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THE NAVY GROWS WINGS

Birth of the Fleet Air Arm

Until the time Britain ruled over this subcontinent the British grand naval strategy dictated monopolistic maritime hegemony over the Indian Ocean, with its own bluewater navy operating from three *Royal Navy* bases in Asia, at Trincomalee in Sri Lanka, rated as one of the best natural harbours in the world, Singapore, the most strategically positioned port for the control of the Far Eastern waters, and at Bahrain in the Gulf, which would have a direct bearing on the stretch of the ocean area between India's west coast and the African east coast.

Since Britain was responsible for the maritime defence of India and all other British possessions in the east, the navies of the British-occupied territories in South Asia were assigned the responsibility of conducting coastal defence operations only. For this purpose the minuscule fleet that the combined navy of India and Pakistan - the *Royal Indian Navy* - was allowed to develop until the outbreak of World War II, comprised five sloops, one survey vessel, one patrol ship, one depot ship and a number of smaller craft. But by the time the War ended, the strength of this flotilla, mainly because of its involvemnt in various theatres of operation in Asia and beyond, had risen to that of an impressive fleet of seven sloops, four frigates, four corvettes, 14 minesweepers, 16 trawlers, two depot ships, 30 auxiliary vessels, 150 landing craft of various types, 200 harbour craft and several motor launches and harbour defence motor launches. However, this unwieldy *Royal Indian Navy* fleet was soon whittled down to a much smaller flotilla, and by the time the subcontinent was partitioned on August 15,1947, it had only six sloops, four frigates, one corvette, 16 minesweepers, one survey vessel, six trawlers, six motor mineweepers, one motor launch, eight harbour defence motor launches and a squadron oflanding craft.

When the assets of the *Royal Indian Navy* were divided between India and Pakistan in 1947, as mentioned in the previous chapters, only about two-thirds of these ships and craft came to India. With a coastline extending to beyond 6,000 kilometres, it was then felt necessary, that the small Indian flotilla should be

immediately expanded to a full-fledged navy. For this purpose, along with the other platforms for operating weapons at sea, an air wing or a fleet air arm was considered an essential attribute of the future navy for India, even at that time, because the effectiveness of an aircraft as a weapon system in naval warfare had been convincingly demonstrated by the British, Japanese and US navies during World War II.

Post-Independence Plan for Aircraft Carriers

Within six months of Independence a 10-year expansion plan for the Navy was drawn up at Naval Headquarters, based on the concept of two fleets for the Navy, one for the Bay of Bengal and the other for the Arabian Sea. The nucleus of each fleet was to be formed by a light fleet carrier which would be replaced by two fleet carriers, and these carriers were to be protected against enemy surface ships for which cruisers were considered essential. This expansion plan, prepared in 1948, was based on the concept of the Royal Navy undertaking the bluewaterresponsibilitiesandthe 'dominion' navies ensuring the naval defence of their coasts, their fleets comprising ships of all types in use mother navies of the time, including aircraft carriers. It read:

Lessons of the last war have provedabundanfly thevalueof aircraft carriers. The hard fighting core of a balanced fleet consists no longer of battleships but aircraft carriers. Battle fleets have given place to a much more powerful fighting force - the carrier task force whose striking power is provided by aircraft carriers. Fleet carriers of the type envisaged are large and powerful vessels requiring much technical skill and experience for efficient running. It is, therefore, proposed that the Royal Indian Navy starts its naval aviation by the acquisition of two light fleet carriers which are smaller vessels with half the complement of aircraft, in the first instance. These two light fleet carriers would be given up when the first two fleet carriers are acquired.

The peace complement of aircraft in each of these light fleet carriers is one fighter squadron and one strike squadron of 16aircraft each. The peace complement of aircraft for a fleet carrier is four squadrons of 16 aircraft each. Two of these should be fighter squadrons and two strike squadrons, making a total of eight fighter and eight strike squadrons for the four carriers. Aircraft will also be required at naval bases where ships are likely to be stationed and also at the site of the Gunnery and Navigation Schools (at Cochin) for training purposes. It is considered that two such units, oneon each coast, will be required. The Fleet Requirement Unit for the training schools (on the west coast) should have 14 aircraft and the second Fleet Requirement Unit on the other coast need have only 10 aircraft, making a total of 24 aircraft.

Thus during the 10-year acquisition plan, the Navy proposed to acquire two light fleet carriers, which were to belater replaced by four fleet carriersandatotalof280aircraft(16squadronsof 16 aircraft eachandtwo Fleet Requirement Units with 24 aircraft), out of which one light fleet carrier and 154 aircraft (32 fighter aircraft, 16 strike aircraft, 24 second-line aircraft and 82 training aircraft) were to be acquired during the first phase

by 1954, the capital expenditure during the period being Rs 13.13 crore and the recurring expenditure Rs 8.69 crore. The second light fleet carrier was to be acquired in 1956, the four fleet carriers in 1958, I960,1962 and 1963 and another 134 aircraft between 1955 and 1963.

Shore Support

The Paper also proposed to set up naval air stations. It said:

A number of naval air stations will be required for basing the Fleet Aircraft Requirement Units, Transport Squadron, Air Sea Rescue Squadron, Communication Squadron and the First Line Squadron when not actually embarked on carriers, when these ships are undergoing refit. In addition to these, air stations will be required for basing training squadrons.

One air station will be required for the Operational Flying Training School. The College of Naval Air Warfare, with its several wings (Advanced Training Wing, School for Naval Air Gunners and School for Naval Observers), will need another air station. One airfield will be required to provide a base for the Communication Squadron.

The need for a Fleet Air Arm was accepted by the Defence Ministers' Committee (Navy) at its meetingheld on October 26,1949, and the proposal for its formation was passed by the Standing Committee for Parliament on November 13,1950.

The acquisition of two light fleet carriers and four fleet carriers was, however, considered'too expensive for present resources'by the Defence Ministers Committee (Navy) and hence the requirement was soon reduced to two light fleet carriers, each carrying one fighter squadron of 16 aircraft, one strike squadron of 16 aircraft and two amphibious aircraft, with the shore support of 10 aircraft for basic flying training, 18 aircraft for operational training, 8 aircraft for observer training and 13 aircraft for the Fleet Aircraft Requirement Unit making up a total of 117 aircraft. The capital cost of aircraft carriers as well as the aircraft was thus reduced to Rs 5.55 crore. The two carriers are now proposed to be acquired in 1956 and
1959.

There was another reappraisal of the nation's finances at this stage leading to the imposition of extreme budgetary stringency which immediately affected the Navy's plan for acquiring an Air Arm. The Navy's expansion programme had consequently to be drastically slashed down and the proposed fleet strength reduced to a small carrier force, to be developed around only one small aircraft carrier.

Plans Approved for Two Carriers

The proposal received due support from the Governor General of India, Earl Mountbatten of Burma, and was approved by Shrijawaharlal Nehru, the Prime Minister of India. It also received the,blessings of the Nobel laureate, Professor P.M.S. Blackett, the British Defence Scientific Adviser, who visited this country at the

invitation of the Government oflndia.He concurred with the plans for the expansion of India's navy on the lines recommended by the 10-year expansion plan, according to which it was proposed to acquire a light fleet carrier from Britain inl955 to be followed, if funds could be made available, by a similar carrier in 1957. The services of an experienced officer from the Royal Navy's Fleet Air Arm, Captain H.C.Ranald, were loaned to the Indian Navy from the British Admiralty and a Directorate of Naval Aviation was set up at Naval Headquarters in 1948 with Ranald as the Navy's first Chief of Naval Aviation (CON A).

Infrastructure of Operational and Technical Personnel

Recalls Captain Balbir Law, one of the aviation pioneers and the first Commanding Officer of the fighter squadron.

Those were heady and exciting days and the decisions were implemented at a fair pace. A small team of Royal Navy Officers were loaned to the Indian Navy to create the infrastructure, ashore and afloat. This team led by Captain Ranald, began the task of recruitment and training of aircrew and technical personnel in 1948, to meet the planned requirement for the Indian Navy to acquire two light fleet carriers by 1957. It was decided to train quickly, a smallnucleus, using *the Royal Navy's* training establishments in the UK and, thereafter, to feed the additional requirements through the existing facilities of the Indian Air Force. Theoverallaimwasthatthenucleus trained with the Fleet Air Arm wouldnotonly retain the personnel in specialised skills for maintaining and operating aircraft from carriers but also lay the foundations for building the Navy's own aviation training establishments in India.

Volunteers were asked for the fledgling aviation wing and in 1948, out of the officers who had volunteered, thirteen were selected and deputed to the Indian Air Force's flying training academy at Jodhpur for a four-week flying course on Tiger Moths. These were Lieutenant (later Commodore) G.M. Shea' Lieutenant (later Commander) J.N. Vats, Lieutenant (later Commander) B.S. Ranjit, Lieutenant (later Commander) A.S. Bathena, Lieutenant (later Commander) H.K. Mukherji, Lieutenant M.M. Bakshi, Lieutenant (later Captain) T. Chakraverti, Lieutenant (later Commander) K. Cockburn, Lieutenant (later Commander) R.S. Sokhi, Lieutenant (later Commander) P.N. Parasher, Lieutenant (later Commodore) P.C. Rajkhowa, Lieutenant (later Lieutenant Commander) G.C.D'Cruz and Lieutenant (later Captain) B.D. Law.

Out of these volunteers, ten officers qualified in the flying aptitude testsandwere sent forbasic flying training to the Royal Naval AirStation, Donibristle, inScotland, inMarch 1949, three-Shea, Vats and Ranjit - having failed to make the grade. Out of these ten, seven qualified at Donibristle (Cockbum, Bathena, and Rajkhowa did not qualify) and were transferred to the Royal Air Force Station, Syerston, for the next phase of training, where five earned their 'wings' and two officers failed to qualify, Mukherji on Prentice and D'Cruz on Harvard aircraft. In August 1950 these five officers were sent to the Royal Naval Air Station, Lossiemouth for operational training (Bakshi, ChakravertiandSokhi for antisubmarine operations and Law

andParashar in fighter operations) whereafter two years' rigorous training, four officers - Lieutenant P.N. Parashar, Lieutenant B.D. Law, Lieutenant T. Chakraverti and Lieutenant R.S.Sokhi - qualified in 1952 and returned to India. The fifth, Lieutenant M.M. Bakshi, died tragically in a flying accident during his operational training.

During their training in England, two out of these four officers had completed the fighter course on Seafires (the naval version of Spitfires) and the other two had been trained in the strike role in Fireflies. Parashar and Law were then attached to the 781 Communication Squadron and Sokhi and Chakraverti to the 771 Fleet Requirement Squadron at Lee-on-Solent for consolidating their flying experience and for conversion to twin-engine and amphibian aircraftand a brief course on helicopters. They flew a wide variety of aircraft including the Anson, Oxford, Martinet, Firefly, the amphibian biplane Sea Otter, the twin-engined biplane Dominie and the front-line antisubmarine and fighter aircraft Seafury.

Y.N Singh, the Navy's First Aviator

Wellbefore the partitionof India,an Indianofficerof the RoyallndianNavy, Lieutenant {later Commodore) Y.N. Singh, had been trained in flying in the UK and had become a qualified pilot in 1944, when he earned his wings at the Elementary Flying School, St Eugene, and served in the British 804 Squadron as a fighter pilot. In fact he was the first Indian ever to fly from the deck of an aircraft carrier at sea.

Besides these five officers, four other officers, Lieutenant (later Commander) N. Pavamana, Lieutenant {later Commander) Joginder Singh, Lieutenant (later Commander) C.R. Menon and Lieutenant (later Commodore) B.R. Acharya were soon selected for the Navy's air arm and received their basic training from the IAF and were awarded wings in 1953. Because of theabsence of technical staff required for aircraft maintenance, two officers of the Engineering Branch of the Navy, Lieutenant (later Commander) P.V. George and Lieutenant Commander (later Rear Admiral) H.D. Kapadia, were sent to the UK for specialisation inair engineering. Two engineerofficersof he Indian AirForce, Lieutenant (laterCommander) *MS.* Shrikhande and Lieutenant (later Commander) V.S.P. Mudaliar were transferred to the aviation wing of the Navy to strengthen its technical base.

The Navy at this time also required officers to serve as observers -officers who fly in naval aircraft and are assigned the tasks of reconnaissance, antisubmarine warfare, aerial photography, photo intelligence, tactical coordination, radar control, communication, air navigation, etc., and hence a batch of five officers - Lieutenant (later Vice Admiral) M.K. Roy, Lieutenant (later Commander) M.N. Gupta, Lieutenant (later Lieutenant Commander) J.V. Nazareth, Lieutenant (later Commander) V. Chakravarthy and Lieutenant C.P. Ramachandran - was sent to the UK for training in 1951.

The Birth Pangs

The Defence budget for 1949-50 had providedforadequatefundsfor the acquisition of carrieraircraft so that theseaircraft could be used to impart adequate training to the naval pilots in preparation for the acquisition of the first aircraft carrier in 1955 from the UK butno naval aircraft could be sparedat this time by the Royal Navy for transfer to India. Besides political pressures within the country, the war in Korea slowed down the pace of development of the Fleet Air Arm for the IndianNavy. This was because the aircraft and aircraft carriers which India had proposed to acquire were no longer available as they were fully committed to the Korean War. The pressures on the Indian borders also necessitated attaching greater priority for developing the other two Services and the resultant slackening of pace also meant a change in the role of the proposed Fleet Air Arm.

Whereas the original plans would have provided real teeth and considerable punch to the Service as a whole, the new role assigned to the A ir Arm was the secondary task of providing the Fleet with aircraft to enable the surface ships to practice and develop their antiaircraft defence systems and, to a limited extent, for air-to-surface communication and reconnaissance. The change in the role implied a change in the type of aircraft required. The main role of the aircraft- cooperation with the Fleet at sea, reconnaissance and communication - dictated an aircraft which could fly singly over the sea with some degree of safety and ability to alight on the water, sufficient endurance, long-range communication and navigation facility, and the ability to carry a small load of equipment and additional personnel. The *Royal Navy* had operated two amphibian aircraft, Walrus and Sea Otter, for reconnaissance by catapulting themoff most of its capital ships, but these had by now become too old for acquisition.

