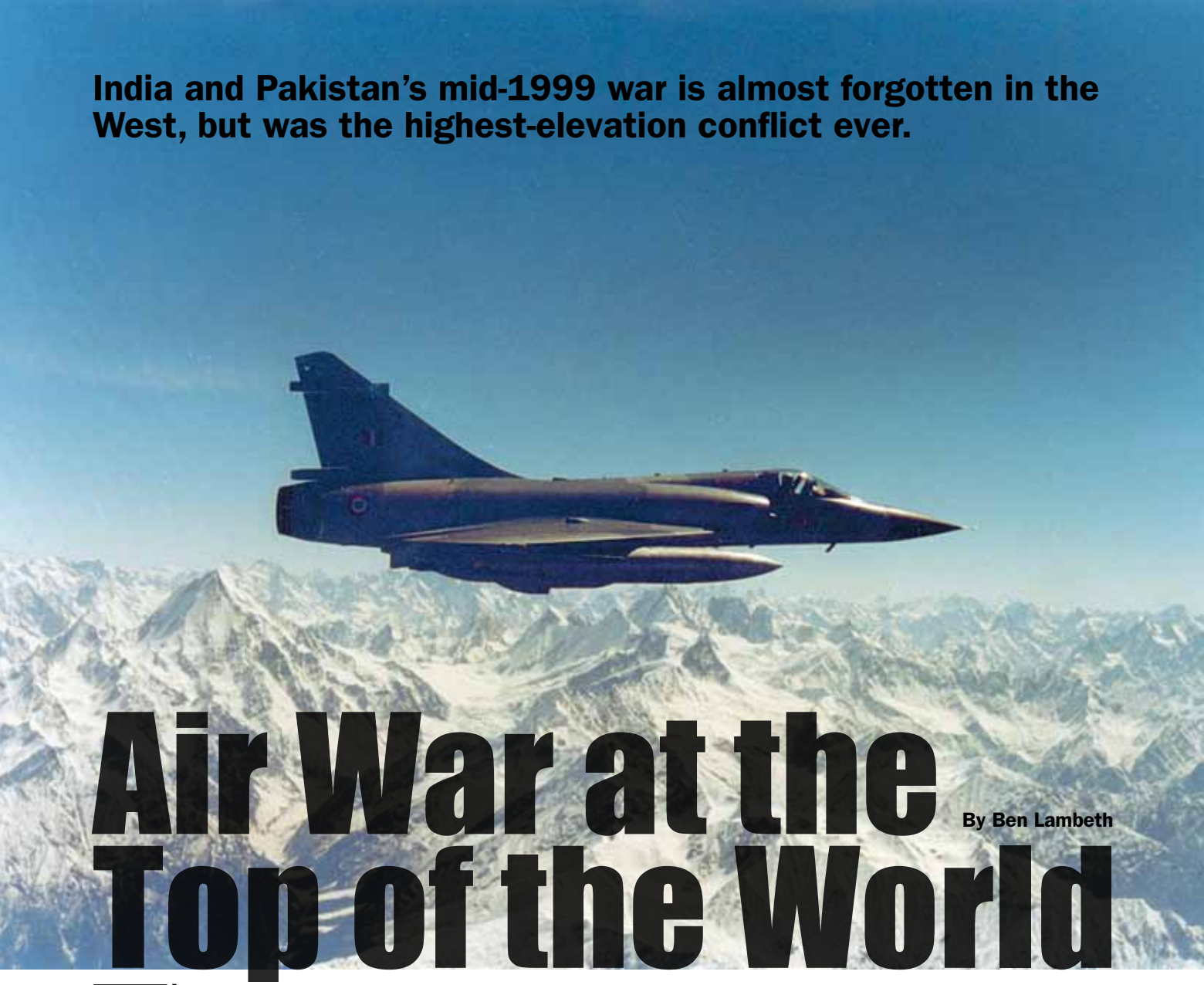
India and Pakistan's mid-1999 war is almost forgotten in the West, but was the highest-elevation conflict ever.



Air War at the Top of the World

By Ben Lambeth

The Kargil War between India and Pakistan, waged in the disputed and mountainous Kashmir region in mid-1999, rates as the highest-elevation conflict in air war history. The clash lasted 74 days and cost more than 1,000 killed and wounded on each side. Though a blank to most Westerners, the Indian Air Force (IAF) experience was a milestone, providing insights into uses of airpower in extremely demanding combat settings.

The Western profile of this war is low, receding to the vanishing point. It was pushed off the front pages by NATO's higher profile air war over Serbia, fought at the same time. Still, it bears closer examination.

The seeds of war were planted in March 1999, when units of the Pakistani Army's Northern Light Infantry (NLI) crossed the so-called line of control (LOC) into India's portion of contested Kashmir in the Himalayas. From this new vantage point, Pakistani troops overlooked the Indian town of Kargil.

