on the kind of societies we establish. If these societies are based on "mad dreams" instead of on knowledge and common sense, science will be saddled and reined by demagogues and power-seekers, and the risks of catastrophes will be tremendous. We have only to look back into the rear-view mirror of history to see the enormous pyres formed from the victims of ideologies and religions gone mad. Reason based on knowledge and science creates the narrow bridge towards the future, which in my view offers our only hope. I would like to see the Nobel prizes as torchlights showing the way towards that bridge. There is no way back. There is, however, an enchanting but terribly naive dream of an orderly retreat back to a clean and disinfected 18th century without toothaches and smallpox. That retreat would, in my view, soon turn into a mass rout, driving the survivors back into the swamps of the Dark Ages.

The prizes are also symbols of the spirit of internationalism, which today, on the surface, is generally accepted, but which in reality is threatened by the increasingly strong currents of nationalism. In his last will Alfred Nobel emphasized that the prizes should be given to "the most worthy... whether he be a Scandinavian or not". The prizes symbolize the international character of science, peace and literature, and the internationalism is reflected in the life of the Laureates. Let me take, as an example, the 1981 crop of Nobel Laureates. Five out of ten were born and had got their education in another country than that in which they are now resident.



*The governments and mass media of the world always want to put flags on the Laureates. The Nobel Foundation refuses to follow that line. Science has no frontiers and nationalistic short-sightedness is its worst enemy. In the US they cheer the fact that so many Laureates carry US passports. What they should celebrate is the fact that American universities offer the most stimulating intellectual environment in the world, attracting scientists from all parts of the world, and that these universities have become havens for people hounded by political persecution elsewhere. The generosity the US showed during the 30s and 40s when it opened its doors to the brilliant scientists terrorised by the dictators of Europe, has today made the US Nobel country number one in the world. It was not Roosevelt and the New Deal which were behind the take-off of American science — it was Hitler, Mussolini and Stalin.*

*I was thinking about that when in December last year I saw the Nobel prizewinner in chemistry, Roald Hoffmann, now an American, receive his prize from the hands of our King at the Nobel Awarding Ceremony. Thirty-five years earlier young Hoffmann was hiding from the pogroms of the Nazis and the Ukrainian nationalists under a staircase in a school-house in the Ukraine. Hoffmann is an "Anne Frank" who survived. I thought about all the brains buried at the battlefields and slavecamps of the 20th century-capacities and talents never allowed to make their contribution. How much further might we have reached with their help?*

*After having closely studied the Nobel Laureates and their background for a number of years, I dare to formulate a "law" stating that people who break up from their original setting and who start a new future in another environment become more creative than those who stay on in the smugness of "Home, Sweet Home". This gives a thin silver lining to the clouds of tragedy and suffering now towering over the streams of refugees which flood the world.*

*Last year I took part as a prize-awarder in a competition for young scientists in Washington, DC. The participants were high school students who had come out as winners in competitions involving tens of thousands of students all over the US. I noticed with great interest and joy the many winners with a Vietnamese, Cuban or Chinese background — all refugees. Their share of the awards was remarkably high. Perhaps in a few years I shall see them in Stockholm...*

*Our civilization is built on our capacity to create "winners" and our ability to accept and to take care of the "losers". This is a hard and unpleasant fact, but facts have to be faced in a hard and unpleasant world. "Elitism" in many people's minds is a four letter word. But consciously or unconsciously, they suppress the fact that we could not survive without the elite. "Anti-elitism" has become a powerful force in our societies. It has had a strong impact on the Swedish educational system, which unfortunately has led to a decline in the quality of education in schools and universities, a decline which will in the long run have not only a devastating effect on the material well-being, but also undermine the social safety net of the welfare state. In the end we may all have to pay when our countries become "losers". The dangerous drift to level out the peaks of brilliance into the flatland of mediocrity has in my country already had serious consequences for the development of science and technology. We are beginning to feel the long-term effects of the "cultural revolution of '68". Young people do not get the training society needs, to keep its competitive strength. We have already been forced to slow down or stop social reforms. The weave of the safety net is growing looser and might soon develop into holes. Let's face it—it's the weak who are first to suffer in stagnant societies. The prizegiving, as a crowning of the elite, has, of course, become a marvellous target for the crusaders of "anti-elitism". As the "best and the brightest" the Nobel Laureates stand as symbols for the pursuit of excellence. I strongly believe, however, that we need such symbols. In my country the downhill skier Ingemar Stenmark has become a national hero. His success has encouraged a great number of young Swedes to take up this sport, a sport which hardly existed in Sweden before he made the headlines. In the same way the glamour of the Nobel prizes stimulates the interest of young people in science and encourages them to carry on the striving for excellence and it is our societies and the "losers" who will profit.*

*But science and technology must not develop into a "l'art pour l'art". Science is meaningful when it is used "to the benefit of mankind", to quote the words of Nobel's last will. We should not forget the lesson of the late 60s and carefully listen to people's worries and fears.*

*In summing up, I would like to use Nobel himself and his life to exemplify the points I have tried to make tonight. His invention of dynamite made the revolution in construction and transport of the late 19th*

century possible. His invention cleared the way for roads and railways and blew tunnels through the mountains. Dynamite cleared the sea-lanes and opened the canals. It was never used for war! Nobel built a highly successful business empire, not in order to maximize profits, but to finance the work of his scientific collaborators who were tackling projects like rockets for high altitude photography, new safety systems, hi-fi technology, synthetic materials and blood transfusion, to mention only a few of Nobel's ventures.

His passion for peace made him a powerful ally of the peace movement and at the same time made him try for the construction of the final weapon that would make war impossible. He wrote to his friend Bertha von Suttner, author of the famous book *L a y D o w n Y o u r A r m s*: "When two armies are capable of destroying each other in a second, all civilized nations will surely recoil before a war and dismiss the troops". The First World War, which he saw coming, nearly destroyed the Europe he loved. But the doomsday bombs which came after World War II have created a balance of terror which so far has spared us from the final war. But nations have not, as Nobel thought, been civilized enough to dismiss the troops.

Nobel was an idealist, himself a writer of poems and novels "of an idealistic tendency", to use the words of his last will giving the guidelines for the prize in literature. As an industrialist and employer he was far ahead of his time in treating his employees as fellow human beings. He considered himself a social democrat and was looked upon with distrust by his fellow millionaires. He was a true internationalist, born in Stockholm, educated in Russia, with his head-quarters in Paris, and who finally died in San Remo, Italy. He mastered five languages and was at home wherever he had a laboratory or a factory. He was a complicated man, but to quote Karl Ragnar Gierow, former permanent secretary of the Swedish Academy, "The genius is full of contradictions — only the fool is solid as a rock". The prizes have sprung out of this man's life. They have come to play a greater role than he could have imagined when he wrote his last will in Paris in 1895. They have helped to give prestige and glory to science and other intellectual ventures, to the benefit of mankind. This is, I am sure, the reason why I was asked to address your Academy, an honour I greatly appreciate.

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