NavalHeadquartershadinthemeanwhile decided to recommend the acquisition of a non-carrier aircraft for pre-carrier acquisition training. The aircraft chosen was the *Sea Fury FBI!* and it was proposed to set up a shore-based strike squadron with 40 such non-carrier aircraft to be acquired by the end of 1950. However, this proposal too fell through as the Defence budget had to beseveraly curtailed owing to stringent austerity measures adopted by the Government of India and naval aviation became one of the targets of these measures, reducing the number of aircraft carriers to be acquired, to only one, shelving the *Sea Fury* acquisition programme and severelytruncatingtheprojected requirement of other ships,craft,weapon systems and equipment. At one time the Government was even contemplating the withdrawal of all personnel training in aviation and

giving them the option to revert to general service or to consider a transfer to the Air Force, if acceptable to them. Ultimately, against very stiff opposition from the IAF, the Navy succeeded in obtaining Government approval for keeping naval aviation going, even though on a very restricted scale.

The Fleet Requirement Unit

Eventually, it was in June 1951, that theformauonotaHeet Requirement Unit for providing aircraft to be used for maritime reconnaissance, training of pilots and observers, evaluation and calibration of radar and communication equipment, supportofthefleetinantisubmarine exercises andasair targets for antiaircraft gunnery practice and training in tracking, with a complement of one squadron commander, eight pilots, four observers, one air engineer officer, one air electrical officer and 31 sailors was finally approved by the Government of India.

The change in the role did not deter Naval Headquarters from going ahead with recruiting and training personnel in all the trades and professions of naval aviation to ensure that the new arm would be completely self-sufficient. A new and highly skilled cadre emerged; it comprised pilots, observers, engineers, electrical and radio specialists, armament and ordnance specialists, safety equipment and aircraft handlers, storesmenand medical officers specialising in aviation medicine. Some of these aviation personnel subspecialised to prepare for the day when the tide would turn and the navy would man its first aircraft carrier.

The Sealand

The first aircraft eventually selected, mainly because it was the only acceptable aircraft available at that time for acquisition for the Fleet requirement Unit, was the *Sealand Mark 1L* twin-engine amphibian aircraft, manufactured by Short Brothers at Belfast, North Ireland, and it was decided to acquire ten such aircraft in the first lot. This was a simple, slow and relatively very cheap aircraft which could carry two pilots, an observer, communication and direction-finding equipment, a chart table, a dome for taking navigational sights of the sun, moon or stars, and four passengers, it had an endurance of over five hours and had the luxury of a loo!

Whilst it may be difficult to justify the choice of this aircraft, it must be appreciated that the deterioration in the international situation leading to the Berlin blockade, and the requirements of the Korean War and war resources, appeared to have precluded the release of suitable combat

aircraft for the Indian Navy. According to Commander P.N. Parashar, one of the intrepid pioneering pilots of the Indian Navy, 'Cochin being surrounded by water and the need to find an aircraft which could fulfil multiple non-combat roles for the Fleet, aided by the personal flying experiences of Captain H.C. Ranald, must have influenced the choice of this aircraft/

The first Sealand aircraft, numbered IN 101, was formally handed over to Shri P.V.R. Rao, Deputy High Commissioner at the Indian High Commission in London (Shri Rao was to later become the Defence Secretary), By Rear Admiral M5.Slattery, Chairman, Short Brothers &Harland Ltd., at a colourful ceremony at Rochester, Kent on January 13,1953. Later, between February 4 and October 23,1953, all ten aircraft were ferried to Cochin by some of the Indian pilots trained in the UK and a British firm undertaking aircraft ferrying service. During one of these ferrying trips, Lieutenant P.N. Parashar and Lieutenant T. Chakraverti distinguished themselves by flying in formation from Lee-on-Solent in England to Malta in a single-seater Seafury aircraft in three hours and 11 minutes, setting a new speed record for the distance. This feat provided considerable laudatory publicity in the British and Maltese press and journals.

Naval Air Station

Meanwhile negotiations had been going on for some time for the transfer of the Cochin airfield to the Navy for providing a home to the Navy's aviation wing and setting up the Fleet Requirement Unit with all necessary facilities. It had been used to a limited extent during World War II as was its nearest neighbour-Sulur in Coimbatore. The vital task of developingtheairstationatCochin, adjacent to thenavalbase, *Venduruthy,* was given to Commander George Douglas who had served in the Royal Navy's Fleet Air Arm with distinction, had been awarded the Distinguished Flying Cross for valour, was demobilised after World War II and permitted, by special dispensation, to join the Indian Navy. The first Indian pilot to land a Sealand aircraft on water was Lieutenant B.D. Law, who successfully touched down on the Ernakulam Channel at Cochin on April 9,1953.

From the beginning, this new clan of aviators acquired a sense of identity and enthusiasm which surpassed all expectations. Every person, senior or junior, was full of vigour, competitiveness and comradeship, whether in achieving the number of flying hours or in the highest standards of aircraft maintenance, and this spirit asserted itself even more strongly on the sports grounds of the entire naval base. On May 11, 1953, the day the first Indian Naval Air Station, *Garuda* was commissioned, the

formation of four Sealand aircraft which took part in a fly-past was **led** by lieutenant Commander P.N. Parashar, the other three pilots **being** lieutenant Commander B.D. Law, Lieutenant **Commander** T. **Chalaav* erti** and Squadron Leader L.C. Dart of the IAF. Parashar recalls:

> After the flypast I landed and Admiral Sir Mark Pizey,whowasthe Chief of the Naval Staff at that time, boarded the aircraft **and** we carried out a water-landing in the Ernakulam channel and taxied up the slipway to the Veniuruf/zy(the naval trainingbase) parade **ground.** Admiral Pizey was not really sure about what he was in for **and,** I think, greatly relieved to be safely back on *terra firma.* ,'

Ceremonial Fly-Past and Target-Towing

On October 10, 1953, the President, Dr Rajendra Prasad reviewed **the** Indian Fleet at Bombay when six Sealand aircraft took part in a fly-past over the Fleet and dipped their wings in salute to the Supreme Commander, and one Sealand aircraft, piloted by Lieutenant Commander Y.N. Singh with Lieutenant M.K. Roy as crew, successfully carried out a landing on water. On November 17, 1953 four Sealand aircraft took part in a flypast in honour of the First Sea Lord of the British Admiralty, Admiral Sir Rhoderik McGregor, at Cochin. These Sealand aircraft also provided **a** ceremonial antisubmarine patrol in April 1954 for Queen Elizabeth II of Brita in, whose ship, *SS Gothic,* which also had the Duke of EdinouVghon board, was on passage from Aden to Colombo. Lieutenant P.N. Parashar **was** the leader of the flight which ceremonially escorted the yacht of the President of Yugoslavia, Marshal Tito, when it left Cochin harbour in December 1954 after a formal visit. The Fleet Requirement Unit was formally visited by the President of India, Dr Rajendra Prasad, in February 1956; by the British First Sea Lord, Admiral of the Fleet, Lord Lotus Mountbatten of Burma and Lady Edwina Mountbatten in March 1956, arid by His Imperial Majesty Haile Selassie, Emperor of Ethiopia, in October 1956. In August 1954, the unit began providing aircraft as aerial targets for ships of the Commonwealth Navies taking part in the annua l Joint Exercises of Trincomalee GET) along with Sunderland flying boats and Shackleton Maritime Reconnaissance aircraft of the Royal Nayy operating from China Bay, near Trincomalee. Flying for the Commonwealth Navies continued for 11 years, for JET exercises continued to be held till 1957, when the frequency of the participation by the Indian Navy was reduced and eventually discontinued in 1965.

The Firefly

At this time the necessity of acquiring an aircraft capable of towing a drogue or sleeve target was felt and the Sealand aircraft was found to be considerably underpowered for withstanding the drag produced by such a towed target. Accordingly, two Firefly Mark I single-engine carrier-borne strike aircraft, which were being operated from the aircraft carriers of the Royal Navy and had been used during the Korean War, were fitted with target-towing equipment for towing drogue and sleeve targets and acquired for the Fleet Requirement Unit in February 1955. Three months later, three more Firefly Mark I aircraft were acquired. Between September and December 1958, another five Firefly Mark IV aircraft, fitted with 20-millimetre cannon and also capable of carrying bombs and rockets, were acquired, raising the Firefly strength to ten, and adding offensive punch to Indian naval aviation.

Reminisces Balbir Law,

> We remained shore-based and second line from the operational point ofview but whether operating asasquadronorasa detachment, the flying operations provided each and every one of us invaluable experience and self-confidence. Maintenance, repair and overhaul facilities were developed to achieve remarkable standards.
>
> Above all, even these limited facilities ingrained in the minds of the Service as a whole, the importance of developing a Navy in which aircraft and helicopters would play a vital role. The Air Arm began to attract and draw intelligent, young and highly enthusiastic volunteers from the Executive and technical branches of the Service. We also recruited short-service officers from the universities and the two merged very successfully, and their high professional standards truly formed the backbone of thenew branch and contributed greatly towards its future successes.

The Hindustan Trainer 2

Meanwhile, it had been decided to supplement the basic flying training imparted by the Indian Air Force, with flying training at Cochin, and hence three Hindustan Trainer 2 (HT2) aircraft had been acquired by the Fleet Requirement Unit from the Hindustan Aircraft Limited (HAL), Bangalore and ferried to Cochin by Lieutenant Commander D.D. Law and Lieutenant R.A.J. Anderson on October 7,1956.

Air Squadrons

Since the Fleet Requirement Unit had by now acquired adequate aircraft to justify the setting up of a Naval Air Squadron, it was rechristened and commissioned as thelndian Naval Air Squadron 550 (INAS 550)with ten amphibian Sealand aircraft, ten Firefly target-towing aircraft and three HT2 trainer aircraft on June 17, 1959 and placed under the command of Lieutenant F.K.K. Menon.

Advent of Jet Aircraft - The Vampire

It was now decided to acquire some jet aircraft for *INAS 550* as the deal for acquiring an aircraft carrier hadbeen gone through in 1957, the light fleet carrier *Hercules,* to be renamed and commissioned as *Vikrant,* had been purchased and it hadbeen decided to provide India's first aircraft carrier with jet-powered fighter aircraft. Since the Cochin airfield was not long enough to operate jet aircraft, it was decided to acquire the IAF storage depot at Sulur near Coimbatore as it had a suitable runway which was not being used by the Air Force any longer. The Gunnery School at Cochin had a smallestablishment manned by a naval detachment at Coimbatore which provided all the facilities to personnel using the shooting range there, and therefore could provide all facilities to the air squadron. Soon three Vampire FB-52 aircraft were acquired from the Hindustan Aircraft Limited, Bangalore and a trainer Vampire T-55 aircraft was transferred to the Navy from the Indian Air Force. And with that a Naval Jet Flight came into beingat Sulur onSeptember2,1957 with Lieutenant Commander B.D. Law as its first Commanding Officer and with a complement of four officers and 56 sailors.

A few naval pilots were soon sent to the IAF Flying Instructors' School at Tambaram and the first naval pilot to qualify as **a** flying instructor was Lieutenant B.R.Acharya followed by Lieutenant (later Vice Admiral) S.C. Chopra, Lieutenant (later Commander) R.S. Grewal and Lieutenant (later Commander) K.K. Punchhi, all of them topping in their courses.

In 1960 the nomenclature of the Naval Jet Flight at Sulur was changed to *Indian Naval Air Squadron 550 'A' Flight* and that of the Fleet Requirement UnitatCochin to *Indian Naval Air Squadron 550 'B'Flight,* with the task of training pilots for the two squadrons of fighter and antisubmarine aircraft for the *Vikrant,* assigned to the former. In March 1961 **a** further change was implemented with the *INAS 550 'A'* Flight and the Naval detachment at Sulur merging to become the Naval Contingent, Within six months, i.e., on September 5,1961, the Naval Contingent, Coimbatore was commissioned as a full-fledged naval base, *Hansa,* with Commander T. Chakraverti as its first Commanding Officer; and the squadron of aircraft at Coimbatore was commissioned as *INAS 551* on September 1 the same year, with Lieutenant R.S. Grewal as its first Commanding Officer.

With the increase in the requirement of personnel to occupy aviation billets onboard *theVikrant* as well as the shore aviation establishments and with the growing necessity of phasing out the obsolescent Sealand aircraft, JNAS 550, which originally was the Fleet Requirement Unit, was wound up on March 1,1962 and a Station Flight, *Gantda* wasformed with two Sealand aircraft. *INAS 550* was reformed and started using the new Alizes of the 310 Squadron and the Seahawks of the 300 Squadron for providing flying practice to its pilots.

The Soviet MI-4 Helicopter

It was in 1964, that five naval pilots, Lieutenant (later Vice Admiral) H. Johnson, Lieutenant (later Commodore) M.P. Wadhawan, Lieutenant (later Commodore) V. Ravindranath, Lieutenant (later Commander) S.R. Debgupta and Lieutenant (late Commander) P. Jha, started flying a Soviet-gifted MI-4 helicopter for the

Thumba rocket-launching range. This helicopter was assigned the task of carrying out surveillance of the sea areas off Thumba in Kerala, prior to the launching of rockets.

Dove, HT2 and Kiran

During theyearl965, two Dove aircraft, three HindustanTrainer2aircraft and one Kiran, a jet trainer aircraftbuiltby the Hindustan Aircraft Limited, Bangalore, were acquired for the *INAS 550.*

The officers who commanded the Fleet Requirement Unit (FRU) froml950 to 1959, and their dates of assuming commandwere Lieutenant Commander Y.N. Singh (March 11,1953), Lieutenant R.S. Sokhi (January 3, 1954), Lieutenant Commander T. Chakraverti (February 5,1954), Lieutenant M.K. Roy (Februay 1, 1955), Lieutenant M.N. Gupta (February 2, 1957), Lieutenant Joginder Singh (September 17, 1957) and Lieutenant N. Pavamana (February 3,1958); and the Commanding Officers of *INAS 550* from 1959 to 1965 were Lieutenant P.K.K. Menon (June 18,1959), lieutenant (later Commodore) J.C. Puri (November 18,1959), Lieutenant (later Rear Admiral) A. Ghosh (December 1, 1960), Lieutenant R.S. Grewal Qanuary 16, 1961), Lieutenant V. Ravindranath (September 12, 1961), Lieutenant (later Commander) Arun Rao (November 1, 1962), Lieutenant (later Captain) R.D. Dhir (April 9,1964) and Lieutenant V. Ravindranath (April 10,1965).

