

The White Tigers Go Golden



INAS 300 is 50

INAS 300 Sea Harrier FRS Mk.51 and the 'White Tiger' crest.

It was at RNAS *Brawdy*, on the south western tip of Wales where the birth and, later, resurgence of the Indian Navy's first combat squadron, INAS 300 or 'White Tigers' took place. Careful consideration had been given to selecting aircraft for operation from the Indian Navy's first carrier and in the autumn of 1959 the Indian Navy placed an order for 24 Armstrong Whitworth Sea Hawk FGA Mk.6s for the fighter-bomber role. Indian Naval aviation had finally begun to take on tangible form.

INAS 300 was commissioned at RNAS *Brawdy* on 7 July 1960, in the presence of Mrs. Vijayalaxmi Pandit, the Indian High Commissioner in London. The CO designate, Lt Cdr Balbir Dutt

Law then read out the commissioning warrant and formally assumed command of the new unit, the Indian Navy's first front line and only carrier based fighter squadron. In recognition of the unique place to be occupied by INAS 300 in the navy's order of battle, the new squadron's crest depicted the rare White Tiger of Rewa, "rampant on sea waves against an azure background."

In mid-January 1961, Lt Cdr Law handed over command of the squadron to Lt Cdr Acharya and proceeded to INS *Vikrant's* air department. Lt Cdr Ram H Tahiliani now joined the squadron as Senior Pilot (having just completed the Test Pilot's course in France) on board INS *Vikrant*, which was working up her

ship's company in the English Channel. Having successfully completed their training at *Brawdy*, the 'White Tigers' bid adieu to the station on 31 July 1961 and flew off with eleven Sea Hawks to embark on the *Vikrant* off the Isle of Wight.

Commanded by Capt. Pritam Singh Mahindroo, the 19,500-tonne *Vikrant* left Portsmouth in the summer of 1961 for the Mediterranean, embarking her combat squadrons at sea. A vigorous operational flying programme was undertaken off Malta, including more than a thousand launchings and recoveries between July and September. The INS *Vikrant* made its way towards India with just one brief stop over in France to embark the



INS Vikrant with its complement of Sea Hawk fighters and Alizés (aft) at sea.

Alizé squadron and a spell of day and night flying off Malta culminating in an operational readiness inspection by an RN team. Two Alouette II helicopters loaned to the Indian Navy by the Aéronavale were returned when the *Vikrant* eventually headed for home waters, finally arriving in Bombay on 6 November 1961 under the command of Capt PS Mahindroo, the Commander (Air) being Cdr YM Singh and the Commanding (Flying) being Lt Cdr BD Law.

Escorted by INS *Mysore*, the ship was received by Prime Minister Pandit Jawaharlal Nehru and Defence Minister Krishna Menon at Ballard Pier. Shortly thereafter, on 23 December, the second change of command took place with Lt Cdr RH Tahiliani taking over as the CO of INAS 300 and Lt Subhash Chopra as the Senior Pilot.

Efforts were vigorously made to provide logistic support, maintenance and dockyard facilities for the *Vikrant* at the naval base at Bombay and the carrier disembarked its squadrons, INAS 300 flying to INS *Hansa* at Suler and INAS 310 proceeding to INS *Garuda* at Cochin. Within a couple of weeks of its arrival in India, the *Vikrant* was called upon to lead the task force blockading Goa during and after *Operation Vijay* which was launched on 17 December 1961 against the Portuguese enclaves on the Arabian Sea. Alizés launched from the *Vikrant* performed reconnaissance tasks watching for Portuguese troopships which may have attempted escape to East Africa



Crowded forward deck of the INS Vikrant as it approaches Ballard Pier in Bombay harbour.



Cartridge-starting the Sea Hawk's Nene 103 engines was always dramatic.



The very good looking lines of the Sea Hawk FGA Mk.6 are seen in this portrait shot at INAS Hansa.

or Karachi, while the Sea Hawks flew combat air patrols.

Some months later, following evacuation of the fine harbour and shore installations at Goa, it was decided that the former Portuguese airfield at Dabolim would make an ideal base for disembarked carrier aircraft. The existing 4,500 ft (1370 m) runway was extended to 8,000 ft (2 438 m), major expansion of existing facilities was undertaken and on 18 June 1964, the naval air station was transferred from Sular to Dabolim which was to become home for INS *Hansa*. The Naval Establishment in Goa, with its airfields, barracks, workshop, various camps and Navy Office became INS *Gomantak*.

