

# THE NOBEL PRIZE FOR PEACE

Speech by MRS. AASE LIONAES, President of the Lagting

Your Majesty, Your Royal Highnesses, Ladies and Gentlemen

In the will and testament drawn up by Alfred Bernhard Nobel on November the 27, 1895, he laid down the conditions to be fulfilled by a recipient of the Nobel Prize. Paragraph one states, inter alia, that the award of the Prize shall be made to the person "who, during the preceding year, shall have conferred the greatest benefit on mankind."

The Nobel Committee of the Norwegian Storting must bear this criterion in mind in selecting the prize winner from among the many proposals submitted.

What might be a "benefit" to humanity today? Many answers could be given, just as varied, as many-sided, and as interesting as man himself.

Does not history offer one signpost indicating and at all times identifying the basic needs of man, which it would be a "benefit" to satisfy?

One of the great historical events in Europe during the course of our dramatic century, the Russian Revolution of 1917, had this inscription on its banner: "Bread and Peace". Bread and Peace present a combination of the vital needs mankind has always set as an aim vital to the development of its potential.

Freedom from starvation was furthermore one of the freedoms our first global peace organization, the United Nations, recognized in 1945 as a basic human right to be secured for all people. On October the 16th, 1945, FAO, that is to say the United Nations Organization for Food and Agriculture, the first of UNO's specialized agencies, was established.

In 1949 FAO's Director General, the nutrition expert Lord Boyd Orr, was awarded the Nobel Peace Prize.

This year the Nobel Committee of the Norwegian Storting has awarded Nobel's Peace Prize to a scientist, Dr. Norman Ernest Borlaug, because, more than any other single person of this age, he has helped to provide bread for a hungry world. We have made this choice in the hope that this will also give the world peace.

Who is this scientist who, through his work in the laboratory and in the wheat fields, has helped to create a new food situation in the world, and who has turned pessimism into optimism in our dramatic race between the population explosion and the production of food?

Norman Borlaug, a man of Norwegian descent, was born on March the 25th, 1914, on a small farm in Cresco, Iowa, in the United States, and originally studied forestry at the University of Minnesota. It was, however, as an agriculturalist that he was to make his greatest contribution.

In 1944 Borlaug was appointed to a post as a genetics expert with the

Rockefeller Foundation. In 1942 this Foundation had launched an agricultural program in Mexico, in cooperation with the Mexican government. This project was directed by two outstanding plant pathologists, Professors Stakman and J. George Harrar. Its aim was research into and a better exploitation of agricultural know-how, with the view to developing Mexico's agriculture and in this way increasing and improving local food supplies. For the outstanding contribution to peace this agricultural program represented the Rockefeller Foundation was in 1962 proposed as a candidate for Nobel's Peace Prize by ten members of the Swedish Riksdag.

It is interesting to note that the Norwegian Academy of Sciences in Oslo, as far back as 1951, elected the leader of this project, Professor Stakman, a member of its Mathematical-Natural Science class.

Twenty years later, in 1971, his pupil, Dr. Norman E. Borlaug, was created an honorary doctor by the Norwegian Agricultural College at Ås. The Rector of this institution, Professor Jul Låg, declared that this honor had been awarded for the following reason:

"The basis for the award of the degree of honorary doctor to Borlaug is the impressive results he has achieved in wheat improvement, and the organization of the exploitation of the results of this improvement in agriculture, particularly in the developing countries. The new breeds of grain evolved by Dr. Borlaug and his assistants have resulted in improvements in harvest, quantitatively and qualitatively, that previously were considered hardly possible".

This distinction is only one of a great many academic awards conferred on Dr. Borlaug by universities and similar institutions in the USA, Pakistan, India and Canada.

Dr. Borlaug came to the International Maize and Wheat Improvement Center in 1944. Today he is director of the Wheat Improvement Project in Mexico.

