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MARITIME AIR TASK FORCES ATLANTIC



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P-3A ORION, WITH P-5M MARLIN AND SP-2 NEPTUNE, GIVES ASW FORCES POWERFUL POTENTIAL

MARITIME AIR TASK FORCES, U.S. Atlantic Fleet, are a living weapon, in the sense that at whatever time of the day or night these words are read, Maritime airmen will be, at that moment, scanning the oceans and seas of the world, attempting to detect and offset the growing might of the modern day submersible. The fight for the seas is being waged with the true aspects of a hot war; the cat-and-mouse game lacks only the dropping of the final weapon.

There is no question that the submarine has the advantage at present. There has been no clear-cut breakthrough in anti-submarine equipment, but the submarine has enjoyed remarkable progress since the close of the last world war. Modern undersea ships have greater speeds, can go further and stay down longer and at greater depths, and have far greater destructive power. With the advent of nuclear propulsion, submarines can perform an entire operational mission completely submerged. Add the capability of launching missiles from this surfaced or submerged platform and an awesome two-barrelled weapon of enormous striking power emerges.

Today the operational potential of the Soviet submarine is of deep concern to Allied naval commanders. During WW II, Nazi Germany, with less than one half the current number of Russian submarines, sank over 14 million tons of essential Allied shipping. In the Pacific, our own submarines crippled Japanese industry by sinking between 5 and 5½ million tons of vital war materials. Soon the Soviet Navy probably will operationally wed this inherent undersea capability to nuclear power and *Polaris*-type missiles. The resulting instrument of devastating power will present a threat of the most complex and challenging dimensions to the now existing ASW forces of the Free World.

To counter this Soviet menace, the United States Navy has a most vital mission. American ASW forces must at all costs deny enemy access to strategic Atlantic areas. Unidentified "objects" must be found, classified, diligently tracked and then destroyed if at war. This complicated task has become infinitely more difficult owing to the fact that our forces must fight these targets using "yesterday's" equipment. Until a black box arrives which will narrow the existing "ASW gap," the U.S. Navy has made positive advances utilizing the tri-dimensional team concept—surface, sub-surface and air units working as a single tactical force. Each element is an important component of the over-all team capability. No single vehicle can completely

do the job, however a member of the air team, the shore-based Maritime patrol plane, with its great mobility and versatility, does provide our ASW forces with a long range "packaged" detection-to-attack capability.

Taking a glance at one segment of this element, Atlantic coast Maritime Air Forces come under the control of Commander Fleet Air Wings, Atlantic, U.S. Atlantic Fleet, located at Norfolk, Va. Consisting of over 200 long-range Maritime aircraft and 6000 officers and men, personnel of this vast organization stand ready to fulfill instantly their role in ASW operations. VP aircraft, such as the SP-2 *Neptune*, the P-5B *Marlin* and the new P-3A *Orion*, give ASW forces swift and powerful air vehicles which can be on target long before surface and sub-surface vessels can be brought to bear.

Aside from their great ASW capability, these aircraft are probably America's best "seeing eye" for locating and tracking merchant shipping. Unique to quarantine operations during the recent Cuban crisis was the role played by Maritime aircraft. Flying over 10,000 hours of ASW and surveillance operations, these units constantly kept tab on Soviet and Soviet bloc vessels as they proceeded to and from Cuban ports. The intelligence gained by their day and night, low-level photography were invaluable to operational commanders who were charged with directing quarantine restrictions.

There is no such thing as "normal working hours" for those who man Maritime patrol aircraft. A routine mission involves a two to three-hour pre-flight briefing, a ten to twelve-hour tactical flight followed by a two-hour post-analysis critique. Adverse weather conditions do not stop VP pilots. Their creed has long been: "If you can see to taxi, you're on your way."

The officer in command of each Maritime aircraft, the Patrol Plane Commander, is a professional airman in every sense of the word. He qualifies for his position by spending laborious hours of study in airborne electronics, ordnance delivery and ASW tactics. When his name is placed on a patrol aircraft as PPC, he must not only be an expert in the above mentioned subjects but also an outstanding leader of men. When the "chocks are pulled" he becomes the commanding officer of a Navy combatant. He, and he alone, is responsible for the successful completion of each operational mission. The morale and performance of his 11-man crew rest squarely on his shoulders. Combine these demand-

ing tasks with long hours of grueling day and night low-altitude flying in all types of weather conditions and one can readily understand why the present day Patrol Plane Commander is considered to be one of our most dedicated and professional naval officers.

