# THE TECHNOLOGICAL GROWTH OF THE INDIAN NAVY

## A REVIEW

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ABSTRACT

The growth of the Indian Navy from a flotilla in 1947 to the present fleet of over 100 ships, 60,000 naval personnel, three naval commands and two major naval dockyards to support its entire fleet speaks for itself. The growth has been phenomenal both in terms of technology and manpower.

The author makes a humble attempt to trace the history of the technological growth before it becomes too late for one to realize how it all started.

### Introduction

The Indian Navy had a Royal beginning, firstly, as it developed primarily from the strong foundation laid by the Royal Navy and secondly, it had the good fortune of being trained by the Royal Naval officers who were then considered as the rulers of the seven seas. This had a profound cumulative effect over the years to make the Indian Navy what it is to-day. Right from:

| | |
|---|---|
| REAR ADMIRAL J.T.S. HALL | 15 August 1947 to 14 August 1948 |
| ADMIRAL Sir Edward PARRY | 15 August 1948 to 13 December 1951 |
| ADMIRAL Sir Mark PIZEY | 14 October 1951 to 21 July 1955 |
| VICE ADMIRAL Sir Stephen CARLIL | 22 July 1955 to 21 April 1958 |
| VICE ADMIRAL R.D. KATARI | 22 April 1958 to 21 June 1962 |

It has been a glorious chain of the topmost cream of both the Royal and the Indian Navies to have been selected to guide the destiny and growth the Indian Navy.

### The Growth

The Indian Navy's composition of the fleet till 1960 was mainly Western origin ships (ex-Royal Navy) comprising two light class cruisers, three each 'R' and 'G' class (HUNT class) destroyers, minesweepers and survey vessels. From a coal fired reciprocating engine propelled flotilla to a gas turbine driven fleet marked a big technological leap. To add to that the creation of the Fleet Air Arm in 1959 and the Submarine Arm in 1966 made the Navy three dimensional.

Further, the acquisition of a Russian nuclear submarine in 1985 on temporary loan though truly tested the skills of the Indian naval personnel much to the astonishment of the world. This clearly proved beyond doubt that the Indian naval crew can adapt themselves to any modern technology. In fact, this brings the subject matter of training into major focus. The policy of generalized training adapted from the Royal Navy had stood the Indian Navy in good stead to face the onslaught of rapid change in technology from time to time. The Russian Navy policy of training however has been based on the philosophy of vertical specialist training as against generalized training. This indeed is debatable as both modes of training seem to have advantages as well as disadvantages. It is worthwhile at this juncture to quote the statement made by LORD HALDANE, which will put the subject matter in its correct perspective.

> "There has been four distinct phases in the technological growth of the Indian Navy as below:
>
> (*a*) The steam propelled ships both by reciprocating engines and steam turbines as previously held by the Royal Indian Navy.
>
> (*c*) The introduction of new diesel propelled ships with ASRI diesel propulsion engines, as fitted in the LEOPARD class of frigates in 1960.
>
> (*c*) The introduction of advanced boiler and steam turbine technology as fitted in indigenously constructed LEANDER class frigates in 1971.
>
> (*d*) The introduction of gas turbine powered ships (the KASHIN class of destroyers from Russia) in 1980."

To this list. one may also proudly add the era of nuclear power propulsion with - the. successful operation of the Russian owned nuclear power submarine, INS *Chakra* in 1985.

The introduction of each of the above technology brought in its wake the essential need for setting up of an infrastructure both in the dockyards and the training establishments, such as the LEANDER steam training complex, the gas turbine training complex at INS *Shivajl, Lonavla* and the corresponding complete overhaul facilities in both the naval dockyards at Mumbai and Visakhapatnam. But in almost all the cases of different ship acquisition programme, there has been a mismatch between the time of acquisition of the ship and the setting of infrastructure facilities both for training as well as for the refit of the ships.

The setting up of the Nuclear, Biological, Chemical and Damage Control School way back in 1958 (based on the Royal Navy model) has proved to be a major asset. It will thus be observed that the Indian Navy has been thinking far ahead to prepare at least for defence against nuclear strike.

The technological growth of the Indian Navy is represented graphically at (FIG.1) for a quick appreciation.

## Observations

The following observations are offered on the technological growth of the Indian Navy:

- The content of Western origin ships has decreased to a large extent over the years giving way to Soviet origin ships. The reasons are obvious.
- The policy of adopting an indigenous policy right from the very start has now paid rich dividends. The indigenous ship construction programme produced landing crafts (LCUs, LSTs), Survey vessels, LEANDERS, Submarines and the very recent light class cruisers. The design for the construction of an aircraft carrier is on the cards now.

