

ALFRED NOBEL

by Alden Whitman

Alfred Nobel, the Swedish chemical experimenter and businessman who invented dynamite and other explosive compounds and whose will established the prizes that have brought him lasting fame, was a person of many paradoxes and contradictions. His contemporaries in the last half of the nineteenth century often found him perplexing because he did not quite fit the mold of the successful capitalist of his expansionist era. For one thing, Nobel was fonder of seclusion and tranquility than of ostentation and urban life, although he lived in cities most of his life and traveled widely. Unlike many contemporary barons of business, Nobel was spartan in his habits; he neither smoked nor drank, and he eschewed cards and other games. While his heritage was Swedish, he was a cosmopolitan European, comfortable with the French, German, Russian, and English languages as well as with his native tongue. Despite the heavy demands of his business and industrial affairs, he managed to build a well-stocked library and was well acquainted with the works of such authors as Herbert Spencer, the British philosopher and exponent of social Darwinism; Voltaire; and Shakespeare. Of nineteenth-century men of letters, he most admired a number of French writers: the Romantic novelist and poet Victor Hugo; Guy de Maupassant, the short story craftsman; Honoré de Balzac, the novelist whose keen eye pierced the human comedy; and the poet Alphonse de Lamartine. He also liked to read the works of the Russian novelist Ivan Turgenev and the Norwegian playwright and poet Henrik Ibsen. The naturalism of the French novelist Émile Zola, however, left him cold. Above all, he loved the poetry of Percy Bysshe Shelley, whose works inspired in him an early resolve to embark on a literary career. To that end, he wrote a considerable number of plays, novels, and poems, only one of which was published. He then turned instead to a career in chemistry.

Likewise puzzling to his fellow entrepreneurs was Nobel's reputation for holding advanced social views. The notion that he was a socialist was, in fact, quite undeserved, for he was actually an economic and political conservative who opposed suffrage for women and expressed grave doubts about democracy. Nevertheless, as much as Nobel lacked confidence in the political wisdom of the masses, he despised despotism. As an employer of many hundreds of workers, he took a paternalistic interest in their welfare, without wishing to establish any personal contact. Shrewdly, he realized that a work force with high morale is more productive than a crudely exploited one, which may well have been the basis for Nobel's reputation as a socialist.

Nobel was quite unassuming and even reticent about himself. He had few confidants and never kept a diary. Yet at dinner parties and among friends, he was an attentive listener, always courteous and considerate. The dinners given at his home in one of the most fashionable neighborhoods of Paris were convivial and elegant, for he was a well-informed host able to call upon a fund of small talk. He could strike off words of incisive wit when the occasion arose, for instance once remarking, "All Frenchmen are under the blissful impression that the *brain* is a French organ."

He was a person of medium height, dark and slender, with deep-set blue eyes and a bearded face. In the custom of the time, he wore a pair of pince-nez (for nearsightedness) attached to a black cord.

Largely because his health was not robust, Nobel was sometimes capricious, lonely, and depressed. He would work intensely; then, finding it difficult to relax, he would often travel in search of the curative powers of various spas, at that time a popular and accepted part of a healthy regimen. One of Nobel's favorites was the spa at Ischl, Austria, where he kept a small yacht on a nearby lake. He was also fond of Baden bei Wien, not far from Vienna, where he

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met Sophie Hess. At their introduction in 1876, she was twenty years old, petite, and good-looking; he was forty-three. There appears to be no doubt that Nobel fell in love with "Sophiechen," a clerk in a flower shop, for he took her to Paris with him and provided her with an apartment. The young woman called herself Madame Nobel, but with time she is said to have become financially demanding. The relationship ended around 1891, only a few years before Nobel's death.

