

Indian Edison: *Shankar Abaji Bhise*

1867-1935



Among illustrious scientists in the pre-Independence era, Shankar Abaji Bhise is one who brought glory to India through his inventions at home and abroad.

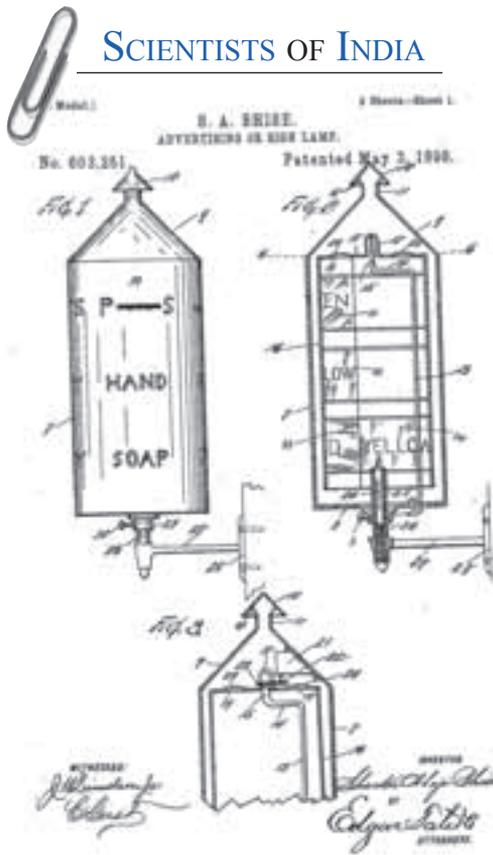
Bhise had an aptitude for science since his childhood. At the age of fourteen, he constructed a small apparatus at his home which made coal gas. At age sixteen, he had made up his mind to sail for England or America and make a name as an inventor.

Before Bhise turned his attention to science, he worked on optical illusions during the years 1890-95. He would demonstrate the transformation of one solid object into another. In fact, he even arranged such a show at the Free Trade Hall at Manchester, England. These demonstrations were considered superior to those invented by Europeans and were highly appreciated by Mr Alfred Webb, the President of the Tenth Indian Congress which met in Bombay in 1894. For these demonstrations, Bhise was honoured in Bombay with a gold medal.

While in Bombay, Bhise founded a science club and started publishing a science magazine in Marathi called *Vividh*

Kala Prakash, through which he conveyed the importance of science to the common people. During this period, a competition offering a prize for an invention of an automatic machine that could weigh and deliver accurately from bulk such materials as sugar and flour appeared in *Inventors' Review and Scientific Record*, London. Bhise sent in his design, which was deemed the best among many competing entries. This also created a sensation in the industry, and Bhise became touted as an inventive genius.

Bhise's most acclaimed invention is that of type-casting and composing machines. The type-casting machines of those days were slow. A type-casting machine of that period could cast only 150 types per minute. Despite efforts by many inventors, no improvement could be made in the machine. Therefore, Bhise took to making a multiple casting machine – a machine that could cast not just a single type at a time but many types.



He invented one such machine which cast thirty two different types simultaneously. However, people did not believe his claims and he was challenged by engineers of the Caston Type Foundry, a leading type-casting firm in London, U.K. Bhise accepted the challenge, set up his own foundry, the Bhiso-Type Ltd., with financial assistance from London and produced a machine in 1908. This silenced his critics as well as the English engineers. The machine could automatically cast and assemble 1200 different types every minute. Caxton, a leading printing magazine of those times remarked of his achievements, "that a native of India should produce results which the most able engineers of the world have so far failed to accomplish."

Bhise never looked back. He invented an automatic dwell machine, and obtained a patent for it. This invention was used on a wide scale in all the Bannerman type-casting machines of England.

These unique achievements led the Indian National Industrial Congress to invite Bhise as a Guest of Honour in its annual convention

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held at Madras, in 1908. At the personal request of Shri Gopal Krishna Gokhale and Dadabhoi Naoroji, Sir Ratan Tata agreed to finance Bhise's projects and in 1910, a Tata-Bhise invention syndicate came into being to finance Bhise's inventions.

Bhise's next invention was the rotary multiple type-caster. It could automatically cast and assemble over 3000 different types every minute, which was more than what several other European machines of similar kind could do at that time. Unfortunately, this invention could not be furthered and it ran into financial difficulties.

Bhise had his mind elsewhere too. At that time one of the stumbling blocks in type-casting was the non-availability of a mould that would suit all sizes of types. Bhise worked on it and succeeded in making one such mould in 1914 – an outstanding invention which was acclaimed in printers' journals in Britain and America.

Bhise visited America for a short time during the First World War. There he came in to contact with Lala Lajpat Rai, who inspired him to make many more such inventions. In America, at the request of the Universal Type Caster Corporation, Bhise invented a new machine in just three days. He also invented there a machine for casting leads and rules. This new type-caster had just 250 parts, much less than what British and American machines were made of.

A quote in *Scientific American* reflects the response of Americans to Bhise's inventions: "While India has achieved brilliant success in science, literature and arts, it had given little to the world in the way of invention. Whatever may have been the opinion of the world, the work of Mr Bhise should do much to dispel the illusion."



In 1920, Bhise started the Bhise Ideal Type Casting Corporation in New York to develop and market the type-casting and lead rule-casting machines. He spent over 80,000 dollars on the venture. His efforts were not in vain. Mr W. Ackerman of the Linotype Company of America had this to say about Bhise: "He (Bhise) has now solved a problem which had been the dream of type-machine inventors for many years."

Besides inventing type-caster machines, Bhise also took interest in chemistry and electricity. His first invention in these fields was a washing compound called 'Rola' in 1917. He sold all rights of this invention to an English firm. He also invented an electrical gadget which separated various gases from air. Bhise created an engine which derived electrical energy directly from sunlight. He also invented a single process of transmitting photos telegraphically, but could not market it for want of finances.

In addition to these inventions, Bhise also developed a medicine named 'Atomodine' which was widely used in the First World War. His desire to set up a firm and manufacture this drug in India did not see the light of the day.

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Bhise believed strongly in the unity of all religions and eschewed religious hatred. He died in New York on 7 April 1935 at the age of 68.

(By J.B. Kulkarni, Reproduced from *Achievements in Anonymity*, CSIR publication)