The LOC that separates the Indian- and Pakistani-held portions of Kashmir bisects some of the world's highest and most forbidding terrain. Because of dangerous weather, the Indian Army, in harsh winter months, routinely vacated inhospitable forward outposts that it normally manned.

Too Much Jawboning

When the Indians withdrew in the late winter months of 1999, however, Pakistan mounted an infiltration that sought to make the most of this opportunity.

As many as 1,000 troops of the NLI, moving by foot and helicopter, crossed the line. It was a stealthy success; the NLI troops managed to unobtrusively establish a new forward line six miles deep into Indian-controlled territory. On May 3, they were finally spotted by local shepherds.

Then, in the first week of May 1999, the Indian Army units that had formerly manned the outposts began returning to their stations. It was at that point that they came face-to-face with the fact that NLI troops had moved in and were prepared to fight.

At first, embarrassed Indian Army leaders were bound and determined to turn back the Pakistan incursion all by themselves. Thus commenced several exchanges of fire. However, there was no change in the situation on the ground.

Checked for days by Pakistani forces, Indian Army leaders on May 11 finally approached the IAF for help. The Indian Army wanted the IAF to provide close air support with its armed helicopters. The IAF responded that the high terrain over which the

Indian Air Force photo

Left: An Indian Air Force Mirage 2000H on patrol over the Himalayas. An Mi-17 helicopter, like the one pictured here, was shot down on the war's third day by a Pakistani shoulder-fired Stinger surface-to-air missile. The Indian Air Force was reluctant to introduce the helicopters to the fight, and insisted fixed wing aircraft would better serve the Army. Below: Pakistani Army members look over the wreckage of an Indian MiG-21 shot down over Kashmir.

Photo via Bharat-Rakshak.com/Indian Air Force

Photo by Sharad Saxena/The India Today Group/Getty Images

The Indian Army used heavy Bofors howitzers in the high-altitude fight.

requested support was to be provided lay well above the effective operating envelope of its attack helicopters and that the use of fixed wing fighters would be required if the Army really needed assistance.

The Army for days persisted in demanding use of attack helicopters alone. The IAF no less adamantly declined to accede to that demand.

Because of this back and forth jawboning, some later complained the IAF had refused to cooperate and, in the end, was forced into the campaign against its will.

In fact, the IAF at the early date of May 10 had begun conducting reconnaissance missions over the Kargil heights. It also at that time forward deployed IAF combat aircraft in numbers sufficient to support any likely tasking, established a rudimentary air defense control arrangement, and began practicing air-to-ground weapon deliveries at Himalayan elevations.

On May 12, as interservice deliberations to establish an agreed campaign plan continued, an IAF helicopter was fired upon near the most forward based of the NLI positions. That hostile act was enough to prompt the IAF to place Western Air Command on alert and establish quick-reaction aircraft launch facilities at the IAF's most northern operating locations.

The next day, IAF Jaguar fighter aircraft launched on a tactical reconnaissance mission to gather target information. At the same time, the IAF established a direction center for the tactical control of combat aircraft; it was located at Leh, the IAF's highest-elevation airfield.

Concurrently, Canberra PR57 and MiG-25R reconnaissance aircraft were pressed into service, and electronic intelligence missions started in the vicinity of the NLI intrusion.

The IAF sent a Canberra to conduct reconnaissance of the area overlooking Kargil. It descended to 22,000 feet and entered a racetrack pattern that put the aircraft as low as 4,000 feet above the ridgelines. The Canberra was hit in its right engine by a Chinese-made Anza infrared surface-to-air missile. The Indian pilot brought the airplane in for a safe emergency landing.

On May 14, the IAF activated its air operations center for Kashmir and mobilized its fighter units in that sector for an all-out air counteroffensive. Such activities attested to the IAF's clear expectation that it would engage the intruders to the fullest once its final role was settled upon.

After much back and forth between the IAF and Indian Army over the character and extent of air support IAF would provide, the Army finally acceded to the IAF's insistence on using fixed wing fighters. This cleared the way for the air force to enter the fight.

In a key May 25 meeting chaired by Indian Prime Minister Atal B. Vajpayee, the Indian Army Chief outlined the seriousness of the situation and the need for the IAF to step in without further delay. At that, the Prime Minister said: "OK, get started tomorrow at dawn."

The Air Chief agreed that the IAF would attack only those Pakistani targets that were dug in on India's side of the line of control. However, he requested permission for his aircraft, in the course of its operations, to fly across the LOC. Vajpayee said no; there would be no crossing of the LOC.

