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The Strategic Evolution of the Indian Naval Fleet Air Arm

By

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In the Beginning, an Absence of a Unifying Theory

In 1946, with impending Indian independence looming large, the interim Prime Minister Nehru commissioned a British adviser Mr Wansborough Jones to recommend the scientific and organisational measures required to make India a self supporting defence entity. This Report was preceded by the AV Hill Report of 1944 and succeeded by the Blackett Report of 1948. It is hardly the names that are important, however what is significant is the intellectual insights that motivated these reports which in turn influenced the evolution of the Navy and in particular the Fleet Air Arm.[1]

By specialisation the first was a defence scientist, the second a bureaucrat while the third an operational research analyst; what they lacked in common was the absence of professional and empirical acumen. And so predictably central to what drove their appraisal was compromise of needs, optimization of Commonwealth surpluses and, curiously, economising on security through a strange faith in collectivism despite the specific vision which saw India as a "self supporting defence entity" and even if it meant playing down threats and challenges that reality presented. All three reports lacked a unifying theory that linked strategic thought with force planning. Then again in contrast was the Vice Admiral Godfrey (C-in-C of the Royal Indian Navy) Plan of 1944 which outlined a strategic vision of energy security, sea denial capability, sea control of western and eastern approaches to the North Indian Ocean and selective maritime air strike and reconnaissance capability in support of surface forces.[2] Force development was envisaged over a ten year period in two phases, Phase 1 foresaw surface forces for escort and patrol missions while Phase 2 visualized a Denial and Control capability. Intrinsic to Phase 2 was an air component with surveillance and strike potential. By 1948, the Plan was pruned, by Vice Admiral

Edward Parry the then Commander in Chief and Chief of the Naval Staff, to a 47 ship Navy from 69 ships, centred on two aircraft carriers. Indian Naval Plans Paper 1 owes its origin to a compromise between the articulations of the five worthies mentioned earlier; the non professionals as represented by the scientist-bureaucrat-analyst combine on the one hand while the Godfrey-Parry professional bloc as tailored by the British Admiralty depicted the experts view. In any case the blue print for the Plan was drafted in Whitehall.

The appropriate level of resources that ought to be dedicated to national security is naturally a subject of debate. However, what is an imperative is a comprehensive methodology that helps the planner to identify national interests and objectives which are the ends of policy and how best resources and national assets can be mobilised to achieve these in the face of challenges and threats. From this a plan of action must emerge and the necessary military posture attained to support the plan. This codifies what may be termed as the 'strategic approach'.[3] Such a slant was absent.

Skewed Planning and Incoherent Acquisitions

The contrary pulls within planning, unsurprisingly, tilted towards an illusory faith in compromised security, a civil-military disconnect and a misplaced conviction in internationalism. Politically it was a statesmanlike like expression of a war weary leadership which saw in the post war global order notional prospects for pacifism. But militarily it left the defence forces and in particular the Navy with a 'moth eaten' second hand force structure made up of disparate units bereft of a guiding strategic soul and predisposed to an all consuming dependence.

Planning gone seriously awry and the onset of strategic insomnia was never more obvious than in the early years and particularly so in the future of Indian Naval Aviation. The acquisition of two aircraft carriers, which were originally envisaged to form the core of a sea control potential, and maritime patrol and strike capability to compliment the carrier group were placed on the 'back burner'. Reasons ranged from lack of resources, outbreak of the Korean war to British reluctance to release second hand carriers.[4] None of these arguements made for a strategic rationale since alternate sources or indigenous or joint ventures were never examined, neither were innovative solutions such as conversion or reconstitution of a cruiser or commercial hull

explored; after all most early World War II aircraft carriers were based on reconstitution of warships or merchantmen hulls.[5] Between the two World Wars Britain, France, Japan and the USA reconstituted over 12 existing warship hulls to aircraft carriers. While in the immediate run up to the Second World War and up to 1943 Britain alone refitted over 30 merchantmen hulls for duties as Escort Carriers of the "Ruler" and "Archer" class. These Carriers displaced 10,000 to 15,000 tons, some were equipped with arrester gear and "accelerators" (the forerunner of the catapult) all were capable of operating frontline naval combat aircrafts of that era. While USA, in the same period converted 13 mercantile hulls to the "Charger" and "Long Island" class Escort Aircraft Carriers; displacing about 10,000 tons capable of carrying 30 fighters aircrafts.[6]

