

BIRTH OF A NAVAL ENGINEERING MUSEUM

BY

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ABSTRACT

The article describes the events leading to the setting up a naval engineering museum out of the vintage machinery available in the old steam demonstration room at I.N.S. *Shivaji*, Lonavla. The article highlights the importance of such an engineering museum both from an historical point of view, as well as that of serving as a valuable link between the past and future generation of marine engineers.

Background

From a junkyard to a historical museum! This is how one can aptly summarize the whole story of the dedicated efforts put in by a select band of officers, sailors and civilians of the Technical Training Establishment I.N.S. *Shivaji*.

The old Steam Demonstration Room (SDR), which had been used for training officers and men of yester years, had become a near junkyard. The screeches and grunts of the once racing machinery had reverted to a tired silence, but that was not to be for long. On 2 November 1988, the author (the then Commanding Officer) visualised these ageing but still steaming machinery as the sentinels of the marine engineering world to unfold to the budding marine engineers the history of the past and the growth of marine engineering through the ages. COMMANDER V.M. SARWAT, duly assisted by LIEUTENANT COMMANDER (SD(ME)) M.M. REHMAN and a few dedicated and experienced staff of sailors and civilians taxed their brain and brawn to transform their CO's vision to reality. Eventually the junkyard was transformed to a pride of place in I.N.S. *Shivaji*.

Germination of the idea

Soon after taking over command of I.N.S. *Shivaji*, in August 1988, a piquant situation arose that of demolishing the entire old steam training complex, then known as the SDR, which was commissioned in 1949. The machineries therein

were declared redundant and were listed for disposal. This was due to the commissioning of the new LEANDER steam training wing, which had been commissioned in 1976. Whilst technically, the demolition was justified as per the accounting and audit rules, yet, the author as an old marine engineer who like so many others having been trained by this very same old SDR some 34 years back, could not see this event taking place. This complex in fact had trained thousands of MEs, ERAs, MECHs and officers and come to be regarded as the 'Mecca' of the Indian Navy marine engineers. It was therefore felt that a great injustice would be done to the past generation of marine engineers, as well as the future, if this vital and valuable steam training complex could not be retained and preserved. The picture of H.M.S. *Foudroyant* came before the author's mind which still stands as a living monument and testimony to the skills of the Indian craftsman off the shores of England. It was strongly felt that its retention in the form of a museum could meet the following:

- (a) Serve as a vital link between the marine engineers of the past with that of the future.
- (b) Serve as a living monument to the state of art in marine engineering prevalent then to the present and future marine engineer. This in turn will help to trace the historical development of marine engineering with respect to design, material, and manufacture at any point of time.
- (c) Also as a tribute to the courage and vision of the policy makers of the Royal Navy, to have thought of having shipborne machinery installed ashore for live and realistic training and at a height of 2,200 ft above MSL.
- (d) Finally, as a token of gratitude on behalf of many of our past engineers who have passed out through the portals of the SDR and personally that of the author.

Plan and its implementation

Considering all the above factors, a case was drawn up to convert the old SDR into a naval engineering museum. It did not take long to convince the higher authorities and a quick go-ahead signal was given. Accordingly, a plan was drawn up for its implementation and the commissioning of the museum. The Project team was constituted with COMMANDER SARWATE in-charge, assisted by LIEUTENANT COMMANDER REHMAN and a few members, (both military and civilian), of the factory staff. The team was charged with the sole responsibility of converting an abandoned building with machineries lying therein ready for disposal into an almost live steam complex with everything ship-shape (brass work shining, pipes painted/distempered etc.), in the shortest possible time and with the available resources. The Project team was thoroughly motivated with this challenging task because they too felt the need to retain and preserve these vintage machines. The team worked like a well oiled machine and with incredible speed. It was amazing to witness the sudden transformation that took place in the old junkyard. The net result was the creation and birth of a naval engineering museum—the first of its kind in India, perhaps the only one east of Suez.

The Project team went to such an extent that even the main turbine propulsion unit could be easily turned by the hand turning gear as before—everything being opened up, eased, greased and lubricated. The project was a runaway success. The old SDR was finally commissioned by VICE ADMIRAL A.K.R.P. SAWHNEY, on 23 January 1990 (FIG. 1). This indeed has been a big landmark in the history of I.N.S. *Shivaji*, the next being its Golden Jubilee on 25 February 1995.