Ever since that day, twenty-five years ago, when Dr. Borlaug started his work on the improvement of grain, and right up to the present, he has devoted all his energy to achieve the historical result which today, all over the world, is referred to as "the green revolution". This revolution will make it possible to improve the living conditions of hundreds of millions of people in that part of the globe which today might be called "the non-affluent world".

Nations with an ancient culture, who right up to modern times have suffered the scourge of recurrent hunger crises, can now be self-supporting in wheat. A long and humiliating dependence on the so-called rich nations of the world for their daily bread will have been brought to an end.

Behind the outstanding results in the sphere of wheat research of which the dry statistics speak, we sense the outline of a dynamic, indomitable and refreshingly unconventional research scientist.

Dr. Borlaug is not only a man of ideals, but essentially a man of action. Reading his book on "the green revolution" one realizes that he is fighting not only weeds and rustfungus, but just as much the deadly procrastination of the bureaucrats and the red tape that thwarts quick action.

The following warning occurs to remind us of this in his book:

"One of the greatest threats to mankind today is that the world may be choked by an explosively pervading but well camouflaged bureaucracy"

Dr. Borlaug cannot afford to wait: there is an important cause weighing on his mind, something that must be carried out, and must be carried out *now*.

He puts it like this: "I am impatient, and do not accept the need for slow change and evolution to improve the agriculture and food production of the emerging countries. I advocate instead a 'yield kick-off' or a 'yield blast-off'. There is no time to be lost, considering the magnitude of the world food and population problem."

Apart from his work as a scientist, and as an outstanding organizer in exploiting the results of research, Dr. Borlaug has also been an inspiring leader for the many young scientists who have been trained at the Wheat Institute in Mexico.

Dr. Borlaug prefers to teach his pupils out in the fields; many people, we are told, who ask him to lecture, or write a paper, get the following reply: "What would you rather have—bread or paper?"

In 1944, when Dr. Borlaug started work on the Mexican agricultural project, there were not so many people concerned with the relationship between the trends in population growth and the increase in food production in the world.

After the war, when most colonial empires were gradually dismantled, and 60—70 developing areas emerged as independent national states, it was primarily the incredibly poor standard of health in these countries that appealed to our conscience.

Through its Health Organization, the United Nations launched a formidable attack in the 1950's on the great national diseases in these new states. One of the results of the preventive medical measures set on foot was a drastic decrease in the mortality rate of the developing countries. And it was not until the 1960's that the prospects of a population explosion constituted a menace, not only to the developing countries but to the whole world.

The population explosion is being attacked essentially from two angles: by information on family planning and by an increased effort, first and foremost through research, to increase the agricultural yield.

When Borlaug and other scientists initiated their work at the Wheat Center in Mexico, the Mexican authorities had little faith in their country's potential as an agricultural country. It was assumed that the country had neither the climate nor the soil required for advanced agriculture. The country spent a great deal of its foreign currency importing the necessary wheat.

Wheat researchers attached to the Rockefeller Foundation's project were set the task of helping Mexico, in as short a time as possible, to help herself. The scientists were to play the role, not of consultants entrenched behind their documents in their offices, but as active participants in the practical manual labor and toil in the fields.

To many young scientists this last principle may have entailed a somewhat unpalatable reassessment of their social status, but it was undoubtedly a wholesome maxim.

In his book "The Green Revolution" Dr. Borlaug relates that the Mexican wheat program aimed at clarifying all the factors that hampered production. Furthermore, the idea was to train young scientists in all scientific disciplines associated with production. The aim of this research, Dr. Borlaug continues, was to endeavour to develop a variety of wheat with greater yields, with a great degree of resistance to diseases and with qualities that rendered it suitable for use in connection with improved agronomic methods, that is to say the use of artificial fertilizers, improved soil culture and mechanization.

The result of the concerted attack launched by the team of scientists on all these problems was the new Mexican breeds of wheat, which are now generally known, which produce astonishingly large yields, which are resistant to disease, and which facilitate intensive use of fertilizers. Unlike previously known breeds of wheat, the new types can be transferred to remote parts of the world with a different climate.

