



THE STORY OF DYNAMITE

HISTORY IS STUDED WITH THE NAMES of men and women who turned to America in their hour of need, and won recognition. Such a man was Alfred Bernhard Nobel, the inventor of dynamite, the genius who was shunted aside by the Old World until America, the Land of Opportunity, recognized and rewarded his achievement. And America still honors this remarkable man who was responsible for a strange paradox—the invention of one of the greatest explosives in the world, and the creation of the world famous Nobel Peace Prize. By

birth, this gifted man of service was Swedish, but his belief in his own invention, his unswerving faith in the future greatness of this country, and his deathless desire to further the cause of world peace were typically American. And to America must go the glory of encouraging and rewarding this great pioneer in the fields of industry and peace.

Alfred Nobel was born in Stockholm, Sweden, on the twenty-first of October, 1833, and was the third of four sons. He first attracted the attention of the outside world in 1848, when he visited the laboratory of Professor Sinin, in St. Petersburg, Russia. It was a visit young Alfred had long awaited, for even at the age of fifteen, he had keenly followed his father's experiments with nitroglycerine. Immanuel Nobel, his father, and Professor Sinin were friends, so it was not unnatural that the professor was happy to receive the boy.

PROFESSOR SININ: I am happy that you have brought your young son, Mr. Nobel.

IMMANUEL NOBEL: He has been urging me for some time to bring him to see your laboratory, Professor Sinin.

PROFESSOR SININ: You are interested in chemistry, Alfred?

ALFRED NOBEL: Yes, Professor. Especially in nitroglycerine, sir.

PROFESSOR SININ: Nitroglycerine! But what in the world can you know about nitroglycerine?

ALFRED NOBEL: I know that doctors use it as a heart stimulant. But my father has other uses for it.

PROFESSOR SININ: Other uses? What might they be?

ALFRED NOBEL: I don't know what they *might* be, sir. I only know that nitroglycerine is a powerful explosive.

PROFESSOR SININ: You are quite right, my boy. Would you like to see a demonstration of that?

ALFRED NOBEL: Yes, sir! I would!

IMMANUEL NOBEL: I would like to see it also, Professor.

PROFESSOR SININ: I know you have carried through some experimental work with nitroglycerine, Mr. Nobel. So have I. And I have discovered a certain peculiarity it has. As an explosive, I mean.

IMMANUEL NOBEL: Its properties are unusual, to say the least.

PROFESSOR SININ: And its potentialities are great, Mr. Nobel. Watch! Let me pour just a few drops of the liquid on this iron anvil. You see? Just a small amount. Notice the extent of the mass. Now, I shall explode it. Stand back, Alfred.

ALFRED NOBEL: Yes, sir. But I want to see what happens.

PROFESSOR SININ: You shall see. Just watch the

nitroglycerine when I strike it with the hammer. Ready? Now!

Professor Sinin struck the nitroglycerine with his hammer. There was a sharp explosion, followed by the echoing ring of the hammer on the anvil. . . .

PROFESSOR SININ: There! Did you see what happened, Mr. Nobel?

IMMANUEL NOBEL: Why, yes. I see.

ALFRED NOBEL: I see, too! It *all* exploded, right where it was. It didn't spread, as you would expect an oil to do!

PROFESSOR SININ: Mr. Nobel, your son has expressed it better than I could. Is he a chemical genius? A youthful prodigy?

IMMANUEL NOBEL: Well, Alfred is intensely interested in chemical experiments—especially in nitroglycerine.

ALFRED NOBEL: It exploded without spreading! Pardon me, sir, what do you believe about nitroglycerine?

PROFESSOR SININ: I believe it is potentially the greatest explosive agent the world has ever known. But—we must learn how to control its powers. First, we must have a practical way to detonate it—to explode it, you understand.

ALFRED NOBEL: Yes, sir. I understand. And I—I wonder!

From that day on, the strange substance, nitroglycerine, continued to weave in and out of Alfred Nobel's life. In 1862, twenty years after he had first learned of the explosive from his father, he was still experimenting with it. And the thought that the professor had left with him was constantly uppermost in his mind. At last he was ready to try an important experiment. And one day he and his brother, Robert, stood on the edge of a canal in St. Petersburg, close by the engineering establishment of another of the Nobel brothers, Lewis. . . .

ROBERT NOBEL: Well, Alfred, what is it now? Nitroglycerine again?

ALFRED NOBEL: Yes. You remember what Professor Sinin said about it? That it would become an important commercial explosive, if only a practical means could be devised to detonate it.

ROBERT NOBEL: And you think you have found that means, Alfred?

ALFRED NOBEL: Perhaps. I hope so. See what I have here. First, I filled a glass tube with nitroglycerine and corked it well.

ROBERT NOBEL: And then?

ALFRED NOBEL: I inserted the tube into another tube, filled with gunpowder. A fuse leads into the powder, through this cork.

ROBERT NOBEL: But that proves nothing, Alfred!

ALFRED NOBEL: That's why we're here now. We may be able to prove something.