What is being posited is that there was no material reason not to pursue the Professional Plan. Besides the technological gap in the late 1940s was relatively less wide as compared to the 1960s and ship conversion of the nature discussed earlier was well within the technical capabilities of our major shipyards.[7] The downstream effect of such a strategic decision would have given the vital energy needed for our warship building and collateral industries to stand on its feet. In its place was an incoherent training and recruitment scheme alongside a shore based aviation acquisition plan that relegated naval aviation to auxiliary status and directionless expansion such as target towing and communications link aircrafts (all of which could have better been done by the Air force and may have even sown the seeds of jointness).[8] How else does one explain the possession and basing of Sealand amphibious aircrafts at Cochin when their most advantageous operational utilisation was in the Andaman and Nicobar Islands; in the event, through the Sealand's service life, they were never deployed in the islands.

Naval Aviation within the Larger Strategic Theory of Maritime Warfare

It was equally apparent that operational concepts in the Indian Navy had not quite kept pace with the technological impact that naval aviation had made in other leading navies. For the Navy to have appreciated fully the critical role that air power in the maritime domain played it was necessary to have given itself a strategic theory and then examine where naval aviation fitted in. Naval thought has been dominated by a fourfold classification of maritime forces since the Second World War. The

grouping is largely functional and task oriented. The differentiation comprises of aircraft carriers, strike units, escorts and scouts, denial forces and auxiliaries (the last include logistic and other support ships such as mine layers, sweepers, tenders etc).

Through the years there have been other concepts governing the constitution of the Fleet and its development, often driven by well reasoned logic (as we noted in the report by professional planners) and at other times motivated by nothing beyond the instantaneous intimidation, expedience or by political considerations as was the case in "Plans Paper 1". That being as it may, clearly the make up of fleets must logically be driven by policy and materially articulate strategic concepts and operational inspirations that prevail. The principal demand of the theory of naval war is to attain a strategic position that would permit control of or deny oceanic spaces. Against this frame of reference the fundamental obligation is therefore to provide the means to deny, seize and exercise control and crucial to denial as well as control functions is naval aviation.

Pursuing this line of argument, the rational formulation that remains consistent with our theory of naval warfare is that upon the escorts, scouts and maritime patrol aircrafts depends our ability to exercise control over the objective sea area or of sea lines of communication (SLOC); while on the Aircraft Carrier group and its intrinsic air power assisted by strike and denial forces depends the security of control. It is here that the true impact of the Aircraft Carrier and naval aviation is felt when it is sought to exercise sea control permitting escorts to persist unimpeded with their specialized tasks. Control and Security of Control is the relationship that operationally links all maritime forces.

It may be argued that the best means of achieving control is to incapacitate the adversary's ability to interfere. It would then appear that even in the maritime environment the doctrine of destroying the enemy's armed forces reasserts itself as the paramount objective. This is what must concern the planner to the extreme; that is, should we not concentrate our maritime exertions with the singular aim of dealing that knock out punch. But the maritime environment and the vastness of the hydrosphere that we choose to influence is of a nature that demands force compromises, which in turn will deplete the escorts in order to pull away the carrier group and airborne surveillance to seek out and destroy the adversary. At the same time the antagonist may hardly be expected to be so accommodating as to expose his main forces till he found a more favorable opportunity. As Corbett so eloquently put it "the more closely

he induces us to concentrate in the face of his fleet, the more he frees the sea for the circulation of his own trade, and the more he exposes ours to cruiser raids."[9]

Indeed, there is no correct solution to this predicament of how best in time, space and most economically, can Sea Control be established as this would often be dictated by the relative strength, structure and constitution of the fleet, intentions and the geographic character of the theatre of operations, which favours one or the other protagonist. However, we may draw a general conclusion that the object of maritime power is to establish control over a pre designated area of interest for a desired period of time. The process may be preceded by strikes against the foe and actions to deny that sea space. The consequence of control may either be operations to secure the object on land or an assurance of passage on that sea area in order to further the war effort. In order to achieve this state efficiently it is necessary that maritime power be equipped with the appropriate mix of forces specially adapted for the purpose.