During the course of 1961, the Indian Navy took on charge the first tranche of another 22 refurbished ex-RN Sea Hawk FGA 4s and 6s that were to be acquired over the next two or three years, Sea Hawk conversion and operational training becoming the responsibility of INAS 551 at INS *Hansa* where 130 hours on the Sea Hawk included between 75 and 100 simulated deck landings and air-to-air and air-to-ground armament firing exercises.

Operation Vijay in 1961

The Indian Navy's first aircraft carrier and its complement of combat aircraft were alerted for war operations within a mere month of their arrival in Indian waters. In December 1961, India launched Operation *Vijay*, to get rid of the Portuguese from their established colonies at Goa, Daman and Diu. Although the Portuguese Navy had only limited ability to offer real

resistance, there were some historic European treaty obligations to assist Portugal in times of war and the Indian Navy was ordered to blockade all sea lanes leading to the colonies. Accordingly, the *Vikrant* proceeded to sea with the fleet and operated 50-100 miles offshore from Goa, its *Alizés* carrying out continuous armed reconnaissance, but in the absence of any enemy moves, were not involved in any engagement. One *Alizé* landed at Dabolim Airfield, off Vasco Da Gama, immediately after its capture by the Indian Army.

Indo-China War in 1962

The next operational alert was to come nearly two years later, in the wake of

the Chinese aggression of October-November 1962. The Sea Hawks of INAS 300, instead of embarking on the carrier moved to the Indian Air Force base at Kalaikunda, south west of Calcutta, where the squadron did a quick weapons work-up before moving to the newly established IAF airbase at Gorakhpur, in the central sector of the Himalayan foothills. There had been renewed tension between India and China, and this time India was taking no chances, with air power deployed to counter any Chinese moves. In the event, after about six weeks, the situation stabilised and the Sea Hawks had returned to Sular by end October 1963.



The 'White Tiger' seems to leap towards Lt. Cdr. Ashok Sinha, Senior Pilot INAS 300.

The Indo-Pak War of 1965

The 1965 war caught the squadron somewhat unawares. INS Vikrant was in the 'dry dock' and the squadron at Jamnagar, where it fetched up on 1st September to carry out weapon work up. War appeared imminent and the squadron was told to conserve the aircraft and await deployment. Soon orders for the squadron came to attack Badin radar and airfield in Pakistan. 300 was all set for the attack but at the last moment it was cancelled by NHQ. All that day and next the squadron waited for a 'Go'. None came. Instead Pakistani B-57 bombers attacked Jamnagar airfield but failed to notice 12 Hawks parked in the dispersal – a close call indeed! On 7th the squadron was re-deployed at Santa Cruz for the air defence of Bombay, where some 100 dawn and dusk patrols were flown, unfortunately without contact. There was some excitement when two Pakistani ships shelled Okha on the night of 11/12 September. The squadron flew to Jamnagar at night and was airborne at dawn in pursuit of the enemy ships. Again there was no contact as the ships had too much time to withdraw out of range.

Of the Sea Hawks deployed to attack Pakistani ships, one of the aircraft developed some trouble with its RT. This aircraft exercised the whole air defence organisation of Bombay and the lone Sea Hawk faced the wrath of all the AA guns that could fire but it landed safely, without a scratch! After cease fire, the squadron returned to Dabolim and normal routine.



Launching a Sea Hawk by steam catapult while S-55 helicopter keeps plane guard.