Alfred struck a match and held it to the end of the fuse. His brother stepped back in high alarm. But Alfred calmly held the tube in his hand. He listened for a moment to the hissing of the burning powder. Then he tossed the tube into the canal. His brother protested that nothing could explode in the water, but Alfred waited confidently. Suddenly the surface of the water bulged, and a great spout of spray burst into the air. . . .

ROBERT NOBEL: Alfred—you've done it! It exploded.

ALFRED NOBEL: Yes. I believe I have found out how to detonate nitroglycerine. The next step is to make it better—and safer.

So Alfred Nobel successfully completed the first experiment toward the practical control of nitroglycerine, the first step in harnessing this powerful explosive and putting it to work. He spent two more years on his experiments. One day, back at Lake Malaren, in Sweden, two men, Hjalmar Svenson and Oscar Holmquist, were rowing a boat out to Nobel's barge, which was anchored well out in the lake. Svenson was grumbling. He was fearful of the experiments with the explosive. . . .

HJALMAR SVENSON: This is a fine business—stuck on a barge in the middle of a lake—kept away from land for fear we'll blow up the town!

OSCAR HOLMQUIST: Row. You talk too much, Svenson.

HJALMAR SVENSON: Alfred Nobel is a madman!

OSCAR HOLMQUIST: Well, he pays us for our work.

HJALMAR SVENSON: We've got to live somehow!

OSCAR HOLMQUIST: Nobel is a great man.

HJALMAR SVENSON: Humph!

OSCAR HOLMQUIST: Yah—but he *is* smart, Svenson. It isn't every boy born with a weak back who can grow up to be what Alfred Nobel is.

HJALMAR SVENSON: What he is! What *is* he?

OSCAR HOLMQUIST: A fine engineer, Svenson. That's what he is.

HJALMAR SVENSON: He is a simpleton! A dumb-skull who plays with death!

OSCAR HOLMQUIST: That isn't what John Ericsson said when Mr. Nobel saw him in America. And Ericsson is one of our greatest Swedish engineers, even though he has become an American.

HJALMAR SVENSON: I tell you, Nobel is a crazy dreamer! Working with nitroglycerine—stuff that can blow us all into eternity without a second's warning. It killed his brother and Erick Hertzman at Heleneborg, didn't it?

OSCAR HOLMQUIST: It hasn't killed us.

HJALMAR SVENSON: Not yet—but it may!

Suddenly Svenson noticed a man dancing wildly on the barge. . . .

HJALMAR SVENSON: Look! Something's wrong on the barge!

OSCAR HOLMQUIST: Row, Svenson!

HJALMAR SVENSON: It's Nobel! He's waving his arms like a wild man!

OSCAR HOLMQUIST: Gud Bevaroes, he's dancing! He needs us!

The two men rowed desperately as Alfred Nobel called for them to hurry. At last the boat bumped against the barge, and Nobel was waiting for them, his face triumphant with joy. . . .

ALFRED NOBEL: Oh—what news I have for you! We have finally turned the corner in the road!

OSCAR HOLMQUIST: You hear that, Svenson? What has happened, Mr. Nobel?

ALFRED NOBEL: One of the cans of nitroglycerine leaked—into the kieselguhr, the earth in which we had packed the cans. And the nitroglycerine was absorbed by the kieselguhr, leaving a sort of crust!

OSCAR HOLMQUIST: But what is strange about that?

ALFRED NOBEL: The amount of the absorption

was tremendous. Come on board, I will show it to you! We are on the right track—I know it! I have an idea that I believe will lead us to an explosive that is safe to handle!

The idea that was born on that barge was followed by days and weeks of strenuous effort. Nobel was already manufacturing a nitroglycerine he called "Nobel's Patent Blasting Oil," but he now gave to mankind an explosive that could be handled safely, one that *was* safe, when handled by experienced men. He called the new explosive dynamite, and started to manufacture it about the end of the year 1866. But in 1867, Nobel and his partner, T. Winkler, faced what appeared to be a crisis. One day they were seated in an office in Hamburg, Germany, discussing the matter. . . .

T. WINKLER: You seem to be worried, Alfred.

ALFRED NOBEL: I am worried. Things are piling up on us. There is no sense in trying to carry our development of nitroglycerine any further.

T. WINKLER: But our business!

ALFRED NOBEL: That's just the point, Winkler. Louis de Beaupre is waiting in the other room. What he has to say will have a definite bearing on a plan I have in mind. Please ask him to come in.

The Frenchman was brought in, and though his

manner was typically polite, the news he brought was good cause for concern. . . .

LOUIS DE BEAUPRE: It will not please you, I know, Monsieur. But one by one, after painstaking consideration, the nations of Europe are forbidding the shipment of nitroglycerine. They will not transport it. It is too dangerous.

ALFRED NOBEL: And France says the same?

LOUIS DE BEAUPRE: France must link hands with the others, Monsieur Nobel. She knows, quite as the other nations know, that nitroglycerine cannot be transported safely.