Despite his physical frailty, Nobel was capable of bursts of concentrated work. He had an excellent scientific mind and loved to tackle problems in his chemistry laboratory. Nobel managed his decentralized industrial empire through the board of directors of his many companies, which operated independently of one another and in which Nobel typically owned a 20 to 30 percent interest. Despite his limited financial interest, Nobel personally oversaw many of the details of decision making in the companies that bore his name. According to one of his biographers, "Apart from his scientific and business activities, much of Nobel's time was taken up by voluminous correspondence and paperwork, every detail of which he coped with entirely alone, from duplicating to keeping his private accounts."

In early 1876 he attempted to engage a housekeeper and part-time secretary by advertising in an Austrian newspaper: "A wealthy and highly educated old gentleman living in Paris seeks to engage a mature lady with language proficiency as secretary and housekeeper." One respondent was thirty-three-year-old Bertha Kinsky, then working in Vienna as a governess. Daringly, she came to Paris for an interview and impressed Nobel by her personality and language fluency, but after a week or so, homesickness overtook her and she returned to Vienna to marry Baron Arthur von Suttner, the son of her former employer in Vienna. She and Nobel met again, and in his last ten years they corresponded about her projects for peace. Bertha von Suttner became a leading figure in the European peace movement and through her friendship with Nobel was able to gain from him substantial financial support for the cause. She received the 1905 Nobel Prize for Peace.

In his final three years, Nobel worked with a private assistant, Ragnar Sohlman, a Swedish chemist in his twenties and a person of great tact and patience. Sohlman functioned as both a secretary and a laboratory aide. Nobel liked and trusted the young man enough to name him chief executor of his will. "It was not always easy to be his assistant," Sohlman recalled. "He was exacting in demands, plainspoken, and always seemingly in a hurry. One had to be wide awake to follow his swiftly leaping thought and often amazing whims when he suddenly appeared and vanished as quickly."

During his lifetime, Nobel often exhibited uncommon generosity toward Sohlman and other employees. When the assistant got married, Nobel impulsively doubled his salary; and, earlier, when his French cook married, he gave her a gift of 40,000 francs, a large sum in those days. Nobel's generosity also often went beyond the realm of personal and professional contacts. For instance, although he was not a churchgoer, Nobel frequently gave money for the parish work of the Swedish church in Paris, whose pastor in the early 1890s was Nathan Soderblöm, later the Lutheran archbishop of Sweden and the recipient of the 1930 Nobel Prize for Peace.

Although he was often called the Lord of Dynamite, Nobel strongly opposed the military uses to which his inventions were frequently put. "For my part," he said three years before his death, "I wish all guns with their belongings and everything could be sent to hell, which is the proper place for their exhibition and use." On another occasion, he stated that war was "the horror of horrors and the greatest of crimes" and added, "I should like to invent a substance or a machine with such terrible power of mass destruction that war would thereby be impossible forever."

Alfred Nobel's distinguished career is all the more remarkable considering his humble origins. The Nobel family came of peasant stock, emerging from obscurity with the surname of

Nobelius only late in the seventeenth century. Alfred's grandfather, a barber-surgeon, shortened it to Nobel in 1775. His eldest son, Immanuel (1801–1872), was Alfred's father. Immanuel, an architect, builder, and inventor, had a precarious business life for several years until the family began to make its fortune in the oil fields of Baku, Russia. He married Caroline Andriette Ahlsell (1803–1879) in 1827; the couple had eight children, only three of whom survived to adulthood: Robert, Ludvig, and Alfred.

Born October 21, 1833, in Stockholm, Alfred Bernhard Nobel was the couple's fourth child. From his first days, he was weak and sickly, and his childhood was marked by chronic illness. Both as a young man and as an adult, Alfred enjoyed an especially close and warm relationship with his mother. No matter how busy he was as an older man, he managed a yearly visit and kept in frequent touch by letter.