The most important event in the Mexican wheat improvement program was the development of the so-called "dwarf varieties". After years of research on the part of Dr. Borlaug and his collaborators to develop, by crossing and selection, the so-called Japanese breed of wheat, they evolved the new world-famous "dwarf-variety".

These are breeds of wheat, which unlike previously known long-bladed varieties, have short blades. The long-bladed varieties of wheat, on which work was done in the 1950's, gave increased yields, but snapped when they were given more than a certain amount of artificial fertilizer. The new dwarf varieties were able to stand two or three times as large quantities of artificial fertilizer, and resulted in an increase of yield per decare from the previous maximum of 450 kilos to as much as 800 kilos per decare. These varieties can be used in various parts of the world, because they are not affected by varying lengths of daylight. They are better than all other kinds in both fertilized and non-fertilized soil, and with and without artificial irrigation. In addition they are highly resistant to the worst enemy of wheat, rust-fungus or oromyces.

Thanks to these high-yield breeds of wheat Mexico was self-supporting in this grain in 1956, and in recent years this country has exported several hundred thousand tons annually.

At the invitation of FAO Dr. Borlaug visited Pakistan in 1959. He was instrumental in having a number of Pakistani wheat experts sent to Mexico to study the wheat research center there. After striving hard to convince Pakistani authorities and other foreign experts, Dr. Borlaug persuaded the political leaders of Pakistan to recognize the advantages of introducing the new Mexican breeds of wheat into their country. At that time the agriculture of West Pakistan was producing a steady annual deficit in relation to national needs. Wheat yields were low, approximately 100 kilos per decare on an average. Farming methods were primitive, the soil had been over-cropped, while artificial fertilizer was a rarity.

After struggling successfully to overcome bureaucracy, prejudice and even rumors to the effect that Dr. Borlaug's variety of wheat would produce sterility

and impotence among the population, it was finally decided that Pakistan should import a certain quantity of Mexican seed-corn of the new breed. Once the seed-corn had been introduced and yielded superb results in the form of increased crops, the triumphal progress of "the green revolution" was ushered in. Pakistan's present-day wheat production amounts to 7 million tons, and the country is self-supporting in wheat. That this could be achieved in the course of three—four years, was due not least to the fact that the President of Pakistan had personally supported the program very strongly, and that the results achieved in Mexico could be used as a basis. This saved the country a great many years of research and experiment.

Dr. Borlaug was in India in 1963 in order to find out whether the breed of wheat he had developed in Mexico could be used in this country too, and history repeated itself. The highest results in the history of India were achieved in 1968 with a crop of 17 million tons. This event was celebrated in India with the issue of a new postage stamp bearing the inscription "The Indian Wheat Revolution 1968".

After the successful results achieved in Mexico, India and Pakistan, the new varieties of wheat have been introduced into certain parts of Turkey, Afghanistan, Iran, Iraq, Tunisia, Morocco and the Lebanon. The Soviet Union, too, is now interested in establishing contacts with the International Maize and Wheat Research Center in Mexico.

This occasion is neither the time nor the place to give a detailed account of Dr. Borlaug's great results in wheat research during the last twenty-five years. But it has been established beyond doubt that his efforts have made possible an unequalled increase in wheat production and an improvement in quality that has postponed a crisis that a great many scientists so far have predicted would be the result of the growing gap between the population explosion and food production.

In assessing the effects of Dr. Borlaug's great contribution it is obvious that a whole series of factors, of an economic, social, cultural and political nature, are involved—not merely in the various developing countries,—as well as international relations. A problem of such importance as the aid given by the industrialized countries to the developing countries must also be basically reassessed. It is obvious that we can no longer count on the export of grain to the developing countries. Loans for the purchase of industrial equipment and technical know-how must be given greater priority.

The new variety of wheat will be able to effect a total transformation of the economic picture in the developing countries.