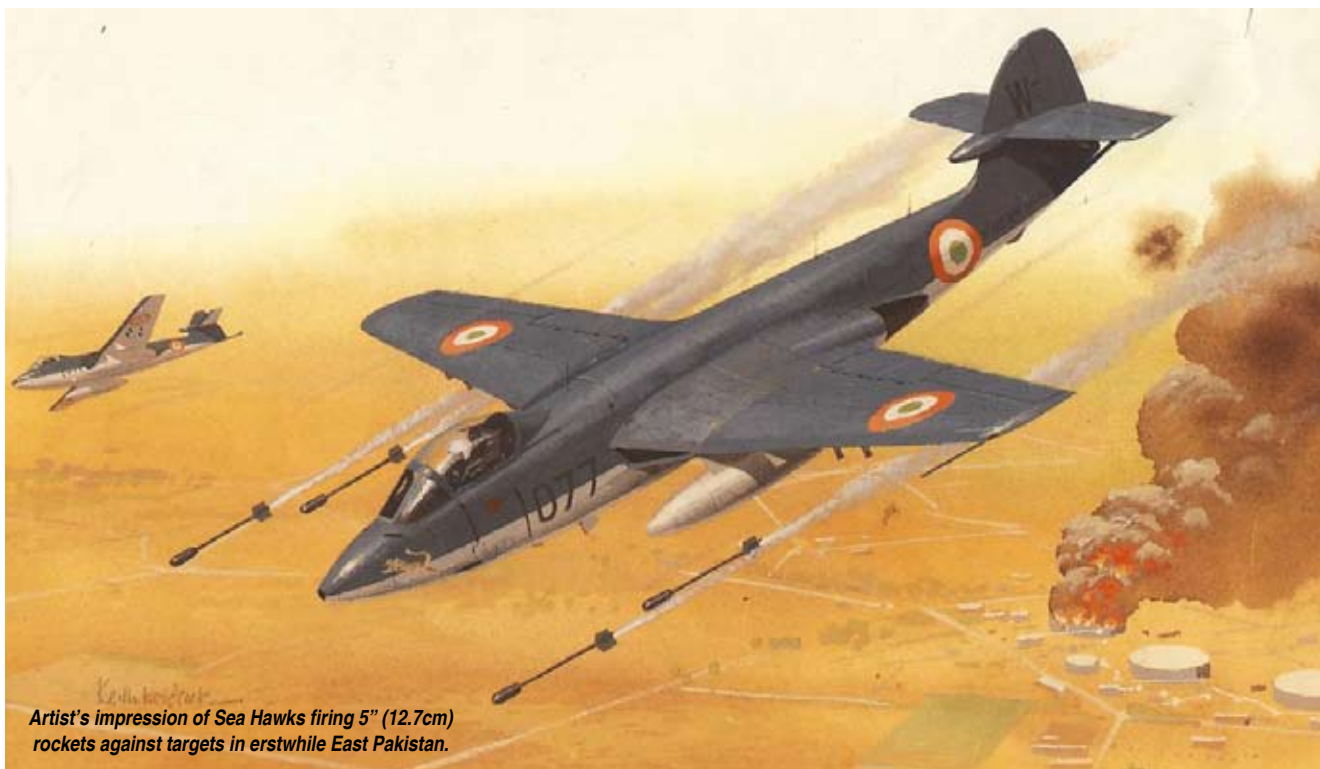


Preparing for war: Sea Hawk being armed and refueled onboard INS Vikrant, December 1971.

The Indian Navy acquired additional batches of Sea Hawks over the years. Seen here is an ex-Marineflieger Sea Hawk (alongside RAF Hunter) while staging through Sharjah.



Elta



Artist's impression of Sea Hawks firing 5" (12.7cm) rockets against targets in erstwhile East Pakistan.

The Indo-Pak War of 1971

If the naval aviators were harbouring feelings of frustration in not having been able to fire their guns in anger, there was to be plenty of action in store almost exactly ten years after the arrival of the *Vikrant* in Indian waters. The situation in East Bengal was getting intolerable, with millions of East Bengali refugees camped in India while the civil war situation in erstwhile East Pakistan threatened to have grave repercussions in India. The war of December 1971, which was to result in emergence of Bangladesh, was to see the *Vikrant* and various aircraft of the Indian Navy playing a prominent role, especially in the Bay of Bengal.