After trying his hand at a business making elastic cloth, Immanuel fell on hard times and in 1837, leaving his family in Sweden, moved first to Finland and then to St. Petersburg, where he manufactured powder-charged explosive mines, lathes, and machine tools. In October 1842, when Alfred was nine, he and the rest of the family joined his father in Russia, where his now prosperous family was able to engage private tutors for him. He proved to be a diligent pupil, apt and eager to learn, with a special interest in chemistry.

In 1850, when he was seventeen years old, Alfred took an extended trip, traveling in Europe, where he visited Germany, France, and Italy, and the United States. He pursued his chemical studies in Paris, and in the United States he met John Ericsson, the Swedish inventor of the caloric engine who later designed the ironclad warship *Monitor*.

Returning to St. Petersburg three years later, Nobel was employed in his father's growing business, by then called Fonderies & Ateliers Mécaniques Nobel & Fils (Foundries and Machine Shops of Nobel and Sons), which was producing material for the Crimean War (1853–1856). At the end of the war, the company shifted to the manufacture of machinery for steamboats plying the Volga River and the Caspian Sea. Its peacetime production, however, was not enough to offset the loss of military orders, and by 1858 the company fell into financial trouble. Alfred and his parents returned to Stockholm while Robert and Ludvig remained in Russia to salvage what they could. Back in Sweden, Alfred became engrossed in mechanical and chemical experiments, obtaining three patents. This work sharpened his interest in further experimentation, which he conducted in a small laboratory his father had established on his estate near the capital.

At that time, the only usable explosive for powder-charged mines—either for military or for peaceful uses—was black gunpowder. It was known, though, that the substance nitroglycerin was an extraordinarily powerful explosive compound, which posed extraordinary risks because of its volatility. No one had yet figured out how to control its detonation. After several small experiments with nitroglycerin, Immanuel Nobel sent Alfred to Paris in search of financing in 1861; he succeeded in raising a 100,000-franc loan. Despite some initial failures by Immanuel, Alfred became actively involved in the project. In 1863 he invented a practical detonator, which used gunpowder to set off the nitroglycerin. This invention was one of the primary foundations of his reputation and his fortune.

One of Nobel's biographers, Erik Bergengren, has described the device in this fashion:

In its first form, . . . [the detonator] is so constructed that initiation of the liquid nitroglycerin explosive charge, which is contained in a metal cap by itself or in a blocked-up borehole, is brought about by the explosion of a smaller charge let down into this, the smaller charge consisting of gunpowder in a wooden cap by itself, with a plug, into which a fuse has been inserted.

In order to increase the effect, the inventor altered various details of this construction several times, and as a final improvement in 1865 he replaced the original cap with a metal cap charged with detonating mercury. . . . With the invention of this so-called blasting cap, the Initial Ignition Principle was introduced into the technique of explosives, and this was fundamental to all later developments in this field. It was this principle which made possible the effective use of nitroglycerin and later other violent explosives as independent explosives; it also made it possible to study their explosive properties.

In the process of perfecting the invention, Immanuel Nobel's laboratory was blown up, an explosion that resulted in the loss of eight lives, including Immanuel's twenty-one-year-old son Emil. Shortly thereafter, the father suffered a stroke, and remained bedridden until his death eight years later in 1872.

Despite the setback caused by the explosion and the resulting public hostility to the manufacture and use of nitroglycerin, Nobel persevered, and in October 1864 he persuaded the Swedish State Railways to adopt his substance for the blasting of tunnels. In order to manufacture it, he won the financial backing of a Stockholm merchant; a company, Nitroglycerin, Ltd., was set up and a factory built in the Swedish countryside. In its first years, Nobel was the company's managing director, works engineer, correspondent, advertising manager, and treasurer. He also traveled extensively to demonstrate his blasting procedure. Among the company's customers was the Central Pacific Railroad in the American West, which used Nobel's nitroglycerin in blasting the line's way through the Sierra Nevadas. After obtaining patents in other countries for his device, Nobel established the first of his foreign companies—Alfred Nobel & Co. in Hamburg—in 1865.

