

On Her Majesty's Service

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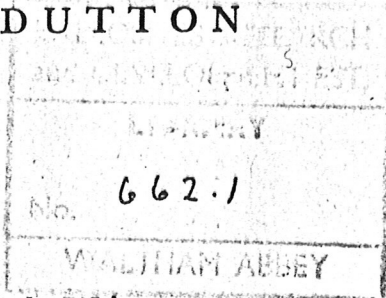
WASC. 524



ONE THOUSAND YEARS
of
EXPLOSIVES

From Wildfire to the H-bomb

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The fleet that she inherited was not Henry's proud fleet, but one wasted by neglect and dishonesty. Many ships were unseaworthy from lack of repair, the crews were unpaid, their pay in captains' pockets.

England had plenty of old seafighters who held gunpowder in low regard. They were glad to watch Henry's ships rot, having liked neither him nor his tactics, which, they felt, were a coward's way to fight. But close to Elizabeth, too, were sea dogs of a new breed, men who had sailed the Spanish Main and raided many a treasure ship: Sir Francis Drake, Sir John Hawkins, Sir Walter Raleigh, Martin Frobisher. These names were to ring through history in tales of bold ventures, and to be immortalized in the future names of faraway bays and towns. Their advice was that gunpowder, cannon, and clouds of sail would dictate the security of England.

Elizabeth never married. As her hair grayed and she dyed it to the fair auburn of her youth, she liked to say that she had married England. More than anything else, the woman who had been the unwanted girl sought to be popular. She had no cause to honor either her father or his works, but if his tactics would save men and ships, as Drake assured her they would, that was reason to adopt them, though it meant sacrifice.

To raise money to restore the fleet, Elizabeth imposed economies at court. She sold some of the royal lands. In 1577, Hawkins was made the Navy's treasurer with full authority to end corruption and see that the money was honestly spent. A mill that would assure

a plentiful supply of gunpowder was built at Waltham Abbey.

In all this work Drake was not only the consultant, but also a procurer of funds. Secretly in partnership with the queen, he sailed on a freebooting voyage to the West Indies, to return with a shipload of Spanish gold. It helped build English ships.

The first test of the new ships was in 1587. By then Spain was in the midst of mustering, at the port of Cadiz on her Atlantic coast, the largest war fleet ever assembled until then. The Spanish king, Philip II, bothered by gout and a cataract in one eye, had decided to put an end to English raids on his gold ships, and at the same time to return Elizabeth's petty kingdom to the Catholic Church. Petty, indeed, England seemed: she had but three million people to Spain's eight million.

One April dawn, while the forts that guarded the harbor still slept and the sun was just tipping the forest of Spanish masts, a broadside of cannon awoke Cadiz to an unprecedented sight. The gun smoke cleared to disclose Drake's ship, the *Golden Hind*, canvas spread, bearing down upon the nearest of the clumsy galleons riding at anchor. A second broadside ripped into the galleon's timbered hulk, she began to sink, and the *Golden Hind* swung her guns toward the next anchored victim.

In Drake's wake followed an English squadron of the new men-o'-war, sails billowing, batteries blazing. The invaders came like sea hawks out of the dawn —

sale of most of the gunpowder and black blasting powder made in the United States. Nobody had opposed dynamite more bitterly than they.

Lammot du Pont swung a pick, pried loose a clod of frozen earth, nodded, and his men went to work.

"We have begun here," he promised, "what will some day be the biggest dynamite plant in America."

He could have said, with truth, the world.

The plant was named Repauno, the "p" of the creek name being changed to "n" for greater euphony. The nation's largest railroad, the Pennsylvania, sent an eminent chemist to Repauno to watch Du Pont men pitch boxes of dynamite onto jagged rocks and set fire to the sticks, as Nobel had done in Germany. The chemist's decision was that, with proper precautions, the high explosive could be carried as freight at less risk than black blasting powder.

The big railroad, then others, lifted their bans. Steamship companies quickly followed. Dynamite's bootlegging days drew to an end.

The work of mixing the nitroglycerin with its cushioning material was still done with rakes and shovels by hand. Chemicals were carried about in copper buckets or in wheelbarrows, and men wound up their day's work with violent headaches from the fumes.

Lammot du Pont set out to create at Repauno a new type of plant, so fully mechanized that if an accident should occur, machines only, not men, would suffer. He built earthworks about each hazardous operation to confine any explosion to that one area. He developed

a power-driven wheel mixer, had his engineers begin work on a machine that would fill, pack, and seal the cartridges. Precautions against any worker's carrying matches into the plant were of Spartan cast. Before going to work the men had to strip off all their clothes, walk through a channel of water up to their chins, then dress in fresh clothes provided them by the company.

Despite all the care at Repauno, somebody made a mistake in the nitrating house on March 29, 1884. Waving everybody back, Du Pont himself rushed into the house to try to correct the error. He was a second too late. A huge fuming vat exploded, burying Du Pont in the earthwork that confined the blast. Five others were killed by flying timbers and scraps of metal.

Other Du Ponts took over at Repauno. Later, in turn, three of Lammot's sons headed the Du Pont Company's steadily expanding interests. They made the manufacture of dynamite, of all high explosives, among the safest of all industrial occupations, setting standards that today are general throughout the explosives industry.

In 1954, Repauno ceased to be an explosive plant and was converted to chemicals, after having produced more than three billion pounds of dynamite and other explosives used chiefly in blasting. The largest of the Du Pont seven dynamite plants of today is located on the Potomac River, near Martinsburg, West Virginia. There mechanical robots, controlled from electric switchboards, turn out dynamite under heavy mounds of safeguarding concrete and earth.

But the distinction of operating the world's biggest dynamite plant is no longer the Du Ponts', or America's either. About 1935 that honor passed to a company known as African Explosives & Chemical Industries, Ltd., and to its mighty plant near Modderfontein, South Africa.

The passing is evidence of the new day of industry that is dawning over what once was the Dark Continent.