In the weeks preceding active hostilities, the *Vikrant* had moved with the then recently created Eastern fleet to its area of operations, having been at Vishakhapatnam Harbour some time before war broke out on 3 December 1971. The Pakistan Navy, obviously aware of the *Vikrant's* movements, had sent its only ocean-operational submarine, the PNS *Ghazi*, to stalk the Indian carrier. Pakistan's bold plan was thwarted when the destroyer-escort INS *Rajput* depth-charged the waters in Vizag's narrow approach channel, sinking the *Ghazi* within hours of the commencement of

hostilities. But, in any case, the *Vikrant* had long sailed, skirting the Andaman Islands and taking up position off the coastal strip of erstwhile East Pakistan to launch its first strike sorties on the morning of 4 December 1971. The *Vikrant* and its aircraft were tasked to neutralise enemy shipping and shore facilities, to prevent Pakistan forces from being reinforced or evacuating, or, indeed, to counter any attempt by a third country to interfere in the war.

First strikes 'in anger' were on 4 December 1971 when at dawn, eight Sea Hawks, each carrying 5-inch (12.7 cm) rockets or 500 lb (227kg) bombs, were launched by the *Vikrant*, forming up and heading for the nearby Cox's Bazar airfield. Here, encountering only small arms fire, they cratered the main runway, strafed the air traffic control buildings and other airfield installations and shot up vehicles around the airfield. Indian Naval Aviation had performed its first mission 'in anger'.

In the afternoon, another eight Sea Hawk sorties were mounted, this time against the more heavily defended airfield and harbour of Chittagong. In the attack, the harbour control tower was damaged; a fuel dump set ablaze and two merchant ships received bomb hits. Enemy anti-aircraft fire was fairly heavy and one Sea

Hawk was slightly damaged, but was safely recovered to the *Vikrant*.

On 5 December, Sea Hawk strikes against targets in Chittagong were continued and new targets engaged in Do Hazari, Khulna, Mongla and Chaina harbours. On the next day, the Sea Hawks encountered perhaps the heaviest anti-aircraft fire yet from both shore batteries and gun boats at Mongla, but they destroyed two gun boats and damaged two others with rocket fire. During their strike against Khulna later the same day, the Sea Hawks came under gunfire from an armed merchant ship which they struck with bombs and rockets, and neutralised.

The Sea Hawks continued to hunt for targets of opportunity amongst the riverine traffic and several power boats, tugs and river craft were damaged or sunk. Late on 6 December, the armed merchant ship *Onderda* was repeatedly hit by rocket fire and sunk. On the same day, the naval docks, workshops and army barracks in Chittagong were attacked while the concentration of anti-aircraft guns at Patanga was hit by rocket fire and virtually silenced. To cap an extremely intensive operational day, Alizés were launched from the *Vikrant* at night to strike at Chittagong airfield with the aim of deterring repair work that was being attempted in darkness.

Rafael

On 7 December, owing to the absence of wind, no aircraft could be launched and this allowed maintenance and repair work to be carried out on board the carrier. There was some light wind the next day and six Sea Hawks were launched to attack targets at Barisal and the Patnakhali area and three barges, laden with enemy troops, equipment and ammunition were sunk. The *Alizés* continued their nocturnal attacks, striking targets in Barisal at night under moonlight conditions.

Again, the lack of wind prevented flying activity during the next few days, but there was just sufficient to launch *Alizés* on 11 December, when at 0600 hours they were tasked with a strike against army positions in the Rajpur area. A second strike by *Alizés* at 1000 hours was directed against gunboats, tugs and barges, the PNS *Jessore* and a Rajshahi-class gunboat being sunk by bombs and rockets.

For the record

The Sea Hawks of INAS 300 flew a total of some 160 sorties in action, all by day and mostly in fine weather conditions with unlimited visibility, their primary targets being the airfields and harbour installations at Cox's Bazar and Chittagong which were defended primarily by Bofors light anti-aircraft batteries. Maximum effort was expended between 12-14 December when more than 60 Sea Hawk sorties were mounted against vessels in Chittagong Harbour, every vessel attacked being reportedly sunk or damaged. Despite flying through what was, on occasion,

relatively concentrated Bofors fire, no Sea Hawk was damaged by anti-aircraft fire throughout the conflict, although five suffered superficial damage from small arms fire.

In October 1967, for the first time, INAS 300 had exchanged pilots with an IAF Squadron. Flt Lt VN Johri came to INAS 300, while Lt Vinod Pasricha joined No 31 Squadron IAF to fly the *Mystere IVA*. Subsequently, six naval pilots were exchanged for three IAF pilots before the scheme was discontinued. Lt Arun Prakash flew *Hunters* with No.20 Squadron IAF during the 1971 operations and was awarded the *Vir Chakra* for outstanding performance in war, while Lt Peter Debras flew *Gnats* with No.9 Squadron.