Although Nobel was able to solve the major problems of manufacture, his explosives were sometimes carelessly handled by their purchasers. There were accidental explosions and deaths and even a ban or two on imports. Nonetheless, Nobel continued to expand his business. He won a United States patent in 1866 and spent three months there raising money for his Hamburg plant and demonstrating his blasting oil. Nobel also decided to found an American company that, after some maneuvering, became the Atlantic Giant Powder Company; following Nobel's death, it was acquired by E. I. du Pont de Nemours and Company. The inventor felt badly treated by American businessmen who were eager to float shares in his blasting oil companies. "In the long run I found life in America anything but agreeable," he later wrote. "The exaggerated chase after money is a pedantry which spoils much of the pleasure of meeting people and destroys a sense of honor in favor of imagined needs."

Although blasting oil, correctly used, was an effective explosive, it was nevertheless so often involved in accidents (including one that leveled the Hamburg plant) that Nobel sought some way to stabilize nitroglycerin. He hit upon the idea of mixing the liquid nitroglycerin with a chemically inert and porous substance. His first practical choice was kieselguhr, a chalklike, absorbent material. Mixed with nitroglycerin, it could be fashioned into sticks and placed into boreholes. Patented in 1867, it was called "Dynamite, or Nobel's safety blasting powder."

The new explosive not only established Alfred Nobel's lasting fame, but it also found such spectacular uses as in the blasting of the Alpine tunnel on the St. Gotthard rail line, the removal of underwater rocks at Hell Gate in New York City's East River, the clearing of the Danube River at the Iron Gate, and the cutting of the Corinth Canal in Greece. Dynamite was also a factor in oil drilling in the Baku fields of Russia, an enterprise in which Nobel's two brothers were so active and became so wealthy that they were known as the Russian Rockefellers. Alfred was the largest single stockholder in his brothers' companies.

Although Nobel held patent rights to dynamite and its later refinements in all the world's major countries, in the 1870s he was constantly harassed by competitors who stole his processes. In these years he refused to hire a secretary or a full-time lawyer, and he was forced to spend much time in patent litigation as his factories steadily increased production.

In the 1870s and 1880s, Nobel expanded his network of factories into the chief European countries, either besting his rivals or forming cartels with them to control prices and markets. Eventually, he established a worldwide web of corporations for the manufacture and sale of his explosives, which, in addition to an improved dynamite, by then included a blasting gelatin. The military uses of these substances began in the Franco-Prussian War of 1870–1871, but during his lifetime, the investments Nobel made in military inventions lost considerable amounts of money. The profits from his industrial ventures came from the use of dynamite in the construction of tunnels, canals, railways, and roads.

Describing the consequences to Nobel of the discovery of dynamite, Bergengren has written:

Not a day passed without his having to face vital problems: the financing and formation of companies; the procuring of trustworthy partners and assistants for managerial posts, and suitable foremen and skilled laborers for a manufacturing process that was extremely sensitive and contained very dangerous ingredients; the erection of new buildings on remote sites, with intricate security measures in accordance with the differing laws of each country. The inventor took part eagerly in the planning and starting of a new project, but he seldom lent his personal assistance to the detailed working of the various companies.

The biographer characterized Nobel's life in the ten years after the invention of dynamite as "restless and nerve-racking." After his move from Hamburg to Paris in 1873, he was sometimes able to escape to his private laboratories, one a part of his house. To help him there, he employed Georges D. Fehrenbach, a young French chemist, who remained with him for eighteen years.

Given a choice, Nobel would have preferred his laboratory to his business, but his companies always seemed to claim a priority as the trade in explosives increased and new factories were established to meet the demands. Indeed, at Nobel's death in 1896, some ninety-three factories were in operation producing 66,500 tons of explosives, including ammunition of all kinds as well as ballistite, a smokeless blasting powder that Nobel patented between 1887 and 1891. The new substance could be used as a substitute for black gunpowder and was relatively inexpensive to manufacture.