We have thus far noted that the theory of maritime warfare is governed by the ability to control maritime space which in turn hinges on the operational impact of naval aviation both carrier borne and shore based. However it is the conditions of use of such forces and the nature of twenty first century maritime conflicts that is of significance.

The Acquisition of Vikrant

Ironically it was the intervention of the last British Governor General, Admiral Mountbatten, and not any far sighted design that moved the case for the acquisition of an Aircraft Carrier for the Indian Navy. Clearly, his influence on Prime Minister Nehru must have in no small measure swayed the decision. By 1957 the Navy was able to finalise the sales agreement with Britain for the refit and refurbishment of the HMS Hercules, a 'Majestic' class light Aircraft Carrier displacing 15,700 tons, built to a World War II design, her fitting out was stopped in 1946. She was commissioned into the Indian Navy in 1961 as INS Vikrant and carried an air wing of British Sea Hawk jet fighter bombers and French Alize anti submarine warfare aircrafts.

The induction of the Carrier was a watershed event in the moulding of strategic and operational maritime thought in the Indian Navy. The quest for a blue water control capability was accompanied by a larger road map of acquisitions that envisaged regional surveillance, denial, control and selective power projection

capabilities on the one hand while appropriate human resource development was addressed on the other. The two decades between 1965 and 1985 saw the emergence of a balanced Indian fleet with a slant on aviation. It included the induction of long range maritime patrol aircrafts, coastal reconnaissance aircrafts, strike aircrafts, ship borne antisubmarine helicopters and in 1987, the commissioning of the second Carrier Viraat.

By the turn of the twenty first century it was amply clear that a two carrier battle group was well on the indigenous road to realisation with a third in reserve. Integral air combat elements included Mig 29K strike aircrafts, antisubmarine warfare and airborne early warning helicopters; while shore based long range patrol aircrafts such as the P8 I Poseidon aircrafts, coastal surveillance aircrafts and unmanned multi function aerial vehicles were in the acquisition pipeline.

Four Operational Dilemmas

The coming of age of Indian naval aviation runs concurrent with four key operational developments. The first is that technological advances, contrary to conditions that prevailed for most of the last century, are in a continuous state of outpacing operational thought. As a consequence of which the planner must seek not just to make accurate technological forecasts and capture appropriate technologies but also to expound operational concepts that would best exploit these technologies. The second dilemma is centred on the ability to offset mass by precision; this poses a very real problem to the practitioner since hardware now had to not only convincingly dispel any “fog of war” but also come to advantageous grips with the possibility of failure. The third is the emerging transparency of the battle space which reduces the scope for cardinal principles of surprise, concentration and mobility of forces to be applied in an operational engagement with any probability of success; it also increases the significance of doctrinal integrity. The last quandary is the enlarging gap between the offense and the defence which invariably makes a persuasive case to take the offensive in all circumstances.

The future will persistently be beset by the challenges posed by the four operational dilemmas. These will have to be resolved and tempered keeping in mind a contrary pull that demands naval aviation embrace affordability. Affordability is generally driven by three elements – the acquisition cost to develop and buy platforms,

the operating and maintenance cost to bring the full weight of the fleet air arm to bear over their entire service life and most importantly, priority in force planning.

The Robotic Revolution

On 09 October 1903 a curious editorial appeared in the New York Times; it prophesised that "The flying machine which might really fly might be evolved by the combined and continuous efforts of mathematicians and mechanicians in from one to 10 million years." Yet that very same day, two brothers who owned a bicycle shop in Ohio started assembling the very first aeroplane. Seven years later the first flying machine flew off a wooden platform built on the bows of the USS Birmingham.[10] The era of naval aviation was not only at hand but had achieved it with silence, surreptitiousness, with capricious rapidity and transformatory impact that we have come to associate technology with. So it is with robotics which has so unerringly crept into every aspect of naval aviation that from complimenting manned flights it is on the cusp of replacing the man in the cockpit.