An Era Ends

Once the excitement of the 1971 war had died, it became business as usual for the *Tigers*. It was now slowly becoming apparent that the Sea Hawks were well past their prime and would need a replacement if fighter aviation was to be kept alive in the Indian Navy. During the mid 1970s, the squadron started delving deeper into the dwindling stock of Sea Hawk spares and eventually, the inevitable happened. The Sea Hawks were disembarked from INS *Vikrant* on 8 May 1978, never to return again. Once ashore, the aircraft availability and flying hours began a steady decline and by the end of 1978, the squadron was hard pressed to keep its pilots in adequate flying practice.

White Tigers go vertical

By the end of the seventies, the venerable Sea Hawks had come to their last leg of operations in the Indian Navy. With very few airframe life-hours left and spares extremely difficult to come by, IN seriously started to look for its replacement.

The only fixed-wing conventional fighter-type aircraft possibilities were the Douglas American A-4 Skyhawk and French Dassault *Etendard*. However, the Indian Navy's 'magnificent obsession' with the *Harrier* had begun early in this revolutionary V/STOL fighter's evolution in Britain. The Indian Navy evaluated the British Aerospace two-seat *Harrier* demonstrator G-VTOL in India during July 1972, this operating off the *Vikrant* at sea near Cochin flown by the Navy's test pilot Captain Ram Tahiliani, and also demonstrating its unique attributes to Government officials and naval personnel at New Delhi's Safdarjung airport thereafter.

Serious discussions and negotiations between India and Britain on the Sea *Harrier* began in 1976 and in mid-1977. The Indian Defence Minister announced that the Indian Navy would replace its Sea Hawks with V-STOL fighters, but without actually identifying the Sea *Harrier*. Procurement of this unique aircraft was finally proclaimed in October 1978 and thus, after more than seven years of study, evaluation, suspense and negotiation, orders were formalised in November 1979 for six single-seat Sea *Harrier* FRS Mk.51s and two trainer T Mk.60s.

The first Indian Naval technical personnel selected for Sea *Harrier* conversion left for the UK in September 1980, an IN Sea *Harrier* project team (SHARP) being formed at Kingston. The first batch of pilots arrived at Brawdy in April 1982: 22 years after the *White Tigers* had been commissioned there. Commander Arun Prakash VrC and Lt Shekhar Sinha were the designated CO and QFI respectively, being joined thereafter by Lt Sanjoy Gupta and Lt Cdr RT Rajan.

No longer HMS *Goldcrest*, the station had changed hands and was now RAF *Brawdy*. After a brief familiarisation course – the Indian pilots had to get used to the operating conditions and the British ATC staff to the "Indish" spoken – the pilots moved to No.233 OCU at RAF



Nine gallantry awards were awarded to the 'White Tigers' including MVC to the CO Lt. Cdr. Santosh Gupta, plus four VrCs and three Mention-in-Dispatches. The AEO Lt. Gurnam Singh got the NM for his magnificent maintenance effort which kept 100% aircraft availability throughout the war.

Wittering for basic course of Harrier T. Mk.4s. As the Squadron diary records, “a brief helicopter course had done little to prepare us for the bizarre feeling of standing still and moving sideways or backwards in a thundering fighter”.

After RAF *Wittering*, the IN pilots spent some months at the BAe works at Dunsfold and then arrived at their main base, RNAS *Heron* at Yeovilton, for a Sea Harrier OFT course to be conducted at the newly-formed IN Training Unit. Meanwhile, the Indian Navy’s first Sea Harrier, IN 601, was ready on 21 December 1982 and was handed over with due ceremony at Dunsfold on 27 January 1983. A coconut was broken for

degree ramp launches, Carrier Controlled Approaches and vertical recovery during night and bad weather. RAF Canberras provided targets for practice interceptions, and homing the Sea Harrier’s Blue Fox radar. In mid-August, the first batches of trained maintenance personnel returned to India to prepare for the Sea Harrier’s arrival at INS *Hansa*.