Rear Admiral H.D. Kapadia

The person who had thelongestassociationwithnavalaviationandmade a significant contribution to the development of material support and maintenance facilities was Captain (later Rear Admiral) H.D. Kapadia, a specialist in Air Engineering. To quote Commander P.N. Parashar, this officer, in his various appointments in the UK and as Director of Air MaintenanceandRepairatNaval Headquarters:[v]played a very important part in all planning stages of naval aviation. Infact, out of all the "backroom boys", Homi Kapadia made the maximum contribution to the creation and expansion of naval aviation.'

In June 1964 *INAS 551* was shifted to *Hansa* at Dabolim, Goa and the jet flight and ancillary aviation units at Combatore were wound up.

Aircraft for the Vikrant - The Seahawk

As regards fighter, reconnaissance, antisubmarine and rescue aircraft for the *Vikrant,* the primary requirement for the aircraft to be chosen for the carrierborne fighter squadron of the Navy was an appropriate level of sophistication, reliability, versatility and ease ofmaintenanc e, inaService that was still learning to operate aircraft at sea. Taking all these vital aspects into account, the Indian Navy chose the British Seahawk jet aircraft, designated as a fighter ground attack carrierbome aircraft and manufactured by Messrs.Hawker Siddley ,whichhadbeen in operation intheRoyal Navy since 1953 and which was the cutting edge of the British naval task force during the 1956 Suez operations, when it operated six squadrons of this aircraft from carriers along with the French forces. Powered by a Rolls RoyceNene

engine, the Seahawk had thus already proved itself and was already in operation with two other navies - the Dutch and the German. In1959,anorderwasplacedfor24SeahawkFGAMark VI aircraft to be mainly used as fighter-bombers and the first aircraft was handed over to the Indian Navy on January 22, 1960. Soon three moreSeahawks were received and a four-aircraft Seahawk Flight was established at the Royal Naval Air Station, Lossiemouth fortraining Indian pilots.The Commanding Officer-designate of the squadron, Lieutenant Commander Balbir Law, and the Senior Pilot-designate, Lieutenant Commander B.R. Acharya, soon converted to Seahawks and the Air Weapon Instructor-designate, Lieutenant R.N. Ghosh, was deputed to the Gunnery School at *Excellent,* Whale

> maximum speed and the tanks containing just enough fuel to reach Santa Cruz airport, it should be possible to execute **a** free take-off. It would otherwise mean the locking up of the Alizes on board for almost eight months, till the catapult was rectified for the summer exercises in 1963.1 assured Captain Mahindroo, Vifcnmf's Commanding Officer, that it was an acceptable risk, that I would attempt it myself and that if I were successful the others would follow. God was with me and I successfully got airborne well beforeTeaching the end of the flight-deck. Thereafter the entire squadron was successfully disembarked, fuelled at Santa Cruz and flown to Cochin.

When quizzed on the merits of the Seahawk and the Alize vis-a-vis similar aircraft in operation in other navies of the world at that time, Admiral Sir JohnTreacher, who was the *Vikrant*'sWork-Up Officer after her commissioning, said:

> I could not fault the choice of aircraft. The Seahawk was an obvious natural for any service wishing to establish an Air Arm. It had the performance required to do the job, it was small enough to be manageable and forgiving enough for the essential confidence to be built up rapidly. The Alize was obviously the right size, with perhaps the most reliable turboprop engine the world has ever seen and although its ASW (antisubmarine warfare) capability was relatively modest, it was, again, the right aircraft at the time.

The Alouette III (Chetak)

An important component of carrier operations is a helicopter which can be used for various purposes suchassearch-and-rescue operations when **a** plane-guard ship is not available, reconnaissance, antisubmarine warfare, and antiship operations using torpedoes and short-range missiles. With the finalisation of the acquisition of the *Vikrant,* the requirement of helicopters for the Fleet Air Arm was projected to the French naval authorities and, after the conversion of Lieutenant Commander P.K.K. Menon to helicopter-flying at IAF Station, Palam, two pilots, Lieutenant M.P. Wadhawan and Lieutenant (later Commander) *AS.* Dhillon were deputed to base Ecole at La Beurgedu-lac in France, in January1961, for conversion to Alouette n, Bell G2 and BellG3 helicopters, these helicopters having been found to be superior to the British Dragonfly he licopters

whichhadbeenoffered by the Admiralty. The Alouette II was more reliable **than the** Dragonfly, was cheaper and had been fitted with gas turbine engines which would obviate the necessity of storing petrol on board, as was required for the Dragonfly.

Two Alouette II helicopters were obtained on loan from **the French** Navy after the Indian pilots had been trained in search-and-rescue operations and embarked on the *Vikrant* for plane-guard dutiesoff **Malta during** the carrier's work-up. On expiry of the contract period of **three months, the** helicopters were returned to the French Navy.

A Sikorsky S-55 helicopter was obtained on loan from the Indian **Air** Force in 1962 and embarked on the *Vikrant* with its IAF crew **but** soon Lieutenants Menon and Wadhawan converted to Sikorsky S-55 helicopters and before long another Sikorsky S-55 helicopter joined **the** Vikrant, both being operated by Naval pilots. Oneof those helicopters **was** lost in 1964 when itsankintheEmakulamchannel in Cochin and the other returned to the IAF in the same year.

Meanwhile, it had been decided to acquire the latest version of the Alouette helicopter, theAloutte III, from Sud Aviation, France and the first two helicopters arrived in mid-1964 in crates. These were assembled by the Navy's air engineers with the assistance of a French technician **at** Cochin and embarked on the *Vikrant* in July 1964.

It was the Alouette III helicopter which was later converted to its new *avatar,* Chetak, the Medium-range Antisubmarine Torpedo Carrying Helicopter (MATCH). This helicopter was equipped with antisubmarine weapons comprising two depth-charges or two antisubmarine torpedoes or **a** mix of the two and was indigenously manufactured by the Hindustan Aircraft limited, Bangalore for operating off the deck of carriers as well as smaller ships such as tankers, frigates, destroyers and even survey ships. Equipped with folding blades, this helicopter was powered by **a** 8,700-shaft-horse-power turbine and had an endurance of *25* hours, with **a** maximum speed of 113 knots. It had a crew of three-pilot, copilot and an aircrew in rescue operations at sea.

The three - aircraft air element chosen for the *Vikrant* - the Seahawk fighter-bomber, the Alize antisubmarine aircraft and the Alouette helicopter-had to operate in all the roles of carrier-borne aircraft such as fighter defence of the fleet and merchant shipping, maritime reconnaissance and anti-ship strike, antisubmarine defence and a variety of miscellanous tasks such as search and rescue, minelaying, ground attack, support of ground forces, aerial photography and transfer of stores and personnel.

A fresh batch of 22 refurbished seahawk FGAMark IV and Mark VI aircraft were acquired from the Royal Navy during the early 1960s. The Fireflies and HT-2 trainer aircraft were paid off in 1964 and the **few** obsolescent Sealand amphibian aircraft, disposed of in 1965. Air Stations for the Fleet Air Arm

Following the fall of Singapore and the Japanese assault on Sri Lanka in 1942, several Royal Naval Air Stations and Royal Air Force airfields were setup in India for providing training and maintenance support to British aircraft

carriers operating in the Eastern waters. At Cochin, the Royal Air Forcehad set up an Air Ministry Experimental Sta tion on Willingdon Island, in 1941 which was followed by a maintenance unit, an operations room and an advanced Flying Boat base .

Nearly eleven years before the commissioning of *Garuda* at Cochin, a Royal Naval Aircraft Repair Yard, *HMS Garuda,* had been commissioned at Peelamedu, Coimbatoreon October 1,1942, and was in opera tion for over three years. *HMS Vairi,* commissioned at Sulur, Coimbatore on February 1, 1945, was a depot establishment for 500 aircraft and operated Hurricane IIC and other aircraft from its airfield from November 1943 until the end of the War.On July 1,1944 *HMS Vallum* was commissioned at Tambaram, Madras which had the dual function of an aircraft repair yard and a frontline air station, operating aircraft of a Fleet Requirement Unit until March 1945.In 1943, the Royal Navy established the Royal Naval Air Station at Cochin whichhadanAircraft Erection Depot for asembling carrier aircraft, transported by sea for use in thenaval theatres ofwarintheeast, attherate of 130 aircraft per month. This section was commissioned as *HMS Kalugu on* February 1, 1945, which was later decomissioned on August 1,1946.Consequent on the acquisition of Sealand aircraft for the Fleet requirement Unitin January 1953, the requirementofsettingupaNaval Air Station with an airfield and other facilities for operating and maintaining aircraft, was projected to the Government. The choice fell on Cochin for the already existing naval base at this place, *Venduruthy,* which had already become the premier training establishment of the Navy, was continguous to the airfield used by the Director General of Civil Aviation to operate the domestic air service. In fact, the airfield and the various facilities had already been taken over by the Navy on January 1,1953 and commissioned as *Venduruthy II,* an adjunct of the main training establis hment. The first Sealand aircraft touched down at the newly acquired airfield at Cochin, on February 4,1953.

ItwasonMayll, 1953, that *Venduruthy II* was recommissioned as the Indian Naval Air Sta tion, *Garuda,* witha squadron of four Sealand aircraft and wit h Commander George Douglas as the first Commanding Officer. The commissioning ceremony was performed by the then Minister for Defence Organisation, Shri Mahavir Tyagi who unveiled the crest, depicting the legendary partly-human bird, Garuda, immotalised in the *epicRamayana,* as a formation of four Sealand aircraft, ted by Lieutenant P.N.Paiashar, flew past dippingtheirwingsnsalute V^peakmgontheoccasion,ViceAdnuralOaterAdmiralSirMarkPizey, Chief of the Naval Staff, said: This is one of the most important, if not the most important day, that the Indian Navy has had because it marks the " " ' of naval aviation. It is a day we have all been waiting for and/pteBWrtgforalongtime.'gfe , A message received on the occasion from the President of India, Dr Jtajendsa Prasad, read: The commissioning of *Garuda* today marks an important epoch in the history of our Navy. On this auspicious occasion I send you my hearty greetings and express the hope that this naval air Station will play an important part in the develo pment of the Indian Navy/Over the years, *Garuda* expanded its facilities and though the new establishment's initial *raison d'etre* was the provision of suitable operational facilities to the Fleet Requirement Unit, it soon established various other facilities that are provided in a naval air station such as training of pilots,

observers and technical and non-technical personnel for operating and maintaining shore-based as well as carrier-based aircraft.

The first such facility to be established was the School for Aircraft Handling and Fire-Fighting, later renamed the School for Naval Airmen (SFNA), which was set up on August 17,1956, with Lieutenant Commander *BS.* Ranjit as its first Officer-in-Charge, for training non-technical personnel in such disciplines as airmanships, aircraft-handling, fire-righting, specialised transport, air photo, air traffic control, safety equipment and aircraft recognition.

On June 3,1957, the Naval Air Technical School (NATS) was set up with Lieutenant Commander V.V.Narayan as its first Officer-in-Charge for the training of all naval aviation technical personnel as well as the technical training of pilots, observers and flight engineers.

The Observer School was established in March 1960, with Lieutenant H.C. Bhandari as its first Officer-in-Charge for indigenising the training of Observers who had hitherto been trained in the UK.

Until 1956, maintenance of all naval aircraft had been entrusted to the Hindustan Aircraft Limited (HAL), Bangalore, but in July 1956, a HAL repair unit was set up in Cochin. It was, however, felt that the Navy itself should be able to undertake the maintenance of all naval aircraft and hence a Naval Aircraft Repair Organisation (NARO) was established at Cochin in February 1960 with Lieutenant Commander V.S.P. Mudaliar as its first Superintendent. This organisation was also entrusted with the testing and tuning of all new systems and equipment.

In November 1960, was established the Naval Aircraft Inspection Service with Lieutenant J.Stephen as its first Chief Inspection Officer for ensuring an effective quality control of all equipment fitted in naval aircraft.

While *Hansa,* at Sulur, Coimbatore, continued to function as the mother establishment of all jet aircraft, its location was not considered satisfactory. The Navy had been seeking to transfer this air station to a suitable site on India's eastern or western seaboard but none of the existing ports met the requirements of a naval air station. The fortuitous liberation ofGoa in 1961 presented a golden opportunity to Naval planners as Dabolim in Goa, situated halfway between Cochin and Bombay, has a fully developed airfield which had been used by the Portuguese for several decades. This airfield was soon handed over to the Navy to set up its second naval air station, the existing 4,500-foot runway extended to 8,000 feet and other facilities created. On June 18,1964 Hansa and *INAS 551* were transfered from Sulur, Coimbatore, to Dabolim, to be followed by the stationing of *INAS 300* at this air station in September 1964, after its disembarkation from *Vikrant.*

Inorder to ensure the availability of Alouette helicopters atBombayfor operations from ships and for search-and-rescue purposes, a small unit for the maintenance of helicopters was set up at *Kunjali in* the same year.