Society will be richer, industry will be more varied, if the politicians at the same time pursue an economic policy which aims at a general economic growth. The increased earnings of agriculture will insure "ring-effects" in the form of growth impulses in all the activities created by more productive agriculture. It would be possible to increase employment; sowing, fertilizing, hoeing, harvesting, marketing will have to be carried out several times a year. Seasonal unemployment would be reduced; a balanced economic policy, correctly pursued, should make it possible to provide work for the large surplus

of available manpower in the developing countries. It is maintained, for example, by Lester Boown in his book "Seeds of Change", that there might even be a *shortage* of labor on a local basis.

The new technology in agriculture could also stimulate branches of the economy, such as industry, building and construction work throughout the social economy. For instance, the increase in crop yields will require the building of artificial fertilizer factories, roads, irrigation works, railways, warehouses, silos and mills. Outlying districts will be able to receive the economic pollination necessary for the building of schools and hospitals. From whatever angle we consider it, the effects of the "green revolution" will entail an increased total production which will make the developing countries economically better placed and more independent of the aid provided by the affluent countries, as far as foodstuffs are concerned.

In an article published in "Foreign Affairs" the agricultural expert Lester Brown states that the new breed of grain in our age will have the same impact on the agricultural revolution in Asia as the steam engine had on the industrial revolution in Europe in the 18th Century. Or, as Eugene Black puts it, "the new grain varieties will be 'engines of change'".

Not least these "engines of change" will transform the position of the peasant in the community, and the peasant's attitude to his own situation in life. A new policy of income distribution, socially orientated, will enable the peasant to break out of the vicious circle of poverty and the apathy which is a natural consequence of a penury that offers no future prospects. Many writers who have dealt with the peasant population of developing countries have maintained that they are conservative, in the sense that they do not want any change. But Dr. Borlaug—who is a great admirer of the peasant—maintains that when changes involve a rise in the standard of living, the Asiatic peasant, too, will accept change. To quote from Dr. Borlaug's book: "Although the peasant farmer may be illiterate, he can figure".

The new varieties of grain and the capital input required will increase the peasants' demands on the authorities for education, transport, agricultural credits, etc. The capital-hungry peasants could constitute a political pressure group which the authorities will have to take into consideration in framing their economic policy. There would thus be an increase in political activity.

Dr. Borlaug, however, realises that even though the new varieties of grain will involve a considerable increase in the crop harvested by the peasants, "the green revolution" might also create social problems of a negative kind. If politicians in the developing countries should fail to ensure the requisite conditions by means of equitable taxation, a system of agricultural credits at reasonable rates of interest, a properly adjusted price policy and a defensible employment policy, social injustices might well occur.

In his speech on August the 20th this year at the Agricultural College at As Dr. Borlaug expressed his social views as follows:

"I've worked with wheat, but wheat is merely a catalyst, a part of the picture. I'm interested in the total economic development in all countries. Only by attacking the whole problem can we raise the standard of living for all

people in all communities, so that they will be able to live decent lives. This is something we wish for all people on this planet.”

But this will be the responsibility and challenge to be faced by the political authorities in the countries concerned. Through his scientific contribution and his tremendous talent for organization Dr. Borlaug has introduced a dynamic factor into our assessment of the future and its potential. He has enlarged our perspective; he has given the economists, the social planners and the politicians a few decades in which to solve their problems, to introduce the family planning, the economic equalization, the social security and the political liberty we must have in order to ensure everybody—not least the impoverished, undernourished and faultily nourished masses—their daily bread, and in this way a peaceful future.

And this is precisely where Dr. Borlaug has made his great contribution to peace. During the twenty-five years that have elapsed since the end of the war, those of us who live in the affluent industrialized societies have debated in almost panic-stricken terms the race between the population explosion in the world and the available food resources. Most experts who have expressed an opinion on the issue of this race have been pessimistic.

The world has vacillated between fear of two catastrophes—the population explosion and the atom bomb. Both pose a mortal threat.

In this intolerable situation, with the menace of doomsday hanging over us, Dr. Borlaug comes onto the stage and cuts the Gordian knot. He has given us a well-founded hope, an alternative of peace and of life—“the green revolution”.