ALFRED NOBEL: It is unjust—unfair!

LOUIS DE BEAUPRE: It is unfortunate, Monsieur Nobel. I regret that I could not have brought you a more pleasing answer. That is all?

ALFRED NOBEL: I believe so.

The Frenchman took a polite leave and left Nobel with his partner. . . .

ALFRED NOBEL: Well, that settles it, Winkler. I have believed that our new product, dynamite, is the answer to our problem. Now Beaupre has proved it *is* the answer.

T. WINKLER: Here—in Europe?

ALFRED NOBEL: Well, yes, Winkler. But mostly in America. It is a vast country, America—and a

new country. It has the greatest natural resources in the world. Such resources can not be adequately developed without explosives. Dynamite will solve the problem.

T. WINKLER: You're right, Alfred!

ALFRED NOBEL: I trust so. Anyway, we are going to find out. I have had *my* taste of America—and I like it, too. But it is your turn. You know our problems. You will handle them wisely. You must sail at once for San Francisco.

So it happened that Winkler, authorized to represent Alfred Nobel, arrived in San Francisco in 1868. At that time the United States was almost a virgin country—a country in the making. There were roads to be built, tunnels to be driven through mountains, and bridges to be pushed across wide rivers. America needed the aid of dynamite, but not every American appreciated the fact.

In a San Francisco hotel a traveling man objected to the presence of Winkler and his dynamite, and threatened to cancel his stay at the hotel if Winkler were to be permitted residence there. The traveling man told the story of an accident that had happened in front of the Wyoming Hotel in New York three years before. A box of explosive had blown in the street, smashing windows and tearing up the pavement, cutting people with bits of flying glass. The San Francisco hotel manager was impressed with the

danger of having explosives on the premises and ordered Winkler to leave the hotel. Winkler protested that his dynamite was safe, and offered to prove it. After some argument the hotel man agreed to let Winkler stay, on the condition that he could prove beyond a doubt that dynamite was safe in the hands of an experienced man. Winkler invited him to attend a demonstration of the new explosive that was planned for that day on a hill overlooking San Francisco Bay.

When they arrived at the scene of the demonstration a crowd had already gathered. A mine owner by the name of Blake greeted Winkler and urged that the demonstration be put on at once, as Winkler had already kept the crowd waiting. He seemed to be especially anxious to be assured that Nobel's dynamite was a powerful explosive, for mining was in desperate need of explosives at that time. Winkler assured him that it was not only a powerful explosive but a safe one. Then, as the bystanders gasped, Winkler calmly tossed a bag of dynamite sticks to the ground. The bag hit the ground with a dull thud, but there was no explosion. A murmur of surprised voices greeted this first test. Then Winkler proceeded to the demonstration of the power of dynamite. He explained his actions to the crowd as he went along. . . .

WINKLER: Now, gentlemen, I want to prove to

you that dynamite is really an effective explosive. I drilled this hole yesterday. Notice how I lower this stick of dynamite into the hole. Now, I tamp it down firmly. Now, I lower another stick. This one has a fuse and a blasting cap attached to it. I lay the fuse along the ground—like this. Now, please stand back.

The crowd moved back. Winkler finished laying his fuse. Then he struck a match and lighted the fuse. Not a sound was heard above the hissing of the burning powder. Apprehensively, some of the bystanders moved farther back. It was a long fuse, and after a moment some of the bystanders thought that it had gone out, but Winkler assured them that it had not. He was right. Suddenly, there was an explosion. Pieces of stone flew high into the air as the dynamite burst the rock into bits. Cries of astonishment came from the crowd as the pieces of rock fell to the ground. . . .

MR. BLAKE: By thunder, Winkler—you did it!

WINKLER: Yes, and none of us was harmed.

Dynamite had been proved to be safe, and its practical worth had been clearly demonstrated. Many improvements were made in the years that followed, but from the day of the San Francisco demonstration, dynamite began to play a vital part in the carving of a nation from the wilderness. It helped to

build roads, to stretch thousands of miles of railroad tracks across high mountains and deep valleys, to bore tunnels, and to construct buildings. It became the friend of the farmer who was clearing his land, and of the miner who was opening new lodes. It went hand in hand with the progress of the nation.

Dynamite was recognized to be so important a factor in the industrial development of the nation that ever since its early days, chemists and scientists have been constantly at work to make improvements on it. A *low freezing* type of dynamite was developed to eliminate the accidents that sometimes happened in thawing out dynamite. A *permissible* dynamite was developed for use in gaseous or dusty mines. A new agent called *Nitramon* has been developed, which is so shock-proof that it can be thrown from a cliff or struck with a rifle bullet without danger of exploding.

All these developments, and the progress which has followed them, grew out of the germ that was implanted in young Alfred Nobel's mind by Professor Sinin in Russia, a germ that was cultivated to realization through the genius of a great pioneer industrial scientist, who made his last contribution to mankind when he created the Nobel Peace Prize out of the fortune his invention brought him—a truly American spirit who recognized the need of the world for peace and progress.