India's First Aircraft Carrier

In 1943, the hulls of six aircraft carriers of the Majestic light fleet class were laid down in British yards and launched during the years 1944 and 1945. The carriers were expected to be commissioned for the Royal Navy for operations during

World War II but the cessation of hostilities in 1945 led to the stoppage of work on their construction. However, only one out of the six carriers, the *Leviathan,* was never completed and was finally broken up in 1968 but the other five were eventually completed and operated by three navies. The Hercw/es was acquired by the Government of India and commissioned as *Vikrant* in 1961, the *Magnificent* was completed and acquired by the Royal Canadian Navy in 1948 (and disposed of in 1965), the *Terrible* was completed in 1949 and transferred to the Royal Australian Navyin 1949 as *Sydney, the Majestic was* completedin 1955 and transferred to the Royal Australian Navy as *Melbourne;* and the *Powerful* was completed in 1957 and acquired by the Royal Canadian Navy as *Bonaventure.* To quote Balbir Law:

> Naval Headquarters had continued to press for acquisition of an aircraft carrier and serious negotiations had begun with the Admiralty. In 1956, a new Chief of Naval Aviation was appointed - Captain R.HJP. Carver, RN. The Air Arm owes much to thisCONA during whose term of office all the detailed planning for acquiring and manning the aircraft carrier was undertaken. He was an officer with a distinguished war record and quickly moulded his team in New Delhi with determination, skill and affection, to move forward. Even socially, the Air Branchbecame more conspicuous in the military and Government circles. The Carvers did much to build new bridges between the Air Branch, the Air Force and the Army.

A new training programme was launched to prepare for the manning of the carrier andher operational squadrons. A small Naval flying unit was established at Sulur, Coimbatore, to refamiliarises aircrew and maintenance personnel with operating jet aircraft (Vampires). I still recall, with great pleasure, starting this small unit with a total complement of three officers, besides the Commanding Officer, and about sixty men. We had one empty hangar and four empty wartime barracks at Coimbatore - the two separated by a distance of almost fifteen miles, and forwhichwewere provided one three-ton truck and a jeep, to start with. The lack of essential facilities and comforts bound us together, made us improvise, and every one found the challenge of achieving the assigned tasks exhilarating. We ferried in our own Vampires, and made do with'furniture' from empty crates and within days the flying task began. We established friendly ties with the local Air Force and the Army contingents. Almost all the officers and men, who were at Coimbatore during the early stages, later rejoined me to form the 300 Seahawk Fighter Squadron.

Naval Headquarters was also concerned about providing ade quate shore facilities for the new carrier and her operational aircraft. The airfield at Cochin was too small with no room for suitable expansion. Furthermore, it was surrounded byrapidly developing commercial centres which demanded expansion of thecommercial ports and ancillary facilities. Alternative sites and disused airfields, along the coast but within easy reach of the sea, were being looked at.

At about this time, Captain Carver's period of secondment to the Indian Navy came to its end and the Admiralty deputed another distinguished officer who remained at Naval Headquarters until after the new carrier had arrived in India. The appointment of CONA had also been upgraded to the rank of Commodore. The new CONA, Commodore (later Rear Admiral) D.W. Kirke, had already acquired a reputation in his own service as a 'go-getter' and had earlier helped in the development of the AustralianNaval Air Arm.Hewasamanwith a strong personality, boundless energy

and a strong sense of humour and could be at ease with anyone from the peon to the Minister. He knew that unless detailed target dates were established, it would not be possible to man and commission the carrier within a predictable period of time. The overall plan existed but its implementation required quick and responsible decisions. It was a critical phase in which charm, tact and bluntness were needed toachievethe immediate objective. Commodore Kirke felt very comfortable in his new drivingseatwithina couple of days ofhis arrivalatNaval Headquarters and soon went into action. As a couple, the Kirkes were very affectionate and sincere and, within a remarkably short time, became an important part of the small, busy social circle of New Delhi.

The CONA and his staff faced a complex organisational task involving three countries. Selection of all the different categories of personnel, their training schedules at different establishments and manufacturers of ships, aircraft and equipment, the delivery, acceptance and the positioning of aircraft at different air stations, work-up of squadrons ashore, the trials and commissioning of the carrier, **and,** finally, the work-up of the ship and her squadrons, was **a** mammoth task to complete from adistanceof 4,000 miles.It required skilful planning, co-ordination and leadership. It was all brilliantly executed by Commodore Kirke who later became the Flag Officer Flying Training in the Royal Navy as a Rear Admiral.

At this stage it was also clear that in the absence of an alternative site having been found, the existing facilities at Cochin and Sulur would have to be improved to receive the frontline squadrons. Support facilities for the Alize's were established, and more importantly, repair and overhaul facilities were extended to include the Seahawks. A small extension and the strengthening of the runways was undertaken, and provision made for the storage of weapons and ordnance, i.e., bombs, rockets, etc. Much credit is owed to two 'salt-horse' (non-specialist) Captains of *Garuda* during this period, Captain *NS.* Tyabji and Captain (later Commodore) K.K. Sanjana. The former took command of the air station at the critical point when there was a sudden burst of activity on all fronts, training (aircrews and technical personnel), development of the airfield and planning for the future development. His boundless enthusiasm and tenacity-got him thoroughly involved with the Air Branch and most young members of the branch were influenced by his qualities of leadership. Iamreminded of anaccident in which the aircraft, a Firefly had caught fire and the pilot had received severe burns to his face, hands and back. The young officer was in a critical condition and in intensive care. After two or three days, when barely able to whisper through bandages, he asked Captain Tyabji to sit beside himand promise that if he was, in due course, found to be medically fit, he would be permitted to continue to fly. Long before the accident, the Captain had already assessed the character and potential of this bright, handsome young officer, and their determination matched each other's. He kept his promise and Sub-Lieutenant Arindam Ghosh, after months of skin-grafting, joined the frontline antisubmarine310 Alize squadron. Ghosh regrettably died, when a Rear Admiral, in 1985.

Towards the end of 1959 and early in 1960, our aircrew and maintenance personnel began to assemble

at naval air stations in the UK and France and commenced operational flying training on their newly acquired aircraft. Most of the aircrew had no previous experience of operational flying. It was an enormous task to make each individual pilot fully proficient in the skills of using his aircraft as a weapon system, and also to mould the squadron and crews to fulfil the varying roles of naval air warfare. The latter is most important, as naval aircraft do not operate in isolation but are part of a naval task force of which the carrier is a mobile air base. The limitations of size and, therefore, the number of aircraft that can be carried also dictate that aircrews and their aircraft perform a multiplic ity of roles.

The frontline squadrons made excellent progress and achieved high standards in all aspects of air training and work-up ashore. They received all the support from the officers andmen of their Britishand Frenchparent stations who in turndrew much credit from theachieve-mentofthelndianNaval AirSquadrons. The stations involved were *Lossiemouth* and *Brazody* and French Naval Air Station *Hyeres, Toulon.'*

The Vikrant - Commissioning and Work-up

The keel of the *Hercules,* which was acquired by the Government of India in 1957, had been laid downatHigh Walker, Newcastle-upon-Tyne on October 14, 1943. The construction work was undertaken by the renowned shipbuilding concern Vickers-Armstrong and the hull was launched on September 22,1945 by Lady Cripps, wife of the British Chancellor of the Exchequer, Sir Stafford Cripps and the ship was formally named *Hercules.* Further construction was, however, stopped in 1946 because World War II had ended in 1945 and the hull was mothballed. But when it was acquired for the Indian Navy in 1957, the hull was towed to Belfast and its refit was entrusted to another renowned shipbuilding concern, Harland and Wolff atBelfast, Northern Ireland. On completion of refit the ship was commissioned as *Vikrant* on March 4,1961.

During the period from 1957 to 1961, extensive reconstruction and modernisation of th"e hull and equipment was undertaken and the ship virtually emerged as a new ship. The ship was fitted with state-of-the-art innovations in carrier design such as an angled deck/amirrorlandingsight and a steam catapult. The carrier was also tropicalised, additional accornmmodation provided for the Flag Officer of the Fleet and his staff and certain areas partially airconditioned, the latest electrical and electronic equipment installed and modem weapons and weapon control systems fitted.

During the early 1950s the Government hadcontinued tobehesitant tocommititselfto thecreationof a full-fledged Fleet Air Armbyacquiring an aircraft carrier. Sir Gopalaswami Ayyangar, the then Defence Minister, had stated in 1952 that no specific time-frame had been set for acquiring a carrier and Shri K.N. Katju the incumbent of the portfolio after Sir Ayyangar, had stated in the *Lok Sabha* in April 1955 that the decision on the camerwasyettobe taken.The Defence Committee of the Cabinet finally approved the proposal at its meeting on April 30,1956 (the author then serving in the Military Wingof the Cabinet Secretariat, recorded this historic decision of the Defence Committee of the Cabinet presided by Prime Minister Jawaharlal Nehru), and in 1957 a

group of officers and technical staff numbering about 150 arrived at Belfast to supervise the modernisation and completion of the carrier. The flow of officers and sailors continued and early in 1961 larger batches started arriving andby February almost the entire ship's company had arrived. The ship officially became a unit of the Indian Navy when she was informally commissioned at 1000 hours on February 16,1961 with the Commanding Officer-designate, Captain (laterRear Admiral)P.S. Mahindroo, reading out the commissioning warrant at a simple ceremony at MustergraveChannel, Belfast. This was done to enable the large complement of officrs and sailors, who were staying ashore, to move on board. The officers and sailors earmarked for the *Vikrant* had been staying ashore in Belfast for a long time and had endeared themselves to the local residents. The Chairman of the Bangor branch of the local Royal Navy Association, Commander T.R. Eames, expressing his appreciation of the high standard of behaviour maintained by the Indians, said:

During the three years that the ship was undergoing modernisation, Captain Mahindroo's men had behaved in a most exemplary manner which reflected great credit on the Indian Navy, the ship and the country. Many homes would indeed miss their cheerful and courteous presence.' Added the *Belfast Telegraph on* February 17, 1961: 'Yesterday the crew accommodation (on board the *Hercules)* became available and early in the morning more than 800 bluejackets of the Indian Navy, carrying heavy kitba gs, began streaming on board and settling into their new quarters. More than 400 of them said farewell to landladies in Belfast and Bangor with whom they have beenstayingforseveralmonths while the carrierwas still in the hands of the civilian workers. The remaining 400 arrived in drafts during the past few days and were accommodated temporarily at the Royal Navy Reserve headquarters in Belfast,HMS *Caroline'.* Commenting on her stay in Ulster while her husband, an officer of

the *Vikrant,* wasbusy supervising the carrier's completion, an Indian wife said ,

Even if Ulster people are not so well versed in foreign news, they have made the greatest impression on us by their warm welcome, and their uninhibited friendliness. Due to this friendliness, I have seenand done things which I should besitate to do in India; for example, going out unreservedly to see mills, factories and hospitals.

The outstanding qualityof the people is their helpfulness.Ishall never forget the time when, soon after my arrival, I had to change buses in town. I was led by a kindly soul from Castle Junction to the back of the City Hall, and put on the correct bus, I shall return to India with very pleasant memories of the Ulster and Belfast people.

On February 20, 1961 Commodore R.L.H. Marsh of the Royal Navy accepted the ship from Harland and Wolff and informally handed it over to Captain Mahindroo at the ship's berth at Musgrave Channel. On March 4, 1961, Shrimati Viyaja Lakshmi Pandit, the then High Commissioner for India in the UK, rena med her *Vikrant* and formally accepted the ship on behalf of the Government of India fromMrOrr-Ewing, the Civil Lord of the Admiralty, while a formation of Seahawk aircraft flew past dipping their wings in salute to the ship. Present at the ceremony were the 1100 officers and menof the ship, the fourthSea Land,representativesof Canada, Australia,

the USA and Pakistan, the Lord Mayor of Belfast, the General Officer Commanding-in-Chief of Northern Ireland and a large number of Civilian and Service dignitaries.

> In its report on the carrier's commissioning ceremony, the *Belfastlelegraph* said A hymn composed in 3,000 B.C. to *Aditi,* the Indian God of Eternity, figured in the commissioning ceremony of the Indian Navy's aircraft carrier *Vikrant.* The four verses of the hymn were recited by the resplendent figure of Captain P.S. Mahindroo. He spoke in Sanskrit, the language in which the hymn was originally written. The ceremony formally commissioning the ship was a mixture of east and west. The drill and marching of a guard of honour and the playing of the ship's small band was of a standard which could nothavebeen bettered by the Royal Navy. But the commands were given in both English and Indian (sic).

The ceremonytookplacein the giantaircraft hangar of the carrier which is one of the most modern of her kind in the world today. Watching were the officers and men who will man the *Vikrant* and hundreds of guests, including members of the Indian community in Northern Ireland and wives of the crew in colourful saris.

Mr Ian Orr-Ewing, the Civil Lord of the Admiralty, said that the *Vikrant was the* first modern capital ship of the Indian Navy. He had seen the 300 squadron which would operate from the ship and had been greatly impressed with its discipline and operational qualities. Stating that Mrs Pandit, and the *Vikrant* had much in common, Mr Orr-Ewing said they werebothdedicatedtoduty;they were living examples of commonwealth unity; they both made a powerful contribution to the preservation of peace throughout the free world and they both had calm and dignity.

In accepting the ship on behalf of the Indian Government, Mrs Pandit said that the commissioning ceremony represented a major milestone in the naval history of India. Their maritime history went back into the distant past and it was true to say that much of India's new naval traditions, discipline and training methods owed a great deal to the close association they had with the Royal Navy. India's defence policy wasbased on the principles of peaceful coexistence and they were proud of the growing strength of their naval air arm which was making a valuable contribution to the country's defence.

She read the message from the Indian Minister of Defence, Mr Krishna Menon, in which he described theceremony as a step forward in the development of the Indian Navy. He wished the ship a creditable tour of duty in the service and defence of their country and said a hearty welcome would await the *Vikrant* when she arrived in Indian waters.

Mrs Pandit added that the Commonwealth could only be kept together by the little people of every country getting to know and understand each other, and not at the top or at meetings of great people. As these little links forged they would have more effect than everything these meetings achieved. The High Commissioner mentioned that two local girls would shortly be marrying members of the crew of the *Vikrant,* and she stressed the importance of people of different countries being able to understand each other and knowing

their weaknesses and strength. Mrs Pandit said that this was vital in the cause of world peace .On the following day, March 5, 1961, the *Vikrant* left Belfast and proceeded to Portsmouth and then to Portland for sea trials with Captain *YS.* Mahindroo in command, Commander Y.N. Singh as Commander (Air), Commander (later Rear Admiral) Gautam Singh as the Executive Officer and Lieutenant Commander B.D. Law as Lieutenant Commander (Flying). For about a month, the *Vikrant* conducted the trials of all her flight-deck and other shipboard equipment and returned to Belfast for rectification of defects and the final testing and tuning of all equipment. A momentous event that occured on May 18, 1961 was the landing and arresting of the first jet aircraft, a Seahawk, on board the carrier by Lieutenant Commander R.H. Tahiliani, who later rose to the rank of Admiral as the Chief of the Naval Staff. The first deck-landing of an Alize antisubmarine aircraft took place on May 23,1961.