In marketing ballistite, Nobel sold his Italian patent to the government, an action that aroused the anger of the French. He was accused of stealing the idea for the substance from the French government's monopoly, and his laboratory was ransacked and shut down; his factory was also forbidden to make ballistite. Under these circumstances, in 1891, Nobel decided to close his Paris home and to leave France for a new residence in San Remo on the Italian Riviera. Apart from the uproar over ballistite, Nobel's last Paris years were not totally happy; his mother died in 1889, a year following the death of his older brother Ludvig. Moreover, his French business associate had involved his enterprises in dubious speculations in connection with an unsuccessful venture to build a Panama canal.

At his San Remo villa, which was set in an orange grove overlooking the Mediterranean, Nobel built a small chemical laboratory, where he worked as time permitted. Among other things, he experimented in the production of synthetic rubber and silk. However much he liked San Remo for its climate, Nobel had warm thoughts of his homeland, and in 1894 he bought

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the Bofors ironworks in Värmland, where he fitted out a nearby manor house for private quarters and built a new laboratory. He spent the last two summers of his life at the Värmland manor house. During the second summer, his brother Robert died, and Nobel himself began to feel unwell.

Examined by specialists in Paris, he was warned that he had angina pectoris, a lack of oxygen supply to the heart, and was advised to rest. He then returned to San Remo, where he worked on a play he hoped to complete and where he drew up a remarkable will in his own hand. Shortly after midnight on December 10, 1896, he suffered a cerebral hemorrhage and died. Except for Italian servants who could not understand him, Nobel was alone at his death, and his final words went unrecorded.

The origins of Nobel's will, with its provisions for awards in a number of fields of human endeavor, are imprecise. The final document is a revision of earlier testaments. Its bequests for science and literature awards, it is generally agreed, are extensions of Nobel's lifelong concern with those fields—physics, physiology, chemistry, and the elevation of the art of writing. Evidence suggests that the award for peace may well have been the fruition of the inventor's long-standing aversion to violence. Early in 1886, for example, he told a British acquaintance that he had "a more and more earnest wish to see a rose red peace sprout in this explosive world."

As an inventor with a fertile imagination and as a businessman with a robust eagerness to exploit the industrial and commercial aspects of his brainchildren, Alfred Nobel was typical of his times. Paradoxically, he was a reclusive and lonely person whose worldly success failed to bring him the consolations of life for which he so avidly yearned.

THE NOBEL PRIZES AND NOBEL INSTITUTIONS

by Carl Gustaf Bernhard

Alfred Nobel died on December 10, 1896. In his remarkable will, written in Paris on November 27, 1895, Nobel stated:

The whole of my remaining realizable estate shall be dealt with in the following way:

The capital shall be invested by my executors in safe securities and shall constitute a fund, the interest on which shall be annually distributed in the form of prizes to those who, during the preceding year, shall have conferred the greatest benefit on mankind. The said interest shall be divided into five equal parts, which shall be apportioned as follows: one part to the person who shall have made the most important discovery or invention within the field of physics; one part to the person who shall have made the most important chemical discovery or improvement; one part to the person who shall have made the most important discovery within the domain of physiology or medicine; one part to the person who shall have produced in the field of literature the most outstanding work of an idealistic tendency; and one part to the person who shall have done the most or the best work for fraternity among nations, for the abolition or reduction of standing armies, and for the holding and promotion of peace congresses.

The prizes for physics and chemistry shall be awarded by the [Royal] Swedish Academy of Sciences; that for physiological or medical works by the Karolinska Institute in Stockholm; that for literature by the [Swedish] Academy in Stockholm; and that for champions of peace by a committee of five persons to be elected by the Norwegian Storting [Parliament]. It is my express wish that in awarding the prizes no consideration whatever shall be given to the nationality of the candidates, so that the most worthy shall receive the prize, whether he be a Scandinavian or not.