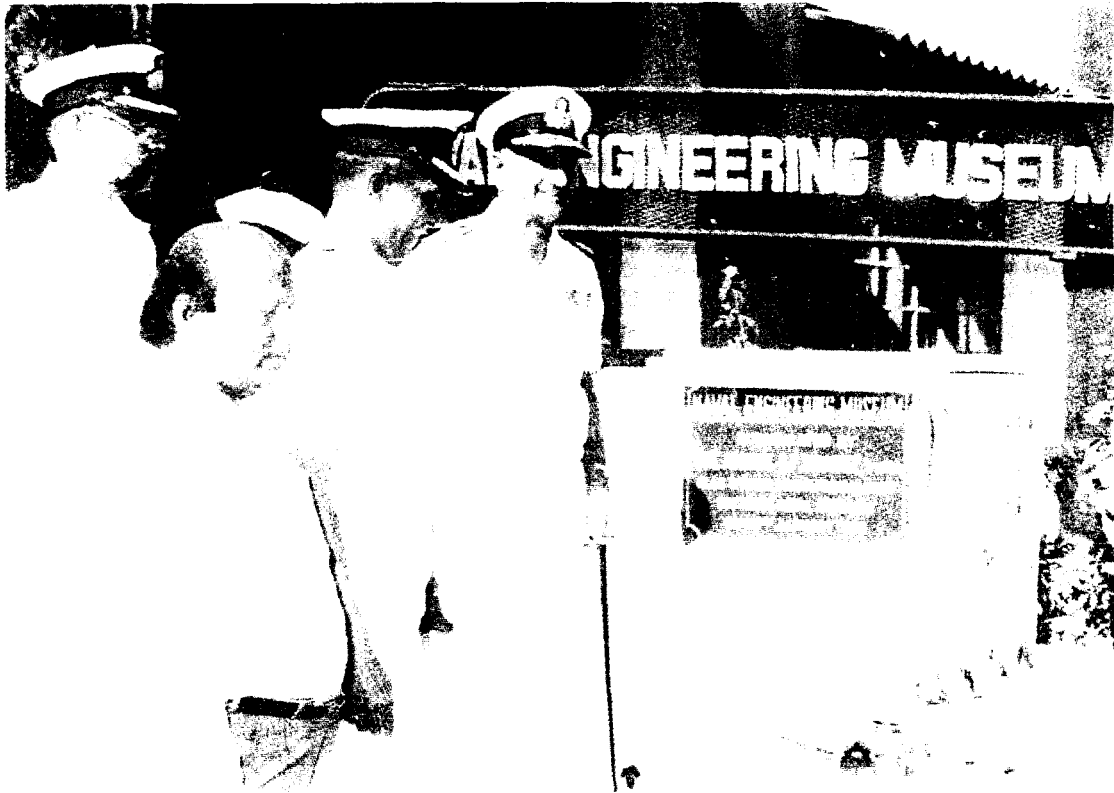


FIG. 1—COMMISSIONING OF THE NAVAL ENGINEERING MUSEUM—23 JANUARY 1990

Important vintage machinery

Some of the vintage machines are listed at Table 1, along with their salient features:

TABLE 1—Important vintage machinery

Serial No	Name of equipment	Source from where removed	Year of manufacture
1	Admiralty 3 drum main boilers with auxiliaries (Port)	H.M.I.S. <i>Baluchistan</i>	1935
2	Admiralty 3 drum main boilers with auxiliaries (Stbd)	H.M.I.S. <i>Punjab</i>	1935
3	Triple expansion reciprocating main engine with auxiliaries	H.M.S. <i>Bethrust</i>	1938
4	HP and LP main turbines along with gearing and output shaft	H.M.S. <i>Protector</i>	1938
5	Steam steering gear	H.M.S. <i>Bethrust</i>	1938
6	Steam turbo generator	H.M.S. <i>Protector</i>	1940
7	Steam dynamo	H.M.S. <i>Bethrust</i>	1941
8	Distilling plant (Caird & Rayner)	H.M.S. <i>Bethrust</i>	1942
9	Spare HP turbine rotor (FIG. 2)	H.M.S. <i>Protector</i>	1938