In order to exploit every capability of Maritime air and develop and revise new tactics where necessary, Task Group Delta was formed in 1961. Originally planned as a one year project, Delta has proved so successful that the Task Group has now been designated a permanent force. The concentrated effort of this group to do the best air/ASW job with the equipment on hand has brought about important new concepts in crew structure, aircraft maintenance, communications and tactics.

Initial training of Fleet personnel for Maritime ASW operations must be of exceptional and lasting quality. Recognition of this vital aspect brought about the formation of the Maritime Replacement Training Squadron in July of 1960. Pilots and crewmen who are ordered to Atlantic Coast squadrons must now spend four months of intensive training before they report to their parent organization. Upon completion of a six-weeks Fleet Airborne Electronics Course at Norfolk, Va., they travel south to the "Pro's Nest"—VP-30 at NAS JACKSONVILLE, Fla., for actual in-flight aircraft check-out and tactical training. Staffed by Fleet-experienced personnel, VP-30 offers a challenging ten-week syllabus which includes instruction in survival, communications, recognition, weapons delivery, navigation and aircraft systems. For the final six weeks of training, complete crews are formed and each moves through a grueling course in tactics which utilizes the realistic services of friendly submarines.

The man who must determine the needs, policies and, in many respects, the future of Maritime aviation is RAdm. George P. Koch, Commander Maritime Air Task Forces, U.S. Atlantic Fleet. Based at the hub of Naval ASW air operations in Norfolk, Va., Adm. Koch and his staff of seasoned

ASW personnel continually seek and improve theories and procedures which will advance the entire ASW picture. Indefatigable and deeply dedicated to the task at hand, Adm. Koch brings to the Maritime Air Command a wealth of operational patrol experience and ASW "know how." During his past 30 years of Naval service, he has participated in almost every facet of the anti-submarine business.

The most exciting news in Maritime Air today is the addition of the new Lockheed-built P-3A *Orion*. Scheduled to replace a valued but tired "old timer," the SP-2 *Neptune*, the *Orion* with its greater range and endurance adds a mighty punch to Maritime Air capability. Aptly named after the constellation, "Orion the Hunter," the P-3A, powered by four Allison turboprop engines, can cruise at speeds well over 400 miles per hour. This new power capability allows a high speed, high altitude "dash" to distant datums plus long on-station time at low speeds and search altitudes. Housing the most effective airborne electronic, sonic and magnetic equipment ever developed, the *Orion* is expected to detect and accurately "pinpoint" submarines earlier and at much greater ranges. Instead of facing the crowded conditions of the *Neptune*, P-3A flight crews work in an efficiently arranged, fatigue-free environment. A spacious tactical deck and well-planned electronic equipment arrangements contribute to crew comfort and operating performance. These improvements, plus many more, have made the *Orion* a bright ray of sunshine in the otherwise colorless drama of ASW operations.

Stillness and boredom characterize this quiet war. This struggle lists no heroes, no spectacular exploits or headlines, only hours of wearisome flying, listening and waiting. Yet this fight for the seas and the decision as to who eventually triumphs may well decide the fate of our country and our way of life. The men of the Maritime Air Forces through knowledge, training and dedication are unselfishly giving of themselves to win this difficult and decisive battle.

RAdm. George P. Koch, USN

Commander Fleet Air Wings Atlantic, Atlantic Fleet

A native of Pennsylvania, RAdm. Koch was graduated with the Naval Academy Class of 1933. He was not commissioned until 1934, owing to legislation limiting the number of commissions in 1933. In the interim, he took flight training at the Army's Randolph and Kelly Fields, Texas.

Upon being designated a Naval Aviator in July 1934, he took further training at NAS Pensacola. Thereafter he was assigned as Personnel and Gunnery Officer on board the cruiser *Tuscaloosa*; Personnel Officer of VT-7, attached to USS *Enterprise* and Personnel and Gunnery Officer of VP-3. In July 1940 he joined VPB-74 and was serving with that squadron, operating with the British in Iceland, when the United States entered World War II. He is entitled to wear the Navy Unit Commendation awarded Patrol Bombing Squadron 74.

During 1942 and 1943, he commanded Headquarters Squadron Five. He next served on the staff of Commander in Chief, U.S. Fleet. In 1944 he assumed command of the



USS *Humboldt* and commanded that seaplane tender throughout the remainder of the war.