With that rule of engagement firmly stipulated by the civilian leadership, the die was finally cast for full-scale IAF involvement. The stage was set for Operation Vijay (Hindi for "victory"), as the joint campaign was code-named.

Kinetic air operations began at 6:30 a.m. on May 26, three weeks after the infiltration into Indian-controlled territory was detected. The opening salvo comprised six attacks by MiG-21s, MiG-23s, and MiG-27s against NLI targets. It was the first time IAF pilots had dropped bombs in anger since its Vampire fighters destroyed Pakistani bunkers in the same Kargil area 28 years earlier, in the 1971 Indo-Pakistani War.

Pakistan chose to keep its F-16s out of the fight.

Deadly Lessons Learned Quickly

Nearly all targets attacked were on or near Himalayan ridgelines at elevations ranging from 16,000 to 18,000 feet. The stark backdrop of rocks and snow complicated target acquisition, already made difficult by the small size of the NLI positions in a vast and undifferentiated snow background. That unique terrain feature, as seen from a cockpit, inspired the code name given to the IAF's campaign—Operation Safed Sagar, or "White Sea."

In the second day of air operations, the IAF lost two fighters. One, a MiG-27, suffered engine failure while coming off

Staff map by Zaur Eylanbekov

In March 1999, units of the Pakistani Army's Northern Light Infantry crossed the so-called line of control into India's portion of contested Kashmir in the Himalayas.

a target. After two unsuccessful attempts at an airstart, the pilot ejected, only to be captured. He was repatriated on June 3.

The second, a MiG-21, sustained an infrared SAM hit while its pilot was flying over the terrain at low level, assisting in the search for the downed MiG-27 pilot. Its pilot also ejected, but he was not as lucky as the first pilot. He was captured, then reportedly brutalized and executed.

On the third day of operations, an armed Mi-17 helicopter, introduced to the fight reluctantly by the IAF to placate India's Army leaders, was downed by a shoulder-fired SAM while providing low-level fire support. The crash killed all four crew members.

In conducting these early attacks, IAF officers quickly relearned what the Israelis had learned at great cost during the October 1973 War, when Egyptian and Syrian SAMs and anti-aircraft artillery had downed nearly a third of the Israeli Air Force's fighter inventory (102 aircraft in all) before Israel managed to pull out a victory in the war's latter stages.

Badly bloodied, the Indian Air Force called a halt to further use of armed helicopters and directed that future fighter attacks would be conducted from above the lethal envelopes of enemy man-portable SAMs. Afterward, not a single Indian fixed wing aircraft was lost to enemy fire.

Whenever ground attack operations were under way, Western Air Command put MiG-29s on combat air patrol stations to keep the Pakistani Air Force (PAF) out of the fray. Pakistan's F-16As typically maintained their CAP stations at a safe distance, 10 to 20 miles away from the line of control.

By the time air operations reached full swing, the IAF had forward deployed some 60 of its best fighters to support the campaign. As they awaited tasking, committed squadrons initiated special training aimed at better acclimating their pilots to night attacks under moonlit conditions. Such combat operations over high mountainous terrain at night had never before been attempted by the IAF.

Because of the rudimentary bomb sights on their MiG-21, MiG-23, and MiG-27 aircraft, IAF pilots typically achieved only limited effectiveness when attempting to provide close air support.

Accordingly, India's Air Chief decided on May 30, just four days into the campaign, to enlist Mirage 2000H fighters capable of delivering laser guided bombs. By June 12, the Mirages were ready to commence precision strike operations.

On June 17, the clash reached a turning point. A strike package of Mirage 2000Hs destroyed the NLI's main logistics camp with unguided 1,000-pound bombs delivered in high-angle dive attacks using the aircrafts' computer-assisted weapon aiming capability.

The war reached a second milestone on June 24, when an element of Mirage 2000Hs, in the IAF's first-ever combat use of LGBs, destroyed the NLI's command bunkers on Tiger Hill with two 1,000-pound Paveway II LGBs. In these attacks, the target was acquired through the Litening pod's electro-optical imaging sensor at about nine miles out, with weapons release occurring at a slant range of about five miles and the aircraft then turning away while continuing to mark the target with a laser spot.

On June 29, the Indian Army captured two vital posts on the high ridgelines. On July 2, it launched a massive attack. It finally recaptured the important NLI outpost on Tiger Hill on July 4, after an exhausting 11-hour battle in which the attackers climbed fixed ropes at night and in freezing rain to scale vertical mountain faces 1,000 feet high.

By July 26, Indian forces had reclaimed a majority of their seized outposts and driven NLI occupiers back to their own side of the LOC.

The IAF's contribution to Operation Vijay lasted two months. IAF fighters had flown more than 1,700 sorties, including about 40 at night during the campaign's last weeks. In the final tally, the Indian Army suffered 527 troops killed in action and 1,363 soldiers wounded. The NLI losses were not announced, but they were at least equal to India's.