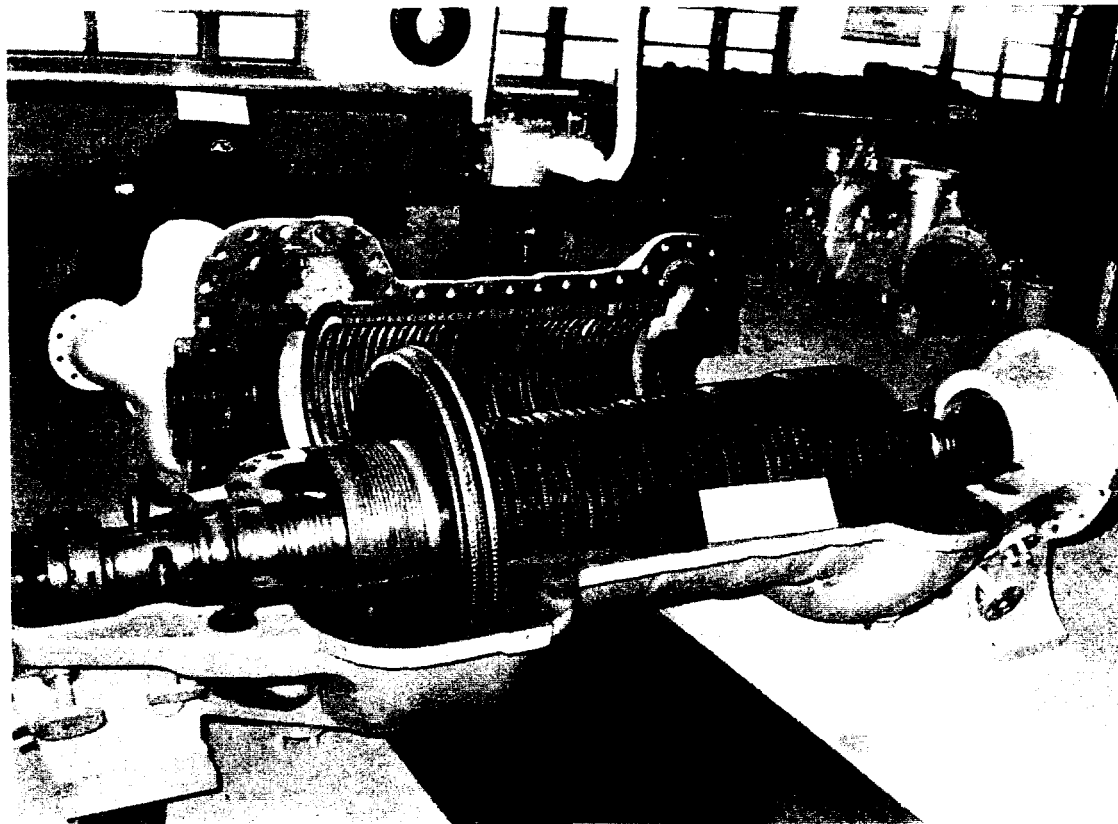


FIG. 2—SPARE HP MAIN TURBINE ROTOR

Besides the above, there are about 80 other items in the museum, such as:

- Fan engine.
- Drain cooler.
- Main circulating pump.
- Air pump etc.

The salient features of some of the items are:

Main Boilers (FIG. 3)

The main boilers, with the associated auxiliaries, were originally fitted on board H.M.I.S. *Baluchistan* and *Punjab*—frigates of the Royal Indian Navy:

Type:	Admiralty 3 drum water tube boiler with open front.
Make:	M/S Yarrow & Co, Glasgow.
Year received:	1946
Working Pressure:	280 psi.
Type of Steam:	Saturated.
Air Registers:	Open front, 1943 type Registers.