By June 1961 the *Vikrant* had been readied for proceeding to India and towards the end of the month the carrier sailed from Belfast and embarked the aircraft of her jet fighter squadron, the Seahawks comprising the new 300 Squadron, in the English Channel on August 4, 1961 after a few day's work-up off Portsmouth.

During the carrier's brief stay at Portsmouth Admiral Mountbatten came on board to enquire about the performance of the ship's radar which was not providing a 360-degree coverage of aircraft flyingaround the ship, particularly those behind the stem. He soon took it up with the manufacturers of the radar system and the defect was removed before the carrier proceeded to Plymouth for gun trials and returned to Portsmouth.

Meanwhile the carrier had sailed for Toulon in France where she had embarked the aircraft of her antisubmarine and reconnaissance aircraft, theAlize"s comprising the 310 Squadron, on May 23,1961. Also embarked on the same day were two Alouette Ilhelicop ters for the *Vikrant's* 321 Flight loaned from the French Navy for search-and-rescue duties at sea and for carrying out 'plane-guard'tasks, i.e., standing by to rescue the crew of ditched aircraft during flying operations. She then sailed for Malta for an intensive six-week work up during which *Rajput* joined her to carry out plane-guard duties as the helicopters on board the carrier could not operate at night.

Two other carriers of the Majestic class,theAustralianMe/&OMr«eand the Canadian *Bonaventure,* had been worked up at Malta by a British carrier work-up specialist team, but the Indian authorities had decided to work up *iheVikrant* under the strict vigil and guidance of only one officer from the Royal Navy's Fleet Air Arm, Commander (later Admiral) John Treacher. It goes to the credit of this capable officer that the work-up went off smoothly without a single accident and the 1000th accident-free deck-landing was made in October 1961. Recalls Captain Balbir Lawwhowas described by Admiral Treacher as a 'natural pilot':

> Everything so far had gone well, in fact, extremely well, and it was crucial that the most important phase, the working up of the ship together with her squadrons, should proceed with equal ease.

The Guru

It had been decided that a very small team led by an experienced naval aviator should guide the work-up and submit an independent report on the standards achieved at the end of the period. Treacher, who led this team, had recently completed his tenure as Commander (Air) of the Fleet Carrier, *Victorious.* His own very high standards of professional ability, tact and qualities of leadership, inspired everyone. The entire ship's company rose to meet the challenge and demands of a very intensive period of training for the next three months. Treacher's total commitment to the task and close involvement with every aspect of the work-up brought him in close contact with practically the entire ship's company. Most of the sailors and, in particular, those of the Supply and Secretariat (logistic support) Branch found it easier to call him Commander 'Teacher'. Towards the end of the Work-up, when most people had smiles oachievement on their faces, they affectionately called him Com mander 'Guru'.

HeeventuallybecameafullAdmiralandC-in-C Fleet and held other NATO commands.

The task of working up the carrier began with the initial deck-landing qualifications of the frontline squadrons off the South Coast ofEngland, then off Toulon, France and finallyoffMalta. This wasa most exciting period and could well be described as the point were Indian Naval Aviation came of age. Operational work-up involves moulding the ship, aircraft and crews to undertake all operations, offensive and defensive, by day and by night, with live weapons, conducted with efficiency and in as short a time as possible. Every one displayed the same spirit of enthusiasm and confidence as during those early days at Cochin, and the work-up was a total success.

The Commanding Officer received kudos from the C-in-C, Mediterra-neanFIeetandanumberofother senior naval observers and was congratulated on the carrier's excellent performance which was particularly noteworthy because Captain Mahindroowasnot an aviator hi mselfbuthad imbibed all the fine points of flying safety and carrier operations during his short attachment to the Royal Navy's aviation establishments and carriers. Recalls Mahindroo: During the work-up we had to make sure that all pilots were adequately trained in night-flying at Malta because once we left Malta we would nothave these facilities at sea or in India. Our plane-guard ship, the *Rajput,* had a number of breakdowns and hence could not always accompany us. So I had to decide whether I could fly aircraft at night without plane-guard which was a very difficult task indeed and I knew that if I did so and if anything went wrong, I would have to take the responsibility. Ialsoknew that the Royal Navalauthorities atMalta would also notapprove ofit. So I took Commander Treacher and the pilots into confidence and demonstrated to them that I could pick up a ditched pilot as fast as a plane-guard ship would by throwing a lifebouy overboard and picking it up within a few minutes. They were quite satisfied and on a few occasions I carried out night-flying operations without a plane-guard ship. We had decided that if an aircraft did ditch, I would divert all my airborne aircraft to the nearest airfield and pick up the ditched pilot myself but fortunately no such thing happened.

The *Vikrant* sailed from Malta on October 6, 1961 proceeded to Toulon to return the two helicopters borrowed from the French Navy and then set course for India and reached Bombay on November 3,1961 after calling at Alexandria, Port Said and Aden and after disembarking the 300 Squadron and the 310 Squadron at sea off Bombay, these squadrons proceeding respectively to Sulur and Cochin.

Vikrant's Homecoming

A day before her arrival, the carrier had been joined by *Beas* and had proceeded towards Bombay with two escorts, the *Rajput* and the *Beas,* and as she entered the home waters on November 3, she was given a rousing reception by the flagship, *Mysore,* with aircraft of the Indian Air Force taking part in a flying welcome to the carrier. The carrier majestically sailed into Bombay harbour and secured alongside at BallardPier at 1702 hours on that momentous day and received a tumultuous welcome. A large number of senior dignitaries including the Prime Minister of India, Pandit Jawaharlal Nehru, and the Chief of the Naval Staff, Admiral R.D. Katari, were present at Ballard Pier to welcome her home.

Rear Admiral P.S. Mahindroo reminisces on watershed in India's navalhistory and records his impressions of his stayinEngland prior to the carrier's commissioning andofher work-up and shake-down cruise thus: Everyone onboardwasfullofprideon the commissioning day. Pride not merely due to the fact that they formed the complement of the largest ship of the Navy, but also because they were entrusted with the task of making India's first aircraft carrier a first class fighting unit. Today, thirty years later, probably very little is remembered of the efforts put in by the advance party of the Indian Navy who, with the help of the Admiralty Overseeing Team, supervised the refit and modernisation of the *Vikrant* Hundreds of workers of Harland and Wolff shipyard also worked hard for three years to make the ship operational.

Naval Headquarters, in consultation with the Admiralty, had decided which machinery and equipment onboard theHercu/es were to be changed and which were to be overhauled and refitted. After obtaining Naval Headquarters'approval on major work to be carried out, the shipyard began modernising the ship. At first our officers and the Overseeing Team members would meet the manager of the shipyardata conference once a month to check the progress. Towards the end, this was changed to once a week.

During March 1960, I had been called by the Naval Chief, AdmialR.D. Katari, and given the good news thatlhadbeenselected to command the Indian Navy's first aircraft carrier. He had asked me howlfelt. Ihad replied thatit wasa rare honour and I could not ask for anything better. From then onwardsjhad tried to learn everything about aircraft carriers as I was completely ignorant of carrier operations. Ihad previously been in command of *Delhi* but, as I learnt, carrier operations were quite different from operating conventional surface ships.

In June that year my wife and I sailed for England and reached Belfast in early July. By then there were onboard around 15 officers and 50 sailors supervising the modernisation of the ship. As Belfast had no regular naval base they had found private accommodation inhotels, boarding houses and private

houses.Luckily, Indians were popular with the locals, thanks to the exemplary behaviour of our sailors and when more officers and sailors arrived from India, we were able to find accommodation for them too without much diffi-culty.

Refresher courses at various Royal Naval establishments were held for officers and sailors to familiarise them with the various types of equipment fitted in the ship. I too went through a number of courses and spent five days on board the Royal Navy carrier, *Ark Royal,* to watchflying operations and other drills. Training ofpilots atBrawdy and Hyeres was going on satisfactorily. I visited both these squadrons before commissioning and met the pilots and crews. They wereall'rarintogo'. I was assured that they would embark as soon as the carrier was ready to receive them.

Towards the end of 1960 the Indian Chief of the Naval Staff came to England. Hevisited Belfast and saw the carrierunder refit and was fully satisfied with the progress. There was, however, one point that had been worrying him. The first Sea Lord had suggested to Admiral Katari that as the Indian Navy had no previous experience of carrier operations it might be a good idea if aRoyal Navy Captain trained us during the work-up and until our arrival in India and that I could understudy the Royal Navy Captain and take over the ship after its arrival. Admiral Katari asked for my reaction. I told him that if, as the Chief of the Naval Staff, hedidnot have faith in my ability to fulfil the task entrusted to me, then I should be sent home. But we could not have two captains on the ship. The Naval Chief assured me that he had full confidence in our officers and men and was certain that we would fulfil the task entrusted to us.

The carrier was to be commissioned as *Hercules* on February 16, 1961, when the ship's company of about 50 officers and 800 sailors would start living on board. The responsibility of looking after the ship would then be taken over from the shipbuilding yard by our officers and sailors. At this stage, the highest priority was given to living accommodation, mess-decks, galleys, pantries etc. Harbour trials of machinery and equipment were also carried out. The ship then went out to sea on a couple of occasions to test her machinery but the main sea trials were to be held after the commissioning. Thereafter trials and acceptance of flight-deck machinery, gunnery equipment, radar system, flying control systems, etc., were to be held at Portsmouth and Plymouth.

A batch of about 400 sailors was due to arrive from India two or three days before the commissioning. It was impossible to find accommodation for such a large number in hotels and guest houses. *Caroline,* the headquarters of the Royal Naval Reserve at Belfast, came to our rescue. With the kind courtesy of the Commanding Officer we managed to accommodate this large number of sailors in the twin decks of that ship

On the morning of February 16, I was piped on board and after inspecting a guard of honour, addressed the ship's company. I impressed on everyone that all of us were new to this type of ship. We had been given a prestigous assignment. It was a great honour for us to man the first carrier of the Indian Navy. Very hard work lay ahead of us. I expected that we would all live up to the expectation *of* our country and return with an efficient fighting ship.

After the commissioning the momentum of the work on board increased. Both the civilian workers of the Yard and the ship's company got busy in getting the ship ready for the final take-over and eventual departure from Belfast. Our first priority now was preparing for the naming ceremony to be held on March 4, 1961. Even though the ship was thronged by Yard workers, she had to be got ready to receive important dignitaries and other guests.

After the *Herculeshad* been renamed the *Vikrant onMatch4, sea* trials and work continued at Belfast until the carrier was ready to sail forPortsmouth towards the endof June.By this time, some officers and men had been away from home for more than three years. A few had even gotmarried to Irish beauties. More than 700 well-wishers were on the jetty to give the *Vikmnt* a splendid send-off on the day of departure. We could see waving scarves for a long time.

On arrival at Portsmouth and after an exchange of normal courtesy calls, we got down to the main task of testingthe equipment. We were assisted by experts of the Royal Navy, manufacturers of the various equipment, RN Dockyards and experts from various RN specialist schools. This phase was gone through with a lot of care as it was known that after completion oftrials and acceptance of equipment, the responsibility for the machinery would restentirely on officers and men of the carrier.

Our pilots had now completed their training. They had flown from airfields but had no experience of landing and taking off from a narrow and restricted deck of a moving ship, in this training we were assisted by a very exerienced and able officer of the Royal Naval Fleet Air Arm, Commander J. Treacher. He helped ensure that all flight-deck machinery and equipment were tested to provide 100 per cent efficiency and safety. Healso supervised the procedures adopted for flying control and flight-deck opera tions. He stayed with us during our work-up at Malta until we finally sailed for India.

After the acceptance of the equipment, the *Vikrant* went out to sea and worked up off the Isle of Wight. This gave us the feel of the ship. Any defects that came to light and were beyond the capacity of the ship's company were rectified by the Royal Naval Dockyard. During this month pilots also got their initial practice of 'rolling' (touching down and taking off) on the deck and eventually landing and taking off from the ship.

It was during the six weeks at Malta that the ship worked up to her operational efficiency to enable her to launch and recover our aircraft. The work up at Malta was indeed an experience. The ship spent normally five days at sea and returned to harbour for replenishment on week-ends.

The tempo of flying training during the work-up period could be gauged from the fact that the *Vikrant* completed 1000th deck-landings by the endof September 1961, berely six weeks after her arrival at Malta. A 'well-done' message was received from Naval Headquarters, New Delhi.

Malta offered excellent facilities fortrainingourpilotsinnight-flying. Again Plane-guard was a problem. But a friendly approach to the local Royal Air Force enabled us to get their sea-rescue launch for three to four hours every night, and we managed to qualify some of our senior pilots in night-flying.

I was fully satisfied with the work-up of the ship. We had achieved a high degree of efficiency. Drills in flying control, on the flight-deck, aircraft direction room and operations room were perfected. There was complete coordination and understanding between the bridge and the engine room. I congratulated the ship's company on their achievement. I thanked Commander Treacher for his valuable assistance and guidance that had helped us achieve this high standard.

On October 6, 1961 we sailed from Malta. Eight Seahawks flew over Malta to bid farewell to our hosts for two months. On our return journey to India we paid courtesy calls at Alexandria, Port Said and Aden. Flying practice was carried out throughout the passage.

Vikrant entered home waters on the morning of November 3, 1961. Demonstrations of rocket firing, strafing and bombing were carried out by twelve Seahawks and four Alizes. These demonstrations were witnessed by dignitaries embarked on the *Mysore.* These aircraft also flew over Worli, Dadar, Byculla and the Gateway of India. Jet aircraft and maritime reconnaissance Liberators took part in a flying welcome accorded by the Indian Air Force. In the afternoon we berthed at Ballard Pier.