By November 1983, the first flying conversion course was completed and while IN 601 and 602 were retained for the second OFT course at Yeovilton, the single-seaters IN 603, IN 604 and IN 605 took-off on 13 December 1983 for India, 5,000 miles (8,045 km) away. With extra drop tanks (the mammoth 330 gallons

December. After some six years in limbo, INAS 300, the *White Tigers*, were roaring again at INS *Hansa*.

To mark the momentous occasion, on 2 February 1984 the Maharaja of Rewa presented INAS 300 with an actual White Tiger (albeit stuffed) *Viraat* (the name of the tiger and coincidentally that of the India’s aircraft carrier too) was the pet of the Maharaja and this was ceremoniously installed in the Squadron’s briefing room. The Sea Harriers were first publicly demonstrated at the President’s Review of the Fleet in Bombay harbour in early February 1984, IN 603, 604 and 605 operating from Santa Cruz international airport. Later in the month, the squadron



The 'White Tigers' (Cdr. Arun Prakash seated in the middle) with the first Sea Harrier at Dunsfold in January 1983.

good luck, the BAe chief test pilot did “a Farley climb” vertically while the IN cooks produced the best curry in town that night, much appreciated by RN and IN officers alike!

Flying training got underway in earnest, using IN 601, G-VTOL and a RAF T Mk.4 plus a Hunter T Mk.4N. After low-level navigation sorties came radar interception work with some air combat (‘VIFFing’) with the Royal Navy’s 899 Squadron, and weapons training. Deck landings were practiced on board HMS *Hermes* off Portsmouth, with 12

ferry tanks), the three IN Sea Harriers flew via Luqa, in Malta, Luxor (through a sandstorm) and Dubai to arrive at Dabolim in Goa at 1245 hours on 16 December 1983, being escorted in by the Indian Navy’s last airworthy Sea Hawk (IN 238) flown by Cdr Bapat. At Hansa the brand new aircraft flown by Cdr Arun Prakash, Lt Cdr Sunjoy Gupta and BAe pilot Taylor Scott were received by none other than the Chief of Naval Staff, Adm Dawson. Deck landing trials abroad the *Vikrant* were ordered to take place as early as possible the first being carried out by IN 605 on 21

embarked on the *Vikrant* for the first exercise at sea, carrying out airborne intercepts of IAF Canberras and Jaguars, plus simulated strikes against sea and shore targets. The long awaited Harrier T Mk.60 trainer (IN 651) arrived at Goa on 29 March and the first Indian-conducted conversion training course was initiated at INS *Hansa*. On 12 July 1984, Sea Harriers IN 602 and 606 arrived from Dunsfold and shortly INAS 300 was declared fully operational.

On 14 May 1984 the Sea Harrier full-mission flight simulator was commissioned

in a special facility at INS *Hansa*. Sea Harriers pilots were to undergo 60-100 hours of operational conversion training before actual flying on the T Mk.60s, while fully operational squadron pilots were to undertake two-four sorties each month for continuation training.

In late January 1985, the IN Sea Harriers made a dramatic appearance over the capital city of New Delhi in front of hundreds of thousands of spectators, at the 'Beating the Retreat' ceremony. A vic formation of three Sea Harriers demonstrated a 'bomb burst' over Vijay Chowk, in the heart of New Delhi, and finally, the CO of INAS 300 hovered between the North and South Blocks and was later depicted hovering near India Gate. This particular event left an indelible mark in the minds of countless countrymen and it truly heralded the arrival of the Sea Harriers into the Indian armed forces. Justifiably, the Air Force was not amused with the Indian Navy's air arm hogging all the limelight!

The eighth and last Sea Harrier of the initial order (IN 652) arrived at Goa on 18 April 1985, by which time INAS 300 were engaged in intensive flying and tactical exercises against virtually every combat aircraft type in the IAF inventory. These culminated a year later, in April 1986, with Exercise *Trishakti* off the western

coast of India. The Sea Harriers were launched by day and night, intercepting aircraft far out at sea and striking at naval targets during 2 week's of intensive war gaming. The Government of India had, meanwhile, firming an additional order for 11 aircraft (10 FRS Mk.51s and one T Mk.60) on 25 November 1985 and after further negotiations, a third batch of seven FRS Mk.51s and one Mk.60 was ordered on 9 October 1986, bringing the total number of Sea Harriers and Harrier trainers contracted for the Indian Navy to 23 and four respectively. Apart from conventional air-to-ground armament, the Sea Harriers were to operate with the BAe Sea Eagle anti-ship missile and the Matra R 550 Magic II air-to-air missile, making it a most potent weapon-system against all adversaries in this part of the hemisphere.