Contemporary unmanned systems entering into the fleet are potentially capable of undertaking the entire spectrum of combat tasks. For instance, the role of long range maritime surveillance and patrol is being taken over by unmanned aerial vehicles (UAV) such as the Heron (currently in service with the Indian Navy, payload 250 kg, endurance 30-52 hours, all up weight 1 ton) and the US Global Hawk. The latter with a wingspan of 35 metres and an all up weight of over 10 tons it has an endurance of over 24 hours, while carrying 3,000 pounds of electro-optical, infrared and synthetic aperture radar sensors, at heights of over 65,000 feet, the system provides persistent maritime surveillance, intelligence gathering, data collection and dissemination at theatre level. To its abiding advantage, the UAV is not restricted by crew fatigue, rigorous and costly safety considerations, it is economical and awkward issues related to risk taking do not come to play. While these long range UAVs operate from a land bases, the Navy is also working to integrate many of its ships at sea to operate smaller systems like the Searcher and the Nishant. Able to take off and land autonomously from any warship with a small deck, its payload includes thermal imagers, radar, high-powered video cameras and a laser designator that can fix targets to be struck by the mother ship's weapons or by a cooperating armed UAV or manned fighter. With a range of over 200 miles, the surveillance zone of the surface force is greatly multiplied.

The centrepiece of future plans for unmanned systems at sea must be steered to carrier-launched surveillance and strike fighters. This type of robotic plane is specially designed to take on and take over the human pilot roles. Without a cockpit, and in some cases, even no tail fins and planes, such systems vary drastically from our traditional notions of an aeroplane. But these same attributes theoretically give them capabilities well beyond even some of the latest manned strike fighters. Designed to be especially stealthy for the more hazardous roles such as enemy air defence penetration, they potentially can launch precision guided munitions, can be handed over between different remote human operators at extended ranges and provide for prolonged periods (30-50 hours) on scouting tasks. They also promise to lighten the stress on human operators.

For all the anticipation that such possibilities generate, it is important to realize that technology is only at the nascent stage of a robotic revolution at sea. Indeed, just as the first navy planes started out in the auxiliary role and soon found a place in practically every operational and tactical task at sea, so too do we note a similar expansion of combat roles with unmanned systems. A more critical issue is that despite the relentless advancement of robotics and its application to combat disciplines, there are no signs that technology will end the central role of the man at sea any time soon. The specifics of the human role may be altered; just as most navy warplanes today don't have tail gunners, air engineers, signallers or navigators; but the demand on human skills remains crucial for planning, control, forecasting and technology application.

Future Strategic Fleet Air Arm Force Structuring: A Conclusion

The ultimate reality of the international system is the place that power, enjoys in the scheme of assuring stability in relations between nations. Uncertainty in international relations queers the pitch, in view of the expanded space of possibles. In an earlier section we had noted the quintessential link between strategic policy and the framing of a theory for force structuring. But as austerity and inflation continue to bite into the defence budget and make more complex the four operational dilemmas as symbolised by the race between technology and operational concepts; the balance between mass and precision; transparency of the battle space demanding doctrinal integrity and the growing ascendancy of offensive power, we may accept that the

rationale for maritime air power remains sound. But the planner must bite the bullet when it comes to the generation of an operationally judicious mix of robotic capabilities along with manned aircraft to provide optimal operational orientation; if it means the coming of smaller, more numerous UAV Carriers supported by shore based long range unmanned patrol air crafts, then the planner must embrace this future.

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End Notes

[1] Hiranandani GM. *Transition to Triumph,* NHQ New Delhi and Lancer New Delhi 2000, Pg 4-6.
[2] Ibid, Pg 3.
[3] Monograph by author titled *Strategic Posture in the Eastern Ocean: The Incoherent Shoals*. United Service Institution of India New Delhi 2011, P7.
[4] *Transition to Triumph*, Pg 262.
[5] *Jane's Fighting Ships 1939.* London Samson Low, Marson & Co Ltd Naval Publishers. Pgs 38-42, 183, 315, 489.
[6] *Jane's Fighting Ships 1943-4*. Pgs 35-36, 457.
[7] In 1948 the Scindia shipyard, later nationalised in 1961 as the Hindustan Shipyard Ltd., post independence built India's first indigenous cargo ship the Jal Usha displacing 8000 tons.
[8] *Transition to Triumph*, Pg 262.
[9] Corbett. *Some Principles of Maritime Strategy* p. 115.
[10] Singer Peter, W. *Washington Post, Opinion* 06 December 2011.