Nehru Visits Vikrant

In the evening the Prime Minister accompanied by Admiral Katari, arrived on board and welcomed the latest addition to the Indian Fleet. At a reception Pandit Nehru described the acquisition as a significant eventand received the vessel with thesewords/I welcome the *Vikrant* on behalf of India and wish you success and victory that is implied in her name'. While addressing the ship's company, he told them that they should be proud to serve on the carrier. He had learnt that they had been throughly trained and he expressed the hope that they would serve the country well. The Prime Minister then went on a tour of the ship. It was indeed a proud day for officers and men of the *Vikrant.*

The Fly-Boys

Vice Admiral V. A. Kamath,whoretiredastheViceChief of theNavalStaff inl977, commanded *theVikrant* three years after her commissioning and was impressed by the 'go-getting dash of our fly-boys'. He recalls:

> It was in *Vikrant* that I had my first proper exposure to naval aviators. These so called'flying types' were in manyrespectsa breedapart. I say 'were' deliberately because since those days thay have become more widely distributed in the service and, having imbibed the wider naval culture, have become less of a breed apart. More than anyone else in the Navy at that time, I think each of them felt personally responsible for proving the efficacy of carrier aviation. They justifiably felt that the carrier mustrevolveroundtheairdepartmen, but in the process tended to be somewhat impatient of other problems. It was, if anything, a fault in the right direction and said much for their dedication to carrier flying. I could also personally sympathise with them for I remembered how, as a young gunnery officer of

our first cruiser, *Delhi,* I was firm in my attitude that the entire ship existed to support my department. I am told that because of such attitudes, gunnery officers were called by different names behind their backs but I can assure naval aviators that this was not so in their case. Probably this has something to do with numbers. Whereas there are at the most two gunnery officers in an entire ship, a carrier has many aviators!

Reminiscing recently on the Indian Navy's Aviation Wing, Vice Admiral M.P. Awati, who retired as the Flag Offic er Commanding-in-Chief of the Western Naval Command in 1983, says:

The Short Sealand aircraft were not short onanything except perhaps their range! The prefix 'Short' refers to Short Brothers, the pioneer aircraft designers in England! I have had the exhilarating experience of being flown under the Ma ttanchery railway bridge in Cochin by one of the intrepid amphibian pilots of those early days, Lieutenant 'Tiger' Joginder Singh. Singh, who later attended the naval staff course with me in 1959, was indeed a pioneer. The Air Arm was an instant success. It attracted to its fold some very fine, young officers, among them a fast balding Sub-Ueutenant, RamTahiliani, who thirty years later was fated to lead the navy into the sophisticated jump-jet age. The Sealands were quickly replaced by Fireflies which were ferry-flown from England by our own pilots led by Lieutenant B.D. Law who later led the 300 fighter squadron on its formation in the *Vikrant in* 1961. There were two Laws in the navy like everywhere else, the younger brother being in the Supply and Secretariat Branch! The Fireflies formed the Fleet Requirement Unit in 1955 and did sterling service inhelping to improve the antiaircraft readiness of the Fleet. These early fliers and their maintainers formed the core of the Navy'sfirstafloatair squadrons inl961 when the Vtanfwascommis-sioned.Itwas a most auspicious beginning which,grafted, asitwas, onagood, staunch and sturdy trunk, bore early fruit. There is nodoubt in my mind at this distance in time that the naval air arm has been a success story from the beginning. I must narrate to you a story, probably apocryphal, about an intrepid fighter pilot of those days and his flying machine. The story is about Lieutenant Yashwant Bhide who was then with the 300 Squadron. DuringanexercisehisSeahawk got into trouble off Bombay and he had to eject before the aircraft crashed. He spent a whole day and part of the night in the water and was eventually rescued by a fisherman and brought ashore at Versova. Hastening to reassure his parents then living in Bombay-his father had retired from the ICS and was the Chairman of the Bank or an Insurance Company I believe - he called from a public telephone and told his rather who had come to the phone that he was all right but that the aircraft was a total write-off. His father is reported to have said, 'Your mother and I are happy to have you back; but tell me, was the plane insured or do I have to pay for it?'

The Aviation Pioneers

This account of the evolution of aviation in the Indian Navy would be incomplete without recording the contribution that was made soon towards its development and unqualified success by some of our aviation pioneers - Commodore Y.N. Singh, Commodore George Douglas, Admiral Sir John Treacher, AdmiralR.H.

Tahiliani, Captain R.H.P. Carver and Commodore David Kirke.

Commodore Y.N.Singh, the pioneer aviator of the Indian Navy, who retired from service in 1969 as a Commodore, was in his twenty first year when he was commissioned in the Royal Indian Navy on May 1, 1943 as an Acting Sub-Lieutenant. He had already completed his training as a direct entry Cadet and Midshipman at Dartmouth and had served on board a Royal Navy cruiser, the *Enterprise.* Even before he was commissioned, he had applied for becoming an aviator but his application was turned down as the RIN authorities did not at that time contemplate setting up an aviation wing. His knowledge of naval aviation was thus restricted to the short air course undertaken as a part of the Sub-Lieutenants' courses conducted at Lee-on-Solent.

The opportunity to become a naval aviator presented itself to Y.N. Singh under interesting circumstances. He was serving in a Royal Navy destroyer which was sunk by German bombers off the coast of North Africa, an action in which he played an effective part for which he was promptly awarded the Oak Leaf. On repatriation to the UK in October 1943, Singh was Mentioned in Despatches and selected by the British Admiralty for flying training at St. Eugene inQuebec,Canada,because'England was chock-a-block with operational commitments', along with a batch of officers from the Royal Navy and the South African Navy, and later shifted to Kingston on Lake Ontario where he flew Harvards. He then returned to Yeovilton in Somerset, England where he qualified in flying Wildcats and Hellcats as an operational pilot. On January 16, 1944 he became a Lieutenant and was posted to the British Eastern Fleet based atTrincomalee for operational flying. The airstation from where flying training sorties were launched was Patlam (later renamed Ratnamala) near Colombo and the aircraft Singh flew from the airstation and the Royal Navy aircraft carrier *Ameer* were Hellcats. The *Ameer* was an escort carrier with a squadron of Hellcats operating off Trincomalee where Singh had his baptism of fire and was thus the first Indian to have become a naval aviator and to have taken off from and landed on an aircraft carrier, that too in actual battle conditions. In 1945 an armada of ships of the Eastern Fleet set off from Trincomalee for aninvasionof occupied Burma and Singh wasabout to be bloodied in war when, while the ships of the Fleet were sailing across the waters east of the Andaman and Nicobar Islands, the bomb fell on Nagasaki in Japan. The fleet stopped its onward move and began circling around off the Andamanswhen there were several *Kamikaze* attacks on British ships by Japanese aircraft and one of the cruisers escorting the strike force was severely damaged. Singh was involved in a dogfight with one of these aircraft while flying a Hellcat but came out of it unscathed. Singh had been sent by the Admiralty for flying training, not with the intention of initiating the creation of a Fleet Requirement Unit for the Indian Navy or for the acquisition of an aircraft carrier. His flying conversion was considered to be the first step towards developing an inter-service organisation for conducting combined operations against the Japanese in the Bay of Bengal for it was considered that a qualified naval pilot from the Royal Indian Navy would be ideally suited in an advisory capacity at the Combined Headquarters in this theatre. But by the time his services were available for this purpose, peace had descended on South East Asia.

Unfortunately for Singh, the Naval Headquarters in India came to know of his flying training only after he had returned to India, when the authorities realised the full administrative implications of this specialisation

without their approval. The officer was thereafter pressured for a considerable period, even after the War was over, for contributing towards the cost of his flying training, which had been duly debited to the Royal Indian Navy account by the Admiralty!

After Independence, Singh worked at Naval Headquarters and assisted in compiling the requirements of the aviation wing for the first plans papers for independent India's Navy under Commodore Martin St; L.Nott, Commander (later Admiral) A.K. Chatterji and Lieutenant Commander (later Vice Admiral) N. Krishnan with Wing Commander (later Air Chief Marshal) P.C. Lai as the technical adviser. As mentioned earlier, at this time, the Government had accepted in principle the acquisition of as many as sixaircraftcarriersforthelndianNavyforwhich a Fleet Requirement Unit had been sanctioned.

During this period, Singh continued to fly at Palam and Amritsar but theaircraftheflew were Spitfires, MKS 8, 9, and 14 of the Indian Air Force. He was soon sent back to Yeovilton in England for a refresher course in flying, followed by an instrument flying course. He then underwent a helicopter conversion course at Gosport and became the first Indian to qualify as a helicopter pilot, years before the Indian Air Force deputed its first batch of pilots for helicopter training. He soon added another first to his credit by bec oming the first Indian to qualify in flying an amphibious aircraft when he flew a Sea Otter at Lee-on-Solent.

Another important assignment for Singh was his appointment to the newly commissioned naval air station, Gfm<dfl,asitsfirstCornmander(Air) and the Commanding Officer of the Fleet Requirement Unit. He led the formation of Sealand aircraft which flew past Bombay harbour on October 10, 1953 when President Rajendra Prasad reviewed the Indian Fleet, the first such review after Independence. He then landed his aircraft on water between rows of ships formed up for the Review, taxied his Sealand to the flagship, *Delhi,* and was presented to the President and Prime Minister Jawaharlal Nehru. While taking off, Singh had a few anxious moments caused by a harbour craft crossing his path but he managed to take off after taking suitable action.

Singh later served as the Commanding Officer of *Garuda* and supervised the construction of the air traffic control tower and setting up the School for Naval Airmen, the Naval Air Repair Organisation, the Photographic Unit and the Safety Equipment Section.

Before the commissioning of the *Vikrant,* Singh, who was the seniormost officer in the Navy's Aviation Branch and was now the carrier's Commander (Air)-designate, was sent to England for an attachment to *Albion* for six weeks to study the functions of a carrier's Com mander (Air). On completion of this attachment he joined the work-up team of the *Vikrant* and supervised the completion of the ship and the installationofallaviationfacilitiesinciuding the flight deck, the hangar, the maintenance workshops and landing and launching equipment. It was Commander Singh who, along with Commander John Treacher, ensured an accident-free training schedule.

Y.N. Singh's name will find a pride of place in the annals of the Navy for having been the Service's first aviator, the first carrier pilot, the first carrier pilot to undergo the baptism of fire in actual action conditions and the first Indian helicopter pilot.

Warming up to the reminiscences of his career in the Navy, especially in the Aviation Branch, in December 1987, when he was in his 66th year, Commodore Singh, whose photographic memory has not allowed even the minutest details to be erased, recalled with pride:

> I remember that my views were quite clearly laid down before the Naval Staff that aviation was an integral part of the Navy and the aviation officers were an integral part of the Executive Branch. Another thing that I felt very strongly about was maritime reconnaissance which should be under the command and control of the Navy. lam glad that both these have since come about.

Admiral Sir John Treacher, who retired as the Vice-Chief of the Naval Staff of the Royal Navy,feels that Commodore Singh adequately fulfilled the expectations as Commander (Air). He says:

> Commander Y.N. Singh who was Commander (Air), had one of the most difficult appointments. Without previous carrier experience, his job was to leadhisgroup of bright youngairmen into an unknown and very testing environment. He had to accept thatmuch of what would normally have been his responsibility was carried out by the head of the work-up team but, as the programme developed, he gradually took over and by the end was able to play his full part.
>
> Y.N. Singh now heads the Communist Party (apparatus) in his home area in Bihar!

The credit for establishing an effective Air Arm for the Navy and developing a viable infrastructure for the Arm goes to Commodore George Douglas who was destined to be the guiding angel and moving spirit of the Indian Navy's Aviation Branch during its formative years and was the seniormost officer in this elite cadre. Born of a British father and an Indianmother, he hadbegun his career as an officer in the Britishmerchant marine in 1930 and had soon qualified as an Extra Master Marine which entitles a merchant navy officer to command a wide variety of ships. When hostilities broke out in 1939 he offered to serve in the Royal Navy and qualified as a pilot in the British Fleet Air Armas a Royal Naval Reserve (RNR) officer in 1941. During the rest of the war, Douglas served in a number of appointments, ashore and afloat, and undertook a number of hazardous flying missions. He was soon promoted to the rank of Lieutenant Commander and commanded a torpedo bomber wing of the Royal Air Force's Coastal Command, operating against German ships and aircraft. The citation for the award of the Distinguished Flying Cross, with which he was decorated on July 6,1943, reads This officer has taken part in a large number of offensive patrols and has displayed great skill and tenacity. One night in February 1943, he participated in an attack on nine enemy motor boats. Although his aircraft was damaged by intense antiaircraft fire from the vessels, Lieutenant Commander Douglas pressed home his attack and destroyed two of them. One night in 1943, when his squadron attacked 12 'R' boats, four of which were destroyed and three moredamaged, Lieutenant Commander Douglas displayed leadership and great determination. By his outstanding efficiency and fearless example, this officer had contributed materially to the fine fighting qualities of the squadron he commands.