The invitation to assume the responsibility of selecting laureates was accepted by the awarding bodies designated in Nobel's will only after considerable discussion. Several members of these organizations were doubtful and, referring to the vague formulation of the will, claimed that it would be difficult to implement. In spite of these reservations, in 1900 the Nobel Foundation was established and statutes were worked out by a special committee on the basis of the will's stipulations.

The foundation, an independent, nongovernment organization, has the responsibility of administering the funds in a manner "destined to safeguard the financial basis for the prizes, and for the activities associated with the selection of prizewinners." The foundation also protects the common interests of the prize-awarding institutions and represents the Nobel institutions externally. In this capacity the foundation arranges the annual Nobel Prize ceremonies on behalf of the awarding institutions. The Nobel Foundation itself is not involved in proposing candidates, in the evaluation process, or in the final selections. These functions are all performed independently by the prize-awarding assemblies. Today, the Nobel Foundation also administers the Nobel Symposia, which since 1966 have been supported mainly through grants to the foundation from the Bank of Sweden's Tercentenary Foundation.

The statutes for the Nobel Foundation and the special regulations of the awarding institutions were promulgated by the King in Council on June 29, 1900. The first Nobel Prizes were awarded on December 10, 1901. The political union between Norway and Sweden came to a peaceful end in 1905. As a result, the current special regulations for the body awarding the peace prize, the Norwegian Nobel Committee, are dated April 10, 1905.

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In 1968 the Bank of Sweden at its tercentenary made a donation for a prize in the economic sciences. After some hesitation, the Royal Swedish Academy of Sciences accepted the role of prize-awarding institution in this field, in accordance with the same rules and principles that apply to the original Nobel Prizes. This prize, which was established in memory of Alfred Nobel, is also awarded on December 10, following the presentation of the other Nobel Prizes. Officially known as the Prize in Economic Sciences in Memory of Alfred Nobel, it was awarded for the first time in 1969.

Today, the Nobel Prize—independent of the monetary award which at present exceeds 2 million Swedish kronor (\$225,000)—is widely regarded as the highest recognition of intellect that can be bestowed on a man or woman. It is also one of the few prizes known by name to a great part of the nonscientific public, and probably the only prize about which almost every scientist knows. According to the statutes, the Nobel Prize cannot be given jointly to more than three persons. As a consequence, relatively few, however distinguished, can hope to receive the award.

The prestige of the Nobel Prizes depends on the serious work devoted to the selection of the prizewinners and on the effective mechanisms for this procedure, which were instituted from the very outset. It was felt desirable to obtain properly documented proposals from qualified experts in different countries, thereby also emphasizing the international character of the prizes.

For each prize there is a Nobel committee. The Royal Swedish Academy of Sciences appoints three committees, one each for physics, chemistry, and the economic sciences. The Karolinska Institute names a committee for physiology or medicine, and the Swedish Academy chooses a committee for literature. In addition, the Norwegian Parliament, the Storting, appoints a peace prize committee. The Nobel committees play a central role in the selection process. Each consists of five members but may also request temporary assistance from additional specialists in relevant fields.

Nominations of candidates for the prizes can be made only upon invitation, and these invitations are distributed in the fall of the year preceding the award. The recipients are invited to submit a written proposal stating the reasons for their choice. For each prize, more than 1,000 individuals in different parts of the world are invited to submit nominations. Invitations for the science prizes are sent out to active scholars at universities and research institutions. For the literature prize, submissions are invited from academic representatives in the fields of literature and languages as well as from members of distinguished academies and societies of the same character as the Swedish Academy. In order to obtain proposals for the peace prize, representatives from the fields of philosophy, history, and the legal and political sciences, as well as those active in various peace activities, are contacted. Some individuals always receive invitations to submit nominations; among them are previous Nobel laureates and members of the Royal Swedish Academy of Sciences, the Nobel Assembly of the Karolinska Institute, and the Swedish Academy, as well as permanent and active professors in the respective fields from all the Scandinavian countries. Invitations to propose names are confidential, as are the nominations.