The Indian Army and IAF were both key players in a joint campaign; it would be hard to select one as the pivotal force. From a simple weight-of-effort perspective, artillery was the main source of fire support. The Army fired more than 250,000 rounds. One assessment said that this sustained laydown of fire was the most intense seen anywhere since World War II.

In contrast to this "profligacy in the use of artillery in a carpet-bombing mode," as the campaign's air component commander later called it, the IAF dropped only around 500 bombs. Most were effective against their assigned targets.

Close air support was a source of frustration for the IAF. The small and

Photo via Ben Lambeth

Indian airmen arm a MiG-27 with heavy general-purpose bombs.

well-concealed NLI positions in the Himalayas were nothing like conventional targets that fighters typically engage in supporting friendly ground operations.

The IAF's CAS efforts were hampered by numerous constraints on their freedom of action. New Delhi's refusal to countenance crossings of the LOC was a limiting factor. Fighters were forced to use tactics featuring ingress and egress headings that were not optimal or, in many cases, even safe.

Man-portable SAMs used by Pakistan had a slant range sufficient to require the IAF's pilots to remain 6,000 to 8,000 feet above the ridgelines to remain safely outside their threat envelopes. This degraded weapon delivery accuracies.

At such extreme elevations, the IAF's munitions did not perform as they did at lower release altitudes. The reduced air temperature and density altered drag indices and other performance parameters that had never before been calculated for such conditions. Weapons did not guide as predicted. IAF pilots had to adapt through real-time improvisation.

The stark terrain folds tended to obscure the enemy from aerial observation and to mask the effects of bomb detonations, rendering even near misses all but ineffective. They further served to canalize aerial approaches to targets, dictating ingress and egress headings and, in the process, rendering IAF fighters more predictable and susceptible to ground fire.

NLI positions in deep ravines were often immune to effective attacks by pilots attempting dive deliveries when their LOC-driven roll-in points were not tactically ideal.

The IAF rode a steep learning curve as pilots adapted to unfamiliar conditions. MiG-21 pilots lacking sophisticated onboard avionics suites resorted to the use of stopwatches and Global Positioning System receivers to conduct night interdiction bombing.

Another example: The IAF took to choosing weapon impact points that would create avalanches over NLI supply lines.

The IAF pioneered what has since come to be called nontraditional intelligence, surveillance, and reconnaissance. It was the first to use electro-optical and infrared imaging targeting pods for high-resolution aerial reconnaissance.

The Kargil Experience

The IAF expended only two LGBs because it had so few in stock and because few targets merited use of such an important and costly munition. Still, even this limited use dramatically altered the campaign's dynamics.

After the successful LGB attacks, targeting pod imagery showed enemy troops abandoning their positions at the very sound of approaching fighters. Troop diaries later recovered by Indian Army units attested to the demoralization caused by the IAF's attacks, especially when precision munitions were introduced.

Much of the IAF's improved combat effectiveness over time resulted from replacing classic manual dive bombing by MiG-23s and MiG-27s with more accurate GPS-aided level bombing from safer altitudes. Once the Mirage 2000H was introduced, the accuracy of unguided bomb deliveries increased even further, thanks to the aircraft's much-improved onboard avionics suite.

A major joint-arena shortcoming highlighted by the Kargil experience was the total absence of candid communication between the Indian Army and IAF immediately following the initial detection of the NLI incursion. That failure was a remarkable foreshadowing of US Central Command's similarly flawed Operation Anaconda in Afghanistan three years later, in which the land component likewise sought to go it alone at first, with the air component having been brought in just in time to help ensure a satisfactory outcome in the end.

Once the Indian Army and IAF resolved their disagreements, harmony prevailed.

In the going-in front-line fighter balance, India enjoyed a marked 750-to-350 advantage over Pakistan. Pakistan's fleet of some 30 F-16s was greatly outclassed by the IAF's 145 high-performance aircraft (MiG-29s, Mirage 2000Hs, and Su-30s). That asymmetry may well have been decisive in keeping the PAF out of the fight.

However, Pakistan maintained the initiative for most of the Kargil War. Both the nature of the challenge the IAF faced in the Himalayan heights and the targeting requirements that ensued from it dictated a suboptimal use of India's air weapon.

The IAF's combat experience showed that innovation and adaptability under the stress of confining rules of engagement is a hallmark of modern airmanship. It attested to the fact that professionalism in campaign planning, presentation of forces, and accommodating to new and unique tactical challenges is scarcely a monopoly of more familiar Western air arms.

The experience demonstrated yet again that effective use of air-delivered firepower can generate success in a conflict that might otherwise have persisted indefinitely with less conclusive results. ■

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