After the War ended, Douglas was granted a regular commission in the Royal Navy in the rank of Lieutenant Commander but in October 1947 he obtained his release and joined the Government of India as a Nautical Surveyor. It was at this time that the Indian Navy was going through the process of setting up an aviation wing and in 1949 was looking around for an officer with Fleet Air Arm experience and sought to utilise his services for this purpose. Even though acceptance of this offer meant some loss of emoluments for him, Lieutenant Commander Douglas accepted the assignment and commissioned on November 20, 1949 in the rank of Commander. He was immediately deputed for an attachment to the Royal Navy for equipping himself with adequate knowledge of the functions of the Admiralty Air Staff Divisions and air departments, the stores organisation, production and modification problems of aircraft, airengine and air equipment, the planning and layout of naval air stations and air establishments, the equipment requirements for aircraft carriers and air fields, spares provisioning, wastage rates, statistics and costing of air plans. In 1957 Douglas was deputed to the Royal Navy for a Seahawk and Vampire jet introductory course and Fairy MKVII and Gannet Conversion Course at Lossiemouth and Eglinton. His 'Record of Flying Training' in the Royal Navy states, 'His keenness and enthusiasm set a fine example to the other students on course, many of whom are less than half his age/ The citation for the Vishisht Seva Medal Class II (equivalent to the Ati Vishisht Seva Medal) awarded to him in 1966 states:

> From the very start of Naval Aviation in the Indian Navy in 1949, Commodore Douglas has been the driving force behind the evolution of a combatant Air Arm for the Navy. The development of aviation in the Indian Navy and the position it has attained are largely due to the initiative, hard work and leadership of Commodore Douglas. He has voluntarily undertaken several dangerous flying missions in order to set an example to young pilots and, despite physical disabilities (he was severelly wounded during World War II), he is still in the forefront in flying skill. ntil 1966, by which time he had risen to the rank of Commodore, Douglas continued to serve the Indian Navy in various capacities, most of which pertained to aviation; as the Director of Air Equipment at Naval Headquarters, the first commander of *Garuda,* Director of Naval Air Staff and the highest aviation appointment, Chief of Naval Aviation, for a record period of over four years.
>
> In 1957 Douglas played an important role in the acquisition and indigenous manufacture of the French Alouette III helicopter and the selection of the Alize aircraft for the *Vikrant.* Reminisces the ace aviator:
>
> The choosing of a helicopter common to all the three services had a humorous angle. While serving as the Director of the Air Staff Division, I was sent for by the Naval Chief and directed to report to the Defence Minister, Mr Krishna Menon. The Defence Minister stated that I was to liaise with the Army and the Air Force and recommend a helicopter common to all. On visiting the Air Chief, Air

Marshal Subroto Mukherjee, I was informed that the Army requirement would be paramount to an operational role. I then called on the Army Chief, General K.S. Thimayya. In brief he stated that the Army wanted a helicopter capable of lifting 15 fully armed soldiers to an area of seven to twelve thousand feet altitude, i.e., a forward area in either Assam, Kashmir orLadakh. On inquiring what mode of transport was at present being used, he said,'Mules'. In quick time, using pencil and paper and taking into account the distance/trekking factor and equipment, food, etc., required for 15 soldiers fully armed, I worked out that one helicopter, in the course of three months or more, would do the work of 150 mules. Timmy laughed, called up the Air Chief and said, 'I have Douglas here and he tells me that he has your approval to select a helicopter to meet an Army operational requiremnt. He further has provedconclusivelythatonehelicopter is worth 150 Army mules plus accoutrements.' Timmy then handed me the telephone. The Air Chief asked what helicopter I was recommending. I said the Alouette II, a French machine. I also stated that the French had a successor helicopter, Alouettee III, which would be the helicopter that I would recommended for final purchase and of course it would have to be assembled initially at the Hindustan Aircraft Limited, Bangalore and to gradually give way to the Indian-manufactured one. The Air Chief then stated that he would have the Air Staff study my figures, and also that, prior to getting final government approval, bids would be indicated to other interested Government, viz., the USSR, the US A, the British and the French, and to have their representative helicopters evaluated in India under operational conditions in Assam, Kashmir and sea level monsoon situations.

It is commonknowledge that the Alouette III was later acquired for all three Services and is still operating in its new indigenised *avatar,* Chetak.

As regards the selection of the antisubmarine aircraft for the *Vikrant,* DouglasThe selection of a general purpose antisubmarine aircraft in the Naval Headquarters Carrier Paper showed the Seahawk as the fighter aircraft and the Gannet in the antisubmarine, reconnaissance and bomber role.

In 1957 I was sent for flying attachments to the Royal Navy and the Admiralty. While in Britain I flew all current Royal Navy aircraft. I found that the Gannet, while having twin-engine capabi
ity, had severe maintenance problems. I also found that the French Navy had ordered the AJize aircraft which had a Rolls Royce Dart engine to fulfil the same role as the Gannet.

On return to India and on taking up the appointment of the Director of the Air Staff Division, I forwarded my report on my attachment and recommended that the Indian Navy do not buy the British Gannet but, after evaluation bysendinga Navy team to France if found superior, that the Indian Navypurchase the Alize. The then Chiefof NavalAviation,Captain Rodne Carver, appreciated that my recommendation went contrary to the Naval Headquarters Carrier Paper. He took me along to see the Naval Chief, Admiral Katari, who thenindicated that the Defence Minister was very averse to a French acquisition primarily because of adverse experience with the French which, as High Commissioner in London, he had with tank

purchases. It was agreed that a Navy evaluation team would make the final recommendation as to the purchaserGannet *Vis-a-vis* Alize. The rest is all history.

A distinguished sailor, aviator and pioneer, Commodore George Douglas, who is now in his mid-seventies and settled in Victoria, Canada, recalls with much nostalgia:

> The mellowingyears give rational perspective to a Navy in transition, expandingtomeetits future defence and fighting responsibilities, integrated to a high morale in its officers and men'.

> Another outstanding pioneer aviator, Admiral R.H. Tahiliani, who retired as the Chief of the Naval Staff in 1987, has many firsts to hiscredit. After qualifying in his basic courses as a Cadet and Midshipman at *Britannia, Devonshire and Mauritius,* Tahiliani was commissioned onSeptember 01, 1950. He completed his Sub-Lieutenant's course in June 1952 and soon returendto India but within a year was sent to the Air Force Academy at Begumpet for basic flying training and then to Hakimpet for jet training in Vampires, just as the Sealandaircraft were being inducted into the Indian Navy-infactTahilianiwas thefirstnavalpilottoflyajet aircraft.He then flew Sealand aircraft for the Fleet Requirement Unit at Cochin for about a year. Led by the legendary Douglas, Tahiliani and the other intrepid pilots of the FRUused the Sealand for carrying out dummy attacks on ships of the Fleet in order to give them adequate experience in detecting and tracking aircraft targetsand practising anti-aircraft shoots. On one occasionhis aircraft touched waterduring a dive and suffered damages, but he got away with a letter of displeasure.

In 1957 Tahiliani was sent to the Indian Air Force Station at Tambaram for the flying instructor's course and was pos ted to the Air Force College at Jodhpur and then to the Jet Training Wing at Hakimpet as an instructor after qualifying as an Instrument Rating Examiner, thefirstIndiannavalpilottodoso. Hewas soon to proceed to Sulur to set up the Naval Jet Flight in 1959, assisted by Lieutenant R.N. Ghoshas theseniorpilotandthelateLieutenantS.G. Vichareas the Engineer Officer, a daunting task accomplished well within the

targeted time-frame.

The next feather in Tahiliani's cap was the Test Pilot's Course, once again a first in the Indian Navy, for which Tahiliani was deputed to France in 1960 following which he was the logical choice for the appointment of the Senior Pilot of the Seahawk Squadron in lanuary 1961 and embarkation in the *Vikrant.* It was on May 18,1961 that he became the first Indian pilot to land ajet aircraft onanaircraft carrier by landing a Seahawk on the *Vikrant,* followed by Lieutenant Ghosh. Recalls Tahiliani:

> The honour of being the first Naval pilot to land onboard the *Vikrant* would normally have gone to the Commanding Officer of the Squadron, Lieutenant Commander (later Commodore) B.R. Acharya, but

luckily for me our Chief of Naval Aviation was visiting *Brawdy* that day and so the CO could not go and the Senior Pilot went off instead. It was one of these lucky things and I still remember, though it is not quite proper forme to say so, when I was taxiing back after returning to *Brawdy,* I thought of the world's first astronaut, Yuri Gagarin.During the work-up that followed, Tahiliani had a hair-raising experience. During a training flight:

A somewhat inexperienced ma rshaller got melost, theydidnotknow on the scope (radar screen) wherelwas. Iwasflyingat nightand they were trying to bring me back but from my mental D.R. ('dead reckoning' -estimated position) I know that they were going to take me to an entirely wrong sector where eventually I would have to pull the blind and jump into the water. But there was no way I could tell them. Happily for me I could see the lights of a particular island and then I knew for sure that I was not where the ship thought I was. And so I told them where I actually was and they soon reorientated themselves on the radar, saying, 'Okay, we have now got you', and they brought me in for landing. But for the lucky sighting of the island.I might have been swimming it the Mediterranean that night.

Treacher, however feels it was all in the day's work:It may sound rather dull, but flying discipline was excellent throughout and wehadnothingwhichcouldreallybe classifiedas a near miss in actual flight-deck operations. It is, perhaps, worth mentioning, however, that duringthenightwork-up the performance of the CCA (Carrier Control Approach) was such that a number of pilots felt dangerous situations had been allowed to develop. Tahiliani was one of those and his particular incident related to the Flying Controller losing him and, without giving him any positive recovery instructions, allowed him to drift slowly down towards the sea.

Happily there were no disasters which are often the setting for bravery, but there were plenty of personal achievements andrecords set. Indeed, the flying we did in those pioneering operations was both a personal achievement for those taking part and a record for the Indian Navy. They may not have been spectacular in comparative terms with those who had been in naval aviation for thirty or moreyears, but they were indeed spectacularin the contextof this first work-up.

Tahiliani recalls how Treacher encouraged him and expressed his appreciation of his performance as a flier:

Treacher was always trying, naturally, to get us to do things faster because, in anaircraftcarrier,thequickeryougetoffandthequicker you land, not just one pilot but the whole lot, the quicker the ship can turn away from the wind so that she can proceed on her mission. Besides, a ship is most vulnerable to a submarine threat when she is on a steady course. So that is one of the things which you try and do on an aircraft carrier, i.e., do everything in double-quick time. One particular daylmusthave beenluckytocatch,inallmyfour landings, the target wire for a Seahawk, the third wire.

Treacher paid me a tremendous compliment when he came to the crewroom and said, 'Ram, you are absolutely okay. Boy, you are hooking and taxiing out of the wires like a Royal Navy Squadron Commander!'

Tahiliani, who took over as the senior Pilot of the Seahawk Squadron in May 1961 and the other pilots of the Squadron were, unfortunately, witness to an unsavoury incident while the *Vikrant* was on her way toBombay, anticipating atumultuous reception fromthehomeportand had decided to launch all her aircraft before entering harbour for a formal flypast over Bombay harbour in honour of the Prime Minister. But there was suddenly a development that took everyone aback. Tahiliani vividly rememebrs that nail-biting episode:

We had moments of anxiety on our way back when a couple of disgruntled sailors, for reasons not known, went and stuck pins into some of the electrical wiring in some of the Seahawk aircraft, something that hadn't happened before and hopefully never happens again. We were due in Bombay on the morning of November 3, 1961 and before moving in, we had planned to fly all the operational aircraft we had. Twelve Seahawks and six Alizes were going to take part in the flypast over Bombay and we were determined that all aircraft would get airborne and not a single one should be left behind in an unserviceable state. Fortunately for us, the faults were soon located and rectified by Lieutenant (later Vice Admiral) B.G. Mudholkar, the Squadron Electrical Officer, who did a magnificent job. In order to make sure that these disgruntled guys did not get another opportunity to spike the aircraft and render them unserviceable, we mounted officer sentries around the clock in the hangars and on the flight-deck for the last three days and only those sailors who had to work on the aircraft were specifically checked and allowed to approach them. And happily for us, on the appointed day, all 18 aircraft took part in the flypast, only two reserve aircraft having been left behind as no pilots were available to fly them.

Tahiliani soon took over the command of the Seahawk Squadron and for two years commanded the Squadron. Thereafter, after a brief sojourn ashore, he was appointed the Lieutenant Commander (Flying) onboard the *Vikrant* in October 1963; he became the Fleet Aviation Officer in August 1964 and found himself on board the *Mysore* during the 1965 operations, the *Vikrant* having been docked for her annual refit. During these operations:'We fired a few shells, some of them with precision and some in the wrong direction and fired a few depth charges and other antisubmarine weapons off Bombay. I do believe that the (Pak submarine) *Ghazi* was damaged in that action/

Looking back on the association of Royal Navy officers with the Indian Navy duringthe formative stage of the Fleet Air Arm and the contribution made by these officers towards its development, he says:

When you are starting a new organisation, you have to have some people who have had theexperience and notmerely knowledge based on others' experience. It just makes the process of acquiring skills that much faster. I cannot, for example, think of the *Vibrant* having had her work-up without the help of John Treacher who even at that time impressed us so much. He was only a Commander but I remember saying to myself that this officer would one day become the First Sea Lord. He almost did-he retired as the Royal Navy's Vice-Chief of the Naval Staff in the rank of Admiral. We had to have this type of gentlemen in the beginning to hold our hands and show us how to operate aircraft from carriers. When we are trying to learn to operate aircraft from shipborne platforms, the complexities of trying to do so efficiently are many and there are many problem areas which are not discernible even to an aviator. It thus helps to get some expert guidance to steer you forward the right way in a short enough time and then you take off and are on your own.

To work up the carrier we had only three officers from the Royal Navy. We had John Treacher as Commander (Work-up), we had a Lieutenant Commander who was the Direction Officer and we had a Lieutenant Commander who was the Operations Officer - all associated with the flying part of operating a carrier.

Commenting on the delay of 14 years after Independence in acquiring our first carrier,Tahiliani is of the opinion that after the transfer of power, Britain had arrogated to herself the responsibility of maintaining a bluewater navy with each Commonwealth member's responsibilities reduced to coastal defence which precluded naval avia tion. Thus, though free India's Navy's first C-in-C, Admiral Parry, fully supported by Mountbatten, had sought as early as in 1947-48, to establish two fleets for the Royal Indian Navy to be developed around two light fleet carriers, one to be acquired in 1955 and the other two years later, his proposal didn't find favour with the Government. It was fortuitous for us, Tahiliani feels, that Mountbatten eventually succeeded in convincing Nehru of the importance of acquiring a carrier for the Indian Navy and it was finally sanctioned.