Nominations must be received by February 1 of the award year. At that date, the work of the Nobel committees begins, and from then until September committee members and consultants evaluate the qualifications of the nominees. Committees meet several times, with proposals assigned to different committee members as well as to outside experts, all of whom attempt to determine the originality and significance of the nominee's contributions. Several committee members or outside experts may report on various aspects of a single proposal. Every year several thousand persons are involved in the preparatory work. After this work is completed, the

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committees submit their secret reports and recommendations to the respective prize-awarding bodies, which have the sole right to make the final decisions.

By September or the beginning of October, the Nobel committees are ready with their work. In physics, chemistry, and the economic sciences, they submit their reports to the respective "classes" of the Royal Swedish Academy of Sciences, each of which has about twenty-five members. The classes then send their recommendations to the academy for the final decision. The procedure for the prize in physiology or medicine is similar, except that the recommendation of the Nobel committee goes directly to the fifty-member Nobel Assembly of the Karolinska Institute. In deciding the literature prize, the eighteen members of the Swedish Academy make the decision on the basis of the proposal from the Nobel committee. The decision for the peace prize is made by the Norwegian Nobel Committee itself.

In October, final votes are cast in the various assemblies. The laureates are immediately notified of the decisions, which are then announced internationally at a press conference held in Stockholm and attended by representatives of the international news media. The messages contain the names of the laureates and a short statement describing the reasons for the awards. At this occasion, specialists in the various fields are also present to give a more comprehensive explanation of the winners' achievements and their significance.

Subsequently, the Nobel Foundation invites the laureates and their families to the Nobel ceremonies held in Stockholm and Oslo on December 10. In Stockholm the prize ceremony takes place in the Concert Hall and is attended by about 1,200 persons. The prizes in physics, chemistry, physiology or medicine, literature, and the economic sciences are presented by the King of Sweden following a short résumé of the laureates' achievements presented by representatives of the prize-awarding assemblies. The celebration continues at a foundation banquet in the Town Hall.

In Oslo the peace prize ceremony takes place in the Assembly Hall of the University of Oslo in the presence of the King of Norway and the royal family. The laureate receives the prize from the chairman of the Norwegian Nobel Committee. In connection with the ceremonies in Stockholm and Oslo, the laureates present their Nobel lectures, which are later published in the volume *Les Prix Nobel*.

Obviously, a considerable amount of work is devoted to the sifting process by which laureates are selected. In the sciences, the distribution of more than 1,000 invitations for each prize results in 200 to 250 nominations. Since the same scientists are often proposed by several nominators, the number of actual candidates is somewhat less. In literature the Swedish Academy makes the choice from 100 to 150 candidates. Generally, most of the strong candidates are proposed over several years, and very rarely is a laureate selected after having been proposed only once.

The Nobel selections have often been criticized in the international press, as has the secrecy of the selection procedure. As to the complaints about the secrecy, suffice it to say that the statutes mandate that the deliberations, opinions, and proposals of the Nobel committees in connection with the awarding of prizes may not be made public or otherwise revealed. They direct that no protest shall be laid against the award of an adjudicating body and that if conflicts of opinion have arisen, they shall not be recorded in the minutes or otherwise revealed.

As to the singularity of the prizes, it is certainly true that there are many more worthy candidates than prizes. The 1948 Swedish Nobel laureate in chemistry, Arne Tiselius, who served as chairman of the Nobel Foundation for several years, described the situation in the following way: "You cannot in practice apply the principle that the Nobel Prize should be given to the person who is best; you cannot define who is best. Therefore, you are left with the only alternative: to try to find a particularly worthy candidate."