Enter the INS *Viraat*

Earlier in November 1985, the Indian Minister of State for Defence announced in Parliament that the British Government had officially offered the *Centaur*-class 28,700 ton aircraft carrier HMS *Hermes* – formerly flagship of the South Atlantic Task Force during the Falklands war of 1982, and newly decommissioned by the Royal Navy – for sale to India. The long term plans of the Indian Navy, of course, included the acquisition of additional



The Sea Harrier era began for the 'White Tigers' in 1982. Cdr. Arun Prakash and Lt. Shekhar Sinha, Squadron Commander and QFI designate respectively are seen with John Farley, CTP of British Aerospace in April 1982.

aircraft carriers, but even as the case was being pursued for specialist design and manufacture of new-concept carriers by an Indian shipyard, offer of the *Hermes* was eagerly pursued and a high-level naval team inspected the carrier in the UK within weeks. The team found the *Hermes* "in good trim, useful for Indian needs" and one which would give the Navy a credible and balanced posture.



Sea Harrier FRS Mk.51 of the White Tigers comes in for a vertical landing on the INS *Viraat*. (IN frigate in background).



The first Sea Harrier after landing at INS Hansa in Dabolim: Cdr. Arun Prakash, CO INAS 300 seen with the CNS Admiral Dawson and Vice Admiral Ram Tahiliani.

Actual contractual and technical negotiations began early in January 1986, an MOU being signed on 13 March and contract concluded by 19 April 1986, this being considered one of the most rapidly negotiated and successfully concluded contracts in the Defence Ministry's history. The Government of India confirmed, on 24 April, that the *Hermes* had been purchased at the cost of £ 63 m. inclusive of dry docking, refit, spares, stores and services. As stated in the Indian Parliament "A second aircraft carrier for the Indian Navy was considered desirable in the light of the threat perception. *Hermes* has the facilities for operating Sea Harrier aircraft and Sea King helicopters, which are already part of the Navy's inventory. *Hermes* will be fully operational when it joins the Indian Navy and is expected to serve till the end of the century".

The *Hermes* was towed to Plymouth after the MOU signature, and went into dry dock at the Royal Dockyard at Devonport on 22 April 1986. The aircraft carrier then underwent a year-long dry docking and an Essential Defect Rectification (DED) programme prior to her new commission under the Indian ensign. Selected Indian Navy personnel, including various trade specialists, reached the UK soon after, having to meet a tight schedule, their success earning laurels from both the Royal Navy and the Plymouth Dockyard. At 1145 hours on 12

May 1987, the HMS *Hermes* was officially handed over and, renamed as INS *Viraat* (R-22), commissioned at HM Naval Base, Plymouth, and commanded by Captain Vinod 'Pasha' Pasricha, an ex-CO of INAS 300 with Sea Hawks.

During the extensive refit programme, some of the ship's systems had been replaced, including the electronic suite and parts of the installed weaponry and propulsion system brought up to standard. Existing problems with boiler tubes were sorted out and a state-of-the-art Computer Aided Information System (CAIS) installed. The *Viraat* carried out month-long sea trials in the English Channel and sailed to Portland for a fortnight of sea safety training in early July 1987. The carrier, with an initial complement of just over 800 personnel abroad, sailed from Plymouth on 23 July, visiting Naples and Athens before transiting through the Suez



INS Viraat with its ski-ramp dominant, sailing in the Arabian Sea.



Sea Harriers got a new paint job after refurbishment, including low visibility markings.



Capt. Vinod Pasricha, a former White Tiger CO, seen in command of the INS Viraat as it enters Bombay's inner harbour in 1987.



Sea Harriers at INS Dega, Vishakapatnam during the President's Review of the Fleet.