Transferred to the USS *Leyte* in September 1945, he served as Navigator and Operations Officer until the summer of 1947. Completing the senior course (Strategy and Tactics) at the Naval War College, in June 1948, he reported as Executive Officer to Naval Air Technical Training Command, Memphis Tenn. On his next tour he was Executive Officer of NS Kodiak, Alaska, and in February 1953, he went to the staff of Commander Fleet Air Wings, Atlantic, first as Operations Officer, then as Chief of Staff.

Between 1953 and 1955, he was head of the War Plans Branch, Office of the Chief of Naval Operations, and immediately thereafter took command of NAS Barber's Point, Oahu, Hawaii. He reported in 1957 as Chief of Staff to the Commander Fleet Air, Quonset. In May 1958, he became Commander Fleet Air Wing Three, and in December 1959 he assumed command of NAS Norfolk.

His selection for the rank of Rear Admiral was approved by the President in July 1960, and in March 1961, he assumed command of Carrier Division Eighteen. A year later, he was ordered to duty as Commander Fleet Air Wings, United States Atlantic Fleet, with additional duty as Commander Fleet Air Wing Five.

TACCO—ASW VP TACTICAL COORDINATOR



TACCO, Ltjg. James F. Knupp, discusses the exercise plan with Mintaka team leader, LCdr. Richard Moberly (R), Copilot, Lt. Ronald Pyle (L).



WEATHER BRIEFING, relayed from NAS Aerology by closed-circuit TV, is studied by Mintaka officers, from left, Pyle, Moberly, Dennis, Knupp.

PILOT FROM TACCO . . . I have the sub fixed at 350 true, 2100 yards from datum. Prepare for weapons drop." This terse transmission marks the culmination of over two years of intensive training and preparation for Ltjg. James F. Knupp, NAO(N/S), ASW Tactical Coordinator, TACCO—in VP jargon—of Patrol Squadron 44.

Tacco is a key man in the P-3A *Orions* (P3V) flown by the squadron. The *Orion* is the most modern, most costly and most potent ASW aircraft in the Fleet. It is Tacco's job to weave together the information from the various "sensors"—of which more later—into the tactical recommendations needed to coordinate the crew into a deadly, sub-killing team. He does this in the light of his knowledge of submarine and anti-submarine tactics. Tacco is the nerve center of the ASW tactical operation, a human computer, evaluator and coordinator.

Ltjg. Knupp is one of a growing number of Naval Aviation Officers (NAO's) performing vital duties as members of combat flight crews. Other NAO's serve as Bombardier/Navigators in A-3 *Vigilantes*, Mach 2 carrier-based heavy attack planes; as Radar Intercept Officers in the Navy's record-smashing *Phantom II* fighters and in many other first-line planes. Increasingly, NAO's are moving into vital spots in Navy's newest planes.

A relative newcomer to landbased ASW aviation, the Tacco was added

Ltjg. Lee Miller, VP-44

to the ASW VP flight crew team in response to the challenge of the complex new detection equipment and potent new weapons developed to cope with high-speed modern submarines.

Less than three short years ago, Tacco Knupp was a carefree undergraduate at Williams College, Williamstown, Mass. Shortly after his graduation in June 1960, Jim Knupp entered the Navy as a Naval Aviation Officer candidate. Sixteen weeks later, on completion of Pre-Flight School at NAS PENSACOLA, he was commissioned Ensign, 1355 designator.

Pre-flight was barely the beginning of the long training process which was to mold the civilian student into a competent, professional submarine hunter. Pre-flight was followed by two months at Basic NAO School where the future Tacco received aviation indoctrination, including many flight hours in naval aircraft.

From Pensacola he was ordered to Training Squadron 29 at NAS CORPUS CHRISTI, Texas, for 12 weeks of training in the theoretical and practical aspects of aerial navigation. Upon successfully completing this course, Ens. Knupp received his Wings of Gold and designation as Naval Aviation Observer (Navigator).

Completion of Navigation School marks a "fork in the road" where the NAO training divides into several

different paths. Deciding that for him ASW offered the greatest challenge, Ens. Knupp requested Tacco training. Upon approval of this request, he was slated for many more months of specialized training. Some of his classmates went to other advanced curricula and others went directly to the Fleet.

From Corpus Christi, Knupp was ordered to Combat Information School at NAS GLYNCO, Brunswick, Ga., where he completed both the nine-week CIC "cornerstone" course and the five-week ASW Tactical Coordinator curriculum.