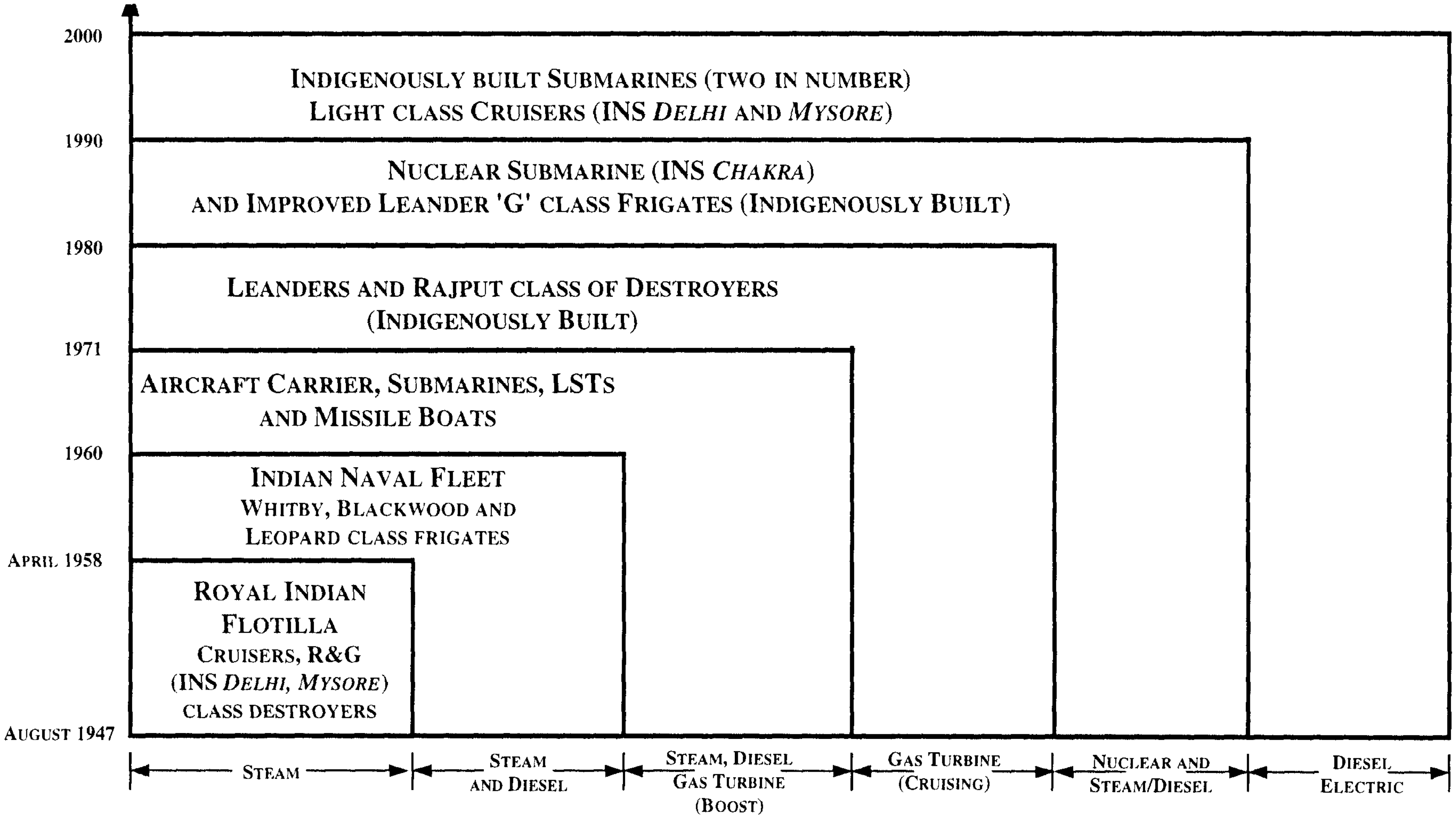


Fig.1 – Growth of Propulsion Technology in the Indian Navy with acquisition of Ships

- The acquisition of Soviet origin ships warranted the setting up of a specialised naval dockyard in 1980 at an estimated cost of over Rs 5000 crores. This was essential to cater for the refit and logistic support of such ships following a different philosophy of upkeep cycles.
- The training establishments had to specially draw up new syllabi, training aids and simulators to cater for such Soviet origin ships. The training pattern too had to be modified to meet the vertical specialist type of demand of the new breed of ships.
- The manning of ships have marginally reduced though the supporting staff ashore which has increased due to sophistication brought in by modem ships and the ever increasing high demand for quality.
- The growth of the ancillary marine industry has not been a well planned and structured growth. The growth has been adhoc and with the stoppage of the LEANDER construction programme the ancillary industry received a major set back
- The current indigenous development of a marine gas turbine shall be a big achievement. It shall prove that sufficient metallurgical in-house expertise is available in producing high temperature creep resisting blade material, which is so essential for the success of gas turbine technology.

## Conclusion

The technological growth of the Indian Navy has far out spaced the numerical growth of ships in a short span of 50 years. The credit for this rapid modernization goes to:

- Our naval planners.
- Defence research laboratories.
- The shipbuilding yards.
- The ancillary marine industry
- Not forgetting the government.

From a one dimensional, slow speed. gun armed flotilla in 1947 has emerged a large three dimensional, quick response, missile armed navy with over a hundred ships. The navy has graduated from slow speed reciprocating engines to high speed gas turbines – the basic guiding principle being that only new technology can win a war as proved in the last Gulf war.

The present watchword for the design of warship has been in the philosophy of 'design for continuity' as against the previously held concepts of 'design for cost' and 'design for change'. The 'design for continuity' now lies in nuclear propulsion. The early introduction of nuclear power for marine propulsion shall perhaps change the balance of power in South East Asia making the Indian Navy a force to reckon with and to a certain extent reducing its dependence on fossil fuel – a big strategic advantage.