





victim of potential invaders.

Several ordnance factories had been set up under British rule, but none was able to design and develop its own machine tools and arms. They were purely executing manufacturing orders based on specifications from Great Britain. In order to become independent, the Ordnance Factory Board's plan to create a Machine Tool Prototype Factory (MPF) found full support from the Prime Minister, Defence Minister Baldev Singh, Defence Secretary H. M. Patel and the Director General Ordnance Factories (DGOF), K. K. Framji.

### The MPF Project

Machine-tools are the backbone of manufacturing, be it for motor bikes, cars, refrigerators, turbines, or guns, ammunition and missiles. Thus machine-tools are for 'dual-use', i.e. for both civilian and defence applications. The erection of a MPF, including the research, design and development for all kinds of tools and prototypes, was decisive for improving India's defence and manufacturing industries. From this point of view, MPF was not just one more ordnance factory, but had a key value for industrial development as a whole.

Ambarnath, a town some sixty kilometres from Bombay, was chosen as the location for the MPF. With its hot, humid climate and heavy monsoon, climatic conditions in Ambarnath were not ideal. But other factors such as availability of land, power, water, road and rail communication, raw material and reasonable supply of skilled and unskilled labour, the proximity to the port in Bombay, and last but not least the already existing ordnance factory at the same location favoured Ambarnath. Furthermore, it was near Kalyan, where there was a camp of over 1,00,000 refugees from Sindh (Pakistan). It was hoped that some of the skilled and unskilled workers would also be available from there.

In 1950, a team of 14 Indian engineers was sent to Zurich for training at Oerlikon. Among them

were M. M. Thomas, O. R. Krishnamurthy and H. G. S. Murthy, who also attended one semester in Armament Design at the Swiss Federal Institute, the ETH in Zurich. For the MPF Project, Oerlikon hired the services of around thirty experts in different fields from Switzerland, Austria, and especially Germany. The German core team, mostly from Rheinmetall, included Max Abels, Dr. Gerhard Baranski and Herrmann Henning, and they stayed on in the Project till 1956. The main target of the Swiss team was to train and support Indian engineers to design special purpose machine-tools. Most of them stayed till 1953, when MPF was officially handed over to the Indian Government. The Swiss team included Hans Bänziger, my father Fritz Oertli (who joined from Georg Fischer AG), Köbi Merk, and other engineers like Messrs Schneider, Schärer, Weingart, Mössler, Lienhard, Iseli, Jud, Koban, Gfeller and others. The core management team of MPF consisted of Superintendent M. M. Thomas, GM (Technical) Hans Bänziger, Head Machine Tool Design Fritz Oertli, and Head Weapons Design Dr. Gerhard Baranski. The Principal of the Artisan Training School (ATS) was Mr. Friedrichsen.

The factory concept and layout was organised by Oerlikon's Rolf Waldmann. It was designed to be the most up-to-date manufacturing plant in Asia. The key sectors of MPF consisted of, apart from an administration building, a main workshop with a total of 500 Swiss and German machine tools; the Artisan Training School (ATS) with a workshop for a total of 300 apprentices and 135 machines (the annual turnover of trainees was 100 for a total course of 3 years, the first course starting in 1950); there were also test laboratories and a testing range.

Outside the security-fenced area there were three hostels for the trainees, residential accommodation for staff and workmen, enlargements of the existing hospital and the club at Ambarnath, including a swimming pool and tennis courts, a football and a cricket ground. On the road to the club there was a small grocery shop owned by Prabhakar Nalawade,









Refreshments served after the inauguration of the MPF Factory in January 1953. Behind Nehru K.K.Framji and Dr.Gerhard Baranski. Next to Nehru is Sheikh Abdullah, the Prime Minister of Kashmir. © Asian Photos

now dotting the country, for, at best they are money-making propositions that do not add to the country's national wealth". It was necessary to develop basic industries like MPF that could be called "mother industries", from which other industries arose. He then went on to say: "Taking help from abroad is not bad; but we should not be too dependent on others." He concluded that India's intentions were peaceful and the only battles she was now fighting were the battle for economic independence and the battle against poverty and unemployment. Thereafter Mr. Bänziger and my father took the PM on a tour of the factory.

After that impressive ceremony, the time of our departure was upon us. When DGOF K. K. Framji asked my mother what she had missed most during these years in Ambarnath, she only said one word:

"Trees!" Today, more than fifty years later, she would not miss them anymore. All the roads from the residences to the club and to the factory are covered in shady trees that must have been planted after we left.



M.M. Thomas, P. Oertli, J. Nehru, H. Bänziger

## Ambarnath's Aftermath

In the over fifty years since 1953, the population of Ambarnath has grown from around 30,000 to 3,00,000, and apart from OF and MPF, many other industries have been set up here. But what happened to the dramatis personae of my youth? Prabhakar Nalawade, the shop keeper of the Club, started Pravin stores in 1957. He became an active member of the Congress and a founding member of the Rotary Club of Ambarnath. He later served as the President of the Ambarnath Municipal council. He gave me a most warm welcome in his home during my visit to the MPF Golden Jubilee celebrations on 15 January 2003.

H.G.S. Murthy left MPF in 1963 to set up the Indian Space Research Organisation (ISRO), of which he became Test Director under the Chairmanship of Dr Vikram Sarabhai. Dr A. P. J. Abdul Kalam, who later became President of India, worked for over nine years in his team in the Thumba Equatorial Rocket Launching Station (TERLS) near Trivandrum. From 1972–79 Murthy was Expert and Consultant on Space Applications for the United Nations and FAO in New York. D. B. Mitra, an ATS alumnus, became Project Manager for the collaboration between the Swiss machine tool manufacturer Voumard Machines and the Poona-based Perfect Machine Tools Ltd (PMT). Max Abels and his family returned to Germany in 1956 to join a boarding school as a professor of Maths, later to become the school's principal. His son, my good old friend Björn-Uwe, studied archaeology and Indian religions. He is now a retired professor for Prehistoric Archaeology and Chief Conservator of Archaeology, Bamberg.

Hans Bänziger returned to Switzerland to join Schweizerische Waggonfabrik Schlieren (SWS). He then worked for Schlieren at the Integral Coach Factory (ICF) in Perambur near Chennai, where he stayed from 1954 to 1957. ICF too was inaugurated by Prime Minister Pandit Nehru in October 1955. Today, SWS no longer exists, but ICF produces more than 1,100 coaches per year!

Fritz Oertli and his family returned to Switzerland in 1953 to rejoin Georg Fischer. In 1972 he became head of Machine Tools of AGIE S.A. in Losone. As President of the AGIE Group he initiated the merger with Charmilles Technologies. Today the AGIE Charmilles Group is the world leader in the area of top quality EDMs. Like the Oertlis, the Wieser family too selected Schaffhausen as hometown after their return from India. In college, their son Richard was given the fraternity name Hindu. Knowing something about Heisenberg and Hindu mythology, we both felt that all these occurrences could be no coincidence, after all both Heisenberg and Hindu mythology maintain that all material particles, thoughts and souls in the universe are interconnected.

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