In the latter course, in addition to study of the theory of underwater acoustics, submarine engineering and an introduction to the sophisticated equipment used to detect, classify and destroy submarines, Knupp gained practical flight experience in the EC-121K *Warning Star*. The program also included a field trip to the U.S. Naval Base at Key West and an indoctrination dive in an operating submarine. On that trip, the future Tacco learned of submarine capabilities directly from experienced submariners as they cruised hundreds of feet below the blue surface of the Gulf Stream.

Completion of the ASW Tacco course at Glynco marked a transition in Knupp's training not unlike the transition between undergraduate university studies and graduate-level professional schooling.

For the first increment of his "grad-



BATTLE STATION for Ltjg. Knupp is here at the ASA-16 tactical display system. This device integrates raw data to provide the information Tacco needs for his recommendations.

uate" training, Ens. Knupp was ordered to Fleet Airborne Electronics Training Unit Atlantic (FAETULant) at NAS NORFOLK. In an eight-week course at FAETU, the future Tacco got deeper into ASW electronics and received training in nuclear ASW weapons.

From FAETU, Jim Knupp was ordered to VP-30 at NAS JACKSONVILLE, Fla. This squadron is the patrol plane RAG (Replacement Air Group) training squadron for the Atlantic Fleet. While with the VP RAG, the future Tacco received six weeks of realistic training, much of it flying in a P-2 *Neptune* (P2V) practicing ASW tactics with "enemy" U.S. submarines.

From the patrol plane RAG unit, Ens. Knupp was ordered to his squadron, VP-44 at NAS PATUXENT RIVER, where his training continued. Shortly after he reported to the squadron, VP-44 received the new P-3A *Orion*. Knupp's squadron was one of the first to be equipped with this most potent of all U.S. sub-hunters. (See "Lockheed P3V Orion Joins the Fleet," NANews, October 1962, pp. 12-13).

At the Patuxent River base of VP-44, under command of Cdr. Andrew Serrell, Knupp began intensive P-3A training conducted by the Naval Air Mobile Training Group (See *School Comes to the Student*, NANews, August 1962, pp. 7-11.) Elaborate electronic simulators enabled

Knupp to keep his ASW skills sharp with realistic exercises. Through the NAMTraGru detachment, he also received training in the use of all the latest equipment in the P-3A, such as APS-80 radar; inertial navigation system, ASA-16 electronic computer and display console; MAD (Magnetic Anomaly Detector); ECM gear, electronic ears which can detect radar or other electromagnetic emissions from submarines; "sniffer," an ingenious electronic gadget which will detect a snorkling sub's exhaust gasses; EER (Explosive Echo Ranging Device) which "pings" against the hull of a submerged sub; and other devices.

During the indoctrination period, Jim Knupp acquired considerable operational flying experience. After he had logged 100 operational ASW flight hours, he was awarded the designation NAO(S) for Naval Aviation Observer (Anti-Submarine). This event nearly coincided with his promotion to Lieutenant (Junior Grade).

In VP-44, Knupp joined ten other highly trained officer and enlisted specialists to form a sub-killing team capable of operating the multi-million dollar *Orion* with all the mission capability built into her. He was assigned to a crew headed by LCdr. Richard Moberly, a veteran 12-year pilot. Other team members included two officers, the copilot and navigator, and seven

enlisted members, including a flight engineer (AD), an ordnance-man (AO), an in-flight maintenance technician and three ASW equipment operators. Most of the ASW operators are in the process of being redesignated Anti-Submarine Warfare Technicians, the AX's, the Navy's newest rating.

Ltjg. Knupp's crew is assigned the aircraft named "Mintaka" after one of the stars in the constellation *Orion*. Since the squadron has an equal number of planes and crews, each crew is permanently associated with its "own" plane. Just as baseball teams take their names from the city they represent, the crews in VP-44 become known by the name of their planes. In fact, most crew members have baseball caps bearing the name of their *Orion*.

Mintaka, like all her sisters, is a complex weapons system, an airborne radar, sonar, weapons and communications platform with an ASW capability comparable to a destroyer. The P-3A's biggest advantage is its ability to fly to mid-ocean at high speed, then conduct ASW operations for hours at low altitude and fuel-saving low speed. The *Orion* is powered by four T-56 Allison turboprop engines delivering over 18,000 hp for takeoff.