Canal. The *Viraat*, which also carried three Westland Commando helicopters on delivery to India, embarked Sea Harriers, Sea Kings and Chetaks off Goa on 17 August 1987, carrying out some exercises in the Arabian Sea before arriving at its home port, the Indian naval base at Bombay on 22 August 1987. Entering the inner harbour at 0930 hours, the *Viraat* received a 17-gun salute from the naval battery on Middle Ground Island, and in turn, fired a 15-gun salute for the FOC-in-C Western Naval Command.

Thus, from 1989 onwards, the Indian Navy had two sully operational aircraft

carriers, both in the Western Fleet and equipped for Sea Harrier and Sea King operations, the *Viraat* embarking up to 30 aircraft and the *Vikrant 22* aircraft. The venerable British-built aircraft carriers were to remain the nucleus of the Indian Navy's attack fleet till the end of the century, but plans were made at the final stage for construction of three new-design aircraft carriers at the Cochin Shipyard. Infrastructural preparations had been going on for a few years and the first indigenous carrier was initially expected to be launched in the late '90s in technical collaboration with a "foreign shipyard". As a senior

Admiral then put it, "the ideal for us is three carriers: one for the east, one for the west, with a third in reserve or at the docks".

Closing another era

The Sea Harriers have been in service with the Indian Navy for 28 years in 2010 and the type has undergone 'limited upgrade', the LUSH programme [Limited Upgrade Sea Harrier] at Dabolim, involving the remaining dozen plus aircraft, there inevitably having been attrition over the years. Two additional Harriers were received in 2002 (refurbished ex-RAF T.Mk.4s) and early in 2006, there were indication that between 6-8 ex-RN Sea Harriers F/A2s could be purchased from Britain, mostly for operational conversion trainings, but certain technical and political obstacles have precluded this possibility.

Of the single-seat and dual seat aircraft which currently serve, the latter includes two remaining T Mk.60s from the first batch and two ex-RAF T Mk.4 trainers, modified to the T Mk.60 standard despite airframe differences. The dual-seat trainer has the complete avionics systems of the single-seat fighter, apart from the Ferranti 'Blue Fox' radar. Due to the larger length of both trainer variants, they have to be placed diagonally on the hangar elevator of INS *Viraat*.



White Tiger pilots with deck-handling crew onboard INS Viraat.



Proudly carrying the White Tiger emblem on its nose, Sea Harrier prepares for launch from the INS Viraat.



Perfect formation of White Tigers over the INS Viraat (other Sea Harriers seen on the aft deck).



Extending the Range

Sea Harriers were capable of air-to-air refuelling since the time they were procured by the IN, however owing to lack of mid-air refuellers in the country, this capability was kept dormant. With the induction of Il-78 Flight Refuelling Aircraft (FRA) by the IAF, this capability has been revitalised on the Sea Harrier and IN pilots proceeded to Pune to learn the art of AAR from Su-30 squadrons of the IAF. Utilisation of AAR in the Sea Harrier have truly made it a force multiplier and ensured that the squadron is capable of undertaking missions at ranges which were hitherto impossible. The Squadron has also had the opportunity of undertaking buddy-buddy refuelling with US Navy F-18s and French Super Etendards.

Under the LUSH programme, the aircraft were retrofitted with state-of-the-art avionics and weaponry, which was performed by Hindustan Aeronautics Limited (HAL) at Bangalore, with experts from vendor companies on hand. The key new systems comprise the Elta EL/M-2032 radar, the Derby BVRAAM, combat manoeuvring flight recorders and digital cockpit voice recorders. Then Defence Minister Pranab Mukherjee stated that the aircraft were upgraded at a cost of Rs 476.69 crore.

The upgraded Sea Harrier is now a formidable Air Defence fighter capable of taking on “the best” in business. LUSH was put to test against the Mirage 2000s and MiG-21Bisons of the IAF during the TACDE capsule at Gwalior in 2010. In every aspect of aerial combat the aircraft emerged with flying colours, which was acknowledged by even the staff of TACDE.

Future of the IN’s Sea Harriers is inexorably linked with the service life of the INS *Viraat* and both the carrier and Harrier are likely to be de-commissioned between 2012-2015.



Two ex-RAF Harrier T.4 trainers with their White Tigers emblem seen at INAS Hansa, Goa.