Reminiscing on the additions and alterations carried out onboard the carrier before her commissioning, Tahiliani records:

I was the Flag Lieutenant to Admiral Sir Stephen Carlill (the Chief of the Naval Staff) in 1956 when a discussion took place on the catapult for the Vtfcrawf. The ship had been designed around a 110-foot catapult which put a limitation on the size of the aircraft that could be operated from the carrier. The Indian Navy at that time felt that that we should insist on the catapult being redesigned so that at a future date we could operate aircraft heavier than the Seahawk such as the French Etendard. During the discussion, the Admiral looked at me andsaid, 'What does the young aviator think? I said,'Sir, I think ifwe are going to insist on leamig to walk before we run, we might . ¦ «nd up by only walking. We might not be able to run at all. What is so j ,, tsdridtfficult in flying aircraft? We can fly Seahawks now, tomorrow we canfly faster aircraft. Mypersonalviewisthatweshouldinsistontheir fc-r redesigning the catapult.' I do not know what happened thereafter -/¦ but I was later told that the Admiralty had no spare capacity in its ' design department for the

task and we had to accept the 116-foot ? catapult and to satisfy ourselves with flying only the Seahawk. ir, however, feels otherwise:

> To have fitted a larger catapult would have been unrealistic in its day. The Royal Navy was going through agonies in considering what afitWfft would replace the Vixen and the Scimitar and would eventually follow them with a generation of the Phantom and Buccaneer before ultimately arriving at the Harrier and Sea King. It would be very easy to congratulate the Indian Navy on having the foresight to have cut out the intermediate stages!

Recalling Ws French experience, Tahiliani says:

lian carriers and so they started a project to develop the 4-B version Which was the long-wing derivative of the * Etendard-4. They produced a glossy brochure and tried to convince you that they had reached the levels of co-efficient where it could operate from the Vikrant. At the end of my test pilot's course I was sent down to go and do the evaluation of this 4-B aircraft in Istres, South of France. I was able to demonstrate to the French that they had not reached those levels of co-efficient. If the French had continued their programme, they would perhaps have been abletodoitandwe might have been able to replace the Seahawk with Etendard 4-B but the manufacturers started selling Mirage III aircraft to Switzerland and Australia and lost interest in the Etendard project. And so we had to continue with the Seahawk, which had no night capability because it had no radar, stretching its life beyond anything anybodyelse could have done'.

Admiral Sir John Treacher takes a journey down memory lane and recalls:

> The 300 Squadron, the White Tigers of Rewa, were the more lively of the two squadrons as is perhaps only to be expected from fighter pilots.
>
> Both Acharya and Tahiliani were experienced, capable and strong personalities. Flying operations when first encountered by ships' officers, create demands to which they are not accustomed, there is an urgency not otherwise required in peacetime and it comes from being responsible for aircraft with limited fuel reserves. Radar for instance must work - not just for a shoot or an exercise - but all the time and at a peak performance.
>
> Speed to create the necessary wind speed over the deck means all boilers connected all the time, plus extra steam for the catapults. And a host of other services which may once have been highly desirable now become essential.
>
> To all their demands the ship responded splendidly, Commander Edward (the carrier's Engineer Officer) provided all the steam required and seldom made smoke although he had to be shown the effect from Flyco (Flying Control Room) once to realise just how important it was. The Electrical Department were remarkably efficient and Commander (later Rar Admiral) Krishan Dev and his Supply Department kept

the air stores available as well as everything else.

Commander Gautam Singh, the ship's Executive Officer, presided over the Wardroom (the Officers' mess) and handled both the unaccustomed largenumber and high-spirited behaviour of the air-crew with great understanding and appropriate firmness.

As the Operations Officer, Lieutenant Commander (later Com-mander)M.N. Gupta was a voluble, efficient and much-liked member of the Air Department but many of his colleagues felt he was a great loss to Parliament!

The Direction Officers rose well to the challenge and I particularly remember Lieutenant (laterCommodore)V.P. Duggalwhowas not only of the best fighter directors butas Wardroom winecaterer, he fulfilled a very important task with great efficiency. He also played a major part in rebuilding confidence in Carrier Controlled Approach (CCA) afterpilots complained of dangerous situations being allowed to develop during practices. These practices were essential daylight preliminaries tonight flying and failure of theofficerin charge to train and control his team effectively resulted in a total loss of confidence by the air crew. Fortunately the Captain did not flinch from the firm action required and after removing the culprit, the team was able to restore faith in their capability in time to begin night operations.

It is very unusual to face the task of night-qualifying an entire Air Group; this can onlyhappenatabirthof a completelynew Naval Air Arm drawn exclusively from within the Service. Judging when pilots are ready for the transition to night-flying calls for a close knowledge of their particular aptitude as well as their psychological attitude. No two pilots are the same in their reaction to this challenge.

With no 'old hands' available, these had to be created by qualifying the commandingofficers and seniorpilots with one or two carefully selected juniors in an 'early' batch. Basic condition of weather (little ship movement, some wind, preferably a moon and essentially no 'soup bowl' visibility problems), proximity to a diversionary airfield and availability of a plane-guard were necessary all the time.

Although the ship was working up off Malta and all the usual RoyalNavy support services could be called upon, and particularly the facilities of Royal Naval Air Station, Halfar, they did not extend to providing a plane guard for night flying for which an Indian destroyer, *Rajput,* had been sailed from Bombay. Unfortunately due to serviceability problems she never became available *to Vikrant and* other measures had to be taken.

In consultation with Service Authorities in Malta, the RAF put a sea rescue launch at our disposal and, after careful briefing about their role and the manoeuvring required to take-up and remain in station during flying operations, they provided this absolutely essential service throughout night-flying. A pilot from one of the squadrons was on board the launch at all times to provide the knowledge of cockpit escape procedures had a rescue become necessary. They all appeared to enjoy this temporary duty. Without the willing RAF response, this final and crowning part of the flying work-up would have been impossible.

Night qualification for both squadrons went remarkably well with no more than the average number of 'bolters' and shore diversions for fuel. All pilots had to be handled differently and I remember one Lieutenant

Santosh Gupta who made beautiful approaches onlyto flare justbefore touch-down and hence float over the wires to 'bolt' several times. Finally I took the microphone from the Lieutenant Commander (flying) and said to him/If you don't get on next time I will send you ashore and you will never come back to the ship'. He caught the target wire on his next approach. He is now a senior of ficer (Rear Admiral) still serving and he recalls the occasion with some amusement.

In the knowledge that after leaving the *Victorious* - where I had been Commander (Air) for two years -I would be the leader of the UK work-up team in the *Vikrant,* Iarranged with Commander (Air) at RNASBrawdyfor him to lead the three most experienced pilots in the Indian Seahawk Squadron out to the ship for some deck-landing experience. They duly arrived in the circuit from Brawdy, where the squadron were in the last few months of work-up ashore, and made four deck-landings and four catapult shots each from the *Victorious* before returning home. I was very much aware of the critically important part that these three officers would play in the Air Group andthevalueof this deck-landing experienceinadvanceof the other pilots. It was to pay a big dividend.

The three officers were Lieutenant Commander BalbirLaw, Commanding Officer of the 300 Squadron and Lieutenant Commander B.R. Acharya, Senior Pilot of the Squadron and Lieutenant R.H. Tahiliani. On embarkation on May 1961, Law became Lieutenant Commander (Flying), Acharya took command of the Squadron and Tahiliani became the Senior Pilot.

It was difficult to compare the standard of performance of the Indian pilots to those of other Air Arms because of the unique situation which obtained. The Indian pilots, although they had different levels of flying experience, all suffered from a lack of carrier operational experience. It was particularly difficult to built this fundamental experience and to avoid any set-backs such as would have been created by a major accident. Confidence has to be carefully nurtured and this inevitably meant that the pace at which our operations were conducted took rather longer to speed up. As the pressure was applied all aircrew reacted very well and by the end of the work-up, they were performing as well as theircontemporaries in any other service.

I was particularly impressed by the quality of the sailors throughout the ship. I had walked through a large number of mess decks during my service time when off-duty sailors were relaxing. It was absolutely unique to find a large proportion of the sailors in *Vikrant* not only reading newspapers, but reading the *Times* or the *Telegraph'.* Perhaps I should not have been surprised at the ability of the Indian Armed Forces to attract such obviously well-educated recruits.

Captain Mahindroo was an experienced seaman and fine leader who grasped the complexities of carrier operations with speed and understanding. The mysteries of theflying programme and constant manoeuvring required to maintain the ship's Mean Line of Advance (MLA) andmeet launch and landingwere things with which he soon became very familiar. I well remember going to the compass platform in the early stages of the work-up to remind him that when the flying programme showed a launch at 0700 that meant the green flag for the first aircraft -and hence the ship steering a steady course into wind with the required wind speed over the

deck-had to drop at that instant. He looked thoughtfully at me for a moment and said,
'Yes'.

Two or three days later when the flight-deck crew were not as sharp as they might have been, he was quick to come into Flyco to tell me that when the ship was into the wind and with the right wind speed over the deck, he expected the first aircraft to launch precisely on time. His tone was very firm but his eyes showed how much he was enjoying the situation. He continued to be a tower of strength throughout the work-up and handled problems associated with the CCA. (Carrier Control Approach) and lack of a plane-guard, to which I refer later, with great determination.

A bright and resilient personality who was a natural pilot, Balbir Law had to make the very difficult transition to the extremely demanding task of Lieutenant Commander (Flying). This in itself would have been enough for most men but, as the natural choice for the next Commander (Air), I was determined that he should be fully night-qualified and to that end it was necessary to build up his day deck-landing first. Theonly time he could be spared for this was at the end of the day's flying and so I put him on the programme for three or four catapult shots and arrests about twice a week. That he completed 40 day deck-landings and went on to complete night qualification says all that is needed about his outstanding ability.

He achieved all this with one minor lapse when he'bolted'and his reaction time at the end of a tiring day was longer than it should have been. Power came on too late to avoid a sink over the (deck's) angle, his hook caught the edge of the safety net and the Seahawk appeared almost to stop in mid-air before shaking herself free and climbing away.

If there is one sea man officer who is more closely involved in flight-deck operations than any other it is the navigator. The Indian Navywasfortunate to have anofficer of the quality of Lieutenant Commander (later Admiral and Chief of the Naval Staff) Oscar Stanley Dawson and indeed wise to appoint him to this crucial position. It is the responsibility of the Navigation Officer to resolve the conflicts of the safety of the ship, the maintenance of her Mean Line of Advance, the requests of the Air Department for launches and recoveries and often also special wind directions for engine runs, etc_v the stationing of escorts and so on, on behalf of the Captain. Dawson carried out all these demanding tasks with great efficiency, determination and tact. He quickly appreciated the need to have a very closeunderstanding and working relationship withFlyco and made full use of the ease with which potential conflicts of interest could be resolved by personal contact. Despite modem-day electronic communications theclose physical proximity ofFlyco to theCompass Platform provides thebest and most immediate answer. I personally found Dawson a wonderful person to work with and the success of the *Vikrant* work-up owed much to his personal dedication.

Commodore DavidKirke(later Rear Admiral)wastheChiefofNaval Aviation from February 1959 to April 1962, the period that saw the culmi-nationof thenavalaviationprogrammewiththe arrivalof *the Vikrant,* a programme that had been carefully moulded by his predecessor, Captain Rodney Carver, to ensure that naval

aviation became a viable, efficient and cohesive entity. Two major tasks undertaken by Kirke were the selection of a suitable antisubmarine aircraft and to find and develop a major airfield as the main naval air station. The antisubmarine aircraft that had been provisionally selected was the Gannet which he himself had rejected in his previous appointment, when it was offered to the Royal Navy, because of its limitations in performance and operational availability and so he decided to do likewise for the Indian Navy. He opted for the French BreguetAlize 1050 with a Rolls Royce Dart engine and against stiff opposition from the British aircraft industry lobby, succeeded in obtaining the acceptance of the Government of India for the latter.

The other important task was the selection of a site for a permanent naval air station for which some facilities had been developed in Cochin and Sulur but no disused World War II airfield with a tactically optimal location could be found until the liberation of Goa when its civil airfield, which was ideally located for the purpose, was handed over to the Navy for its first permanent air station, *Hansa,* with an adjacent deep-water harbour, ranges and other facilities vital to a Fleet Air Arm. It was Commodore Kirke who successfully obtained Government approval for the transfer of the Goa airfield to the Navy.

Kirke sums up his stay in India with these words,

> All I had to do was to make the occasional important decision and encourage those likeBalbir (Law) and the operational elements to mould themselves into the superb team that they did. I also enjoyed sweepingaway red tape in the UK and taking on Whitehall, British aircraft companies and the like who could have, through their blinkered greed, given us ahardtimeandgotusoff on the wrong foot. After my three years in Delhi there was no point in my applying for a job in British Aviation when I retired! It had a long memory of what IdemandedforthelndianNavy at the ir/its expense and considerable embarrassment.

Within afewweeksofherarrivalin India, the *Vikrant* had the honour of participating in free India's second naval operation, the liberation of Goa, which was launched on December 17,1961. The role assigned to the carrier was to lead a task force for blockading Goa during the operation from a position 150 miles North-West of the Portuguese enclave and effectively seal all the possible escape routes for Portuguese troopships to East Africa or Pakistan.

Receding Horizon

Over 'three decades have elapsed since the advent of aviation into the Indian Navy. V/STOL aircraft are now fast replacing catapult-launched aircraft,a number of aircraft squadrons, aviation shore establishments and maintenance facilities ha vebeen commissioned and a second carrier, *Viraat (ex-Hermes),* has joined the Fleet and thus ship-borne aircraft continue to be organic to our Fleets operating at sea. Crystal-gazing on this 'long arm of the navy', a naval strategist feels that small and less expensive aircraft carriers for air defence and strike against ships at sea and for carrying antisubmarine helicopters and V/STOL aircraft would continue to be in vogue in the foreseeable future. As regards India's Navy, he says:

As the Indian Navy grows, so will its air arm. The percentage of manpower and resources likely to be utilised in this long arm of the Navy is likely to increase, because of the changing pattern ofwarfare at sea. Naval aircraft will continue to be used in our environment for many, many years, till India reaches a stage in technology when satellites will carry out all surveillance, and a combination of missile and electronic warfare can meet all threats. Whether aircraft will operate at all at sea (in the distant future) is difficult to foretell. That it will undergo much change and increase in sophisticatio is, however, beyond doubt. And that it will continue to be one of the mostvital elements of warfareat sea in the present century is also a certainty.