The efforts of many skilled men are required to get the maximum benefits from Mintaka's sophisticated equipment. The success or failure of any tactical operation depends upon smooth teamwork. Tacco is the catalyst.

Superb equipment and top-flight talent are only part of the resources



SONOBUOYS are loaded in launching chutes against background of *Orion's* spacious cabin.

Tacco has on his side in the battle against submarines. Another key asset is tactical procedures and information. These ASW tactics combine the best insights from sophisticated mathematical probability of detection, classification and destruction of submarines, with the best knowledge gained from years of Fleet experience.

These tactical procedures and information enable Tacco to play the odds to his advantage. He knows the capabilities and limitations of submarines almost as well as he knows his own equipment. The tactics available to Tacco give him the odds on such things as the best altitude to fly for maximum radar effectiveness, the most advantageous sonobuoy pattern.



TACCO CONFIRMS authentication of a message which is about to be transmitted to base by Radioman R. L. Fleeman, ATN3, as exercise ends.

Let's follow the Mintaka crew through a recent ASW exercise mission. The day began with a briefing by the squadron Intelligence Officer. The Navigator, Ltjg. Dennis, and Tacco then planned Mintaka's course to the assigned exercise area far out in the Atlantic. On this day, the Mintakas were scheduled to exercise with a friendly U.S. submarine.

Following the weather briefing, crew members turned to pre-fighting the electronics and navigation equipment. After a final briefing by LCdr. Moberly, the Mintakas boarded the big plane and taxied to the duty runway. A short time later—the *Orion's* turbine engines require no warm-up—Mintaka was winging her way high over the Atlantic. Even though the outside air at their cruising altitude was too thin to support human life,

the crew inside the spacious air-conditioned, pressurized and sound-proofed cabin worked in comfort.

En route, Tacco set Battle Condition Three and proceeded with preparations for the day's mission. As AX's checked the electronics equipment, Dunlop, AO2, loaded sonobuoys in the ejection equipment and rechecked the ordnance load. Wilcox, AT2, the in-flight maintenance technician, peaked up the detection equipment.

On arrival at the exercise area, Fisher, AT2, picked up a barely discernible contact on the APS-80 radar. Suspecting the target was a submarine's snorkel, Fisher vectored the pilot to the target.

Tacco immediately set Battle Con-

dition Two—all sensors and look-out stations manned—and prepared to relay exercise instructions to the sub via his own UHF radio. As the target submerged, the Mintakas went to Battle Condition One—all stations manned, weapons armed and ready for drop—and the big plane began its systematic search.

Ltjg. Knupp ordered sonobuoys dropped in order to radio underwater sounds back to the aircraft. Friedlander, AS2, on the *Jezebel*, reported a possible submarine contact.

The Mintaka team initiated localizing tactics. More sonobuoys were dropped and the Julie operator, Rajcevic, AE3, provided a fast stream of information which was displayed on Tacco's tactical information display console, thus enabling Knupp to calculate the target's course and speed.

After fixing the target's position, Ltjg. Knupp recommended a heading to put Mintaka over the contact. As the big plane passed over the spot, the MAD operator, Wilcox, AT2, confirmed the magnetic character of the submerged target.

The big *Orion* then began the attack phase of the exercise. Intricate maneuvers put Mintaka into the best position for launching her weapons. At the precise spot, practice depth charges were dropped, simulating either a homing torpedo or depth charges. Plane Commander Moberly then heeled Mintaka sharply and stood by awaiting the submarine's analysis of the attack. Shortly, the submarine made its evaluation: Had the attack been



MISSION COMPLETED, post-flight evaluation and intelligence debriefing behind them, Ltjg. Knupp, Lt. Pyle, look back on the day's operations.

"real," it would have been a "kill."

The exercise completed, LCdr. Moberly climbed Mintaka sharply to cruising altitude and took up the course recommended by the navigator, Ltjg. Dennis, NAO(N), for the long journey home. Tacco collected and readied charts, logs and reports needed for the post-flight evaluation of the flight and intelligence debriefing.

After the detailed reconstruction of the flight and evaluation of the results, Ltjg. Knupp glanced at the clock; 14 hours had passed since the initial briefing. Mintaka's crew and her Tacco had successfully completed the mission. They were tired, but satisfied in the conviction that the long months of training had given them the ability to carry out their sub-killing mission, whenever and wherever on the world's seas the need might arise.