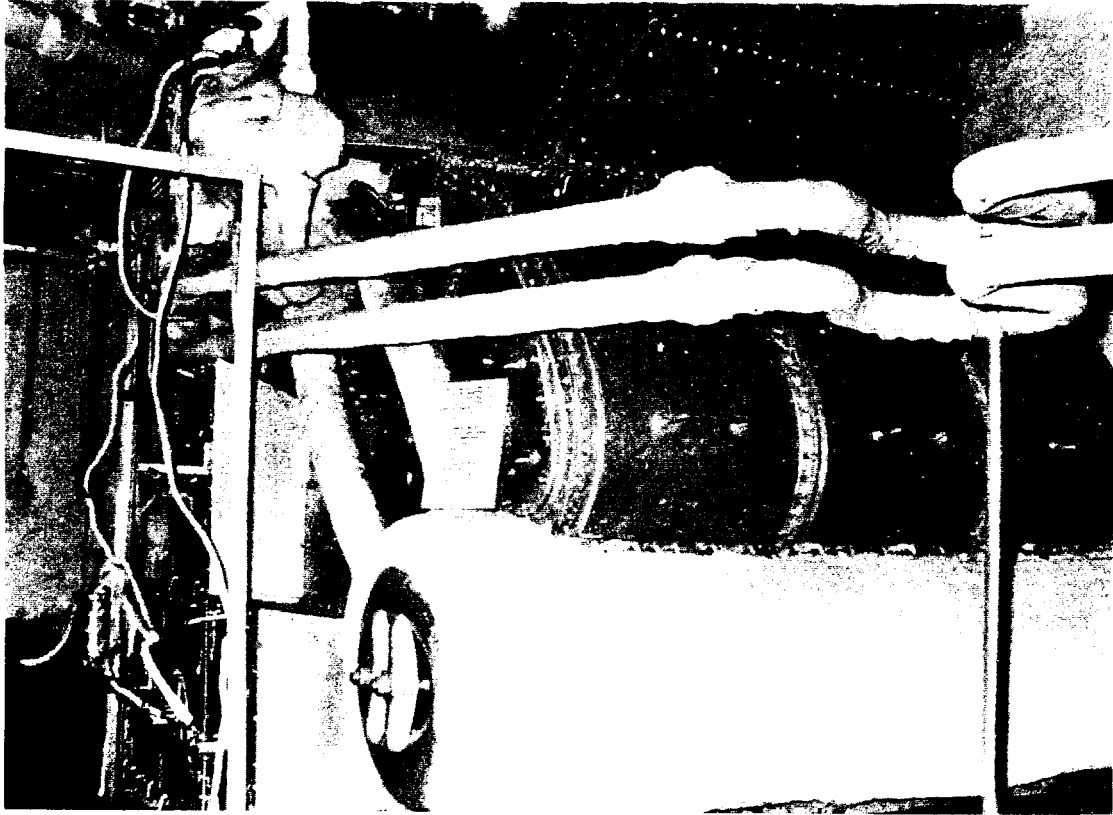


FIG. 3—3 DRUM ADMIRALTY BOILER

Main Reciprocating Engine (FIG. 4)

This main engine, along with its auxiliaries, was originally fitted on board H.M.S. *Bethrust*—a frigate of the Royal Indian Navy:

Type:	Triple expansion reciprocating HP, IP and LP engines.
Make:	M/S Sergeant & Co Pvt Ltd, Queensland.
Year received:	1946
Working Pressure:	250 psi.
Horse Power:	2500 HP
No of Cylinders:	3
Reversing Arrangement:	Stephenson link motion.
Condenser:	Re-generative, single flow.
Circulating Pump:	Reciprocating Centrifugal.

HP and LP Main Turbines (FIG. 5)

This turbine installation with its complete accessories was fitted on board H.M.S. *Protector*:

Type:	Reaction type.
Make:	M/S Yarrow & Co, Glasgow.
Year received:	1946
Working Pressure:	280 psi (saturated).
Horse Power:	2500 HP
Condenser:	Regenerative, two flow type.
FL Pump:	Reciprocating.
Extraction Pump:	Reciprocating.

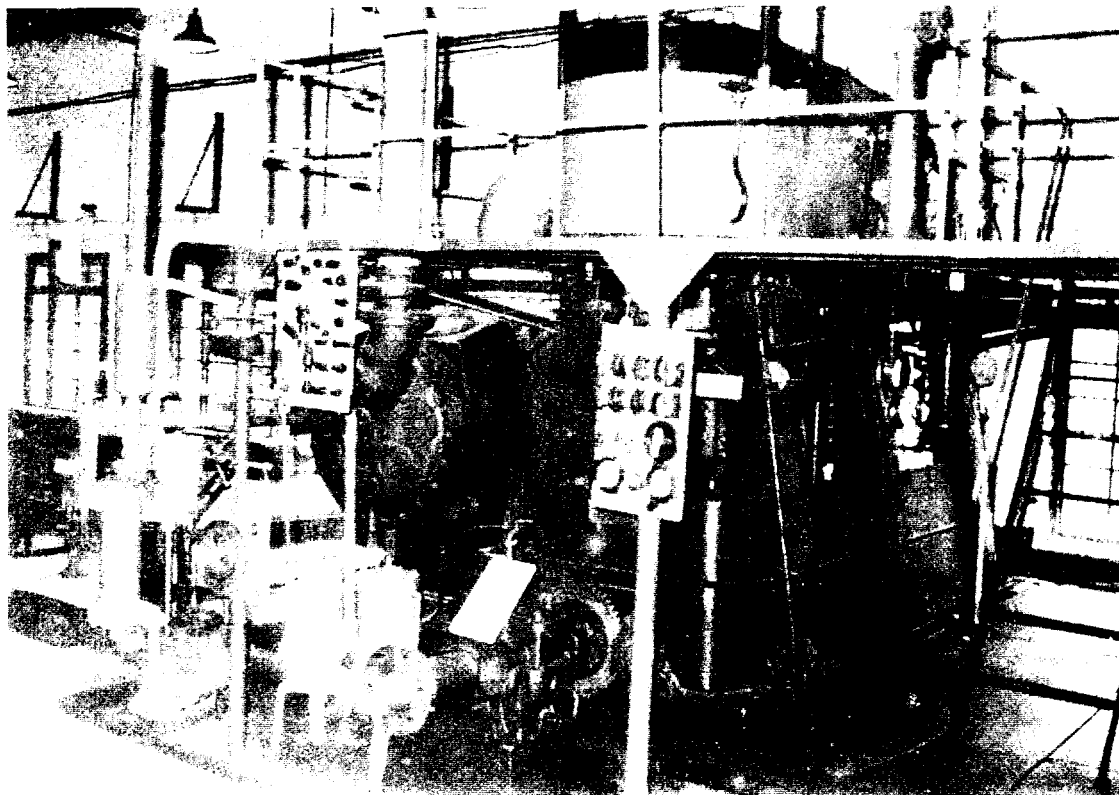


FIG. 4—MAIN RECIPROCATING ENGINE

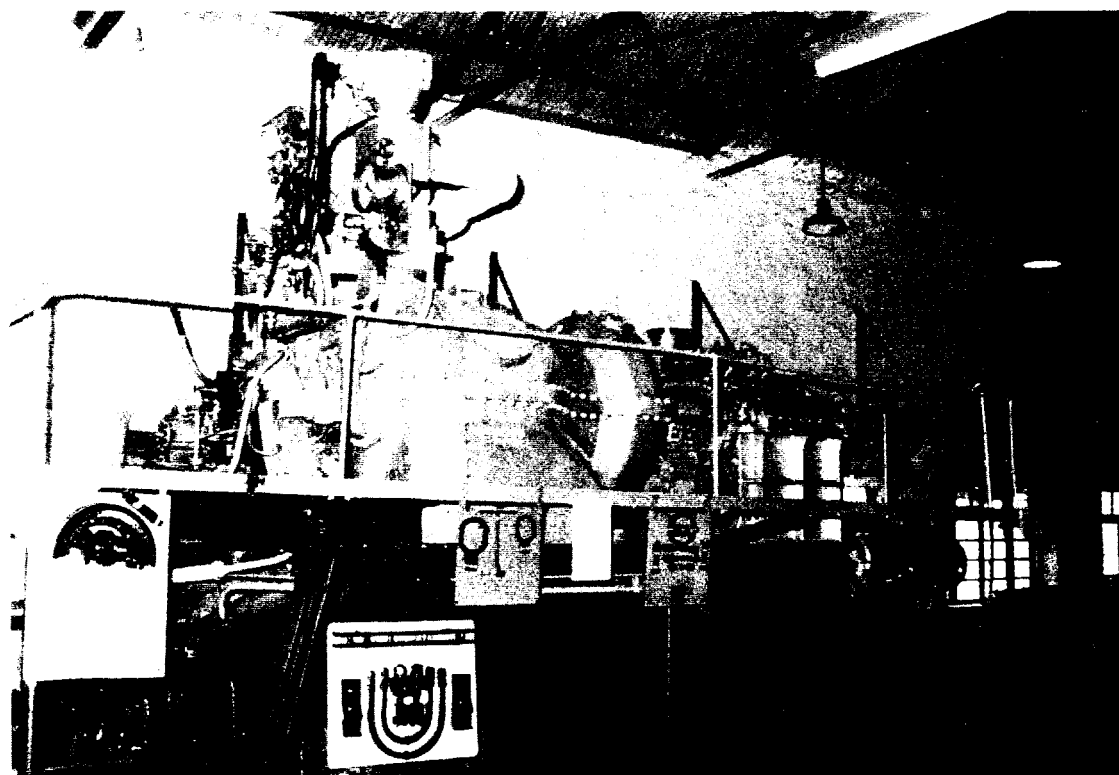


FIG. 5—HP & LP MAIN TURBINE (GEARED) INSTALLATION

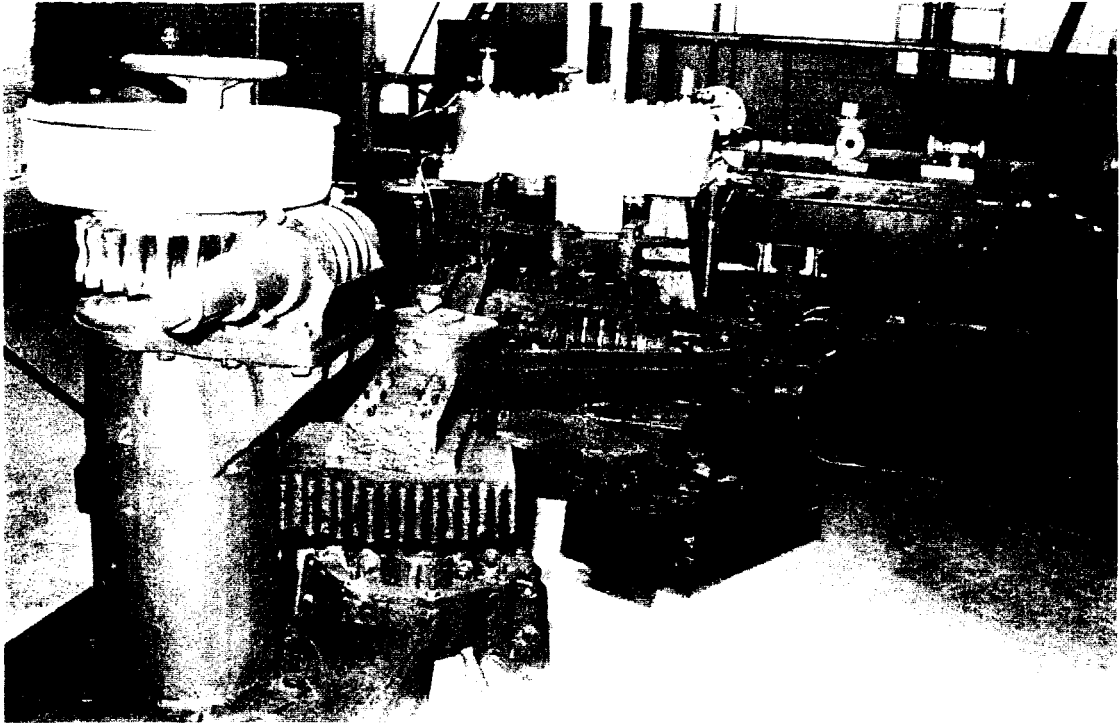


FIG. 6—RECIPROCATING STEAM DRIVEN HYDRAULIC STEERING GEAR

Reciprocating Steam-driven Hydraulic Steering Gear (FIG. 6)

Fitted on board H.M.S. *Bethrust*:

Type:	Reciprocating steam engine driven—hydraulic.
Make:	M/S Yarrow & Co, Glasgow.
Year received:	1946
Steam Pressure:	50 psi
No of Cylinders:	Two
Hydraulic Rams:	Two

Distilling Plant complete with accessories:

Originally fitted in H.M.S. *Bethrust*:

Type:	Single Cell.
Make:	M/S MS Caird and Rayner Ltd, London
Year received:	1946
Working Pressure:	60 psi (LP saturated).
Type of Pumps:	Combined Reciprocating type.
Element:	Copper Coil.

Conclusion

It is felt that the list of vintage machinery could have been increased and its value enhanced if some of the equipments of old ships like I.N.S. *Mysore*, the 'R' and HUNT Class destroyers could have been retrieved.

The museum would have never seen the light of the day had it not been for the deep sense of gratitude that the author had for his alma mater. This SDR building too could have met with a similar fate as other old buildings which were being demolished in the wake of the new project expansion programme.

Finally, it is said that old attachments, rather sentiments, die hard and when they do die, it is a painful separation. Luckily, as far as the SDR is concerned we have been spared this, so the marine engineers can now proudly say:

"Not only for the present, but for a lifetime."