PHOTO-RECONNAISSANCE TACTICS
160 SQUADRON RAF

By Jim Jackson with help from Laurie Jones.

General

Photo-reconnaissance (PR) was a 160 Squadron role from the time the squadron arrived in Ceylon in February of 1943. The loss of some five PR aircraft through 1943 over the Andaman Islands and Sumatra tempered 222 Group's enthusiasm for that type of operation, but PR continued through 1944 and 1945. Sorties were by single unescorted aircraft in daylight, although squadron records show a few night sorties, using high-intensity flash illumination, into 1944. Initially PR sorties were assigned from a PR roster that listed all crews and that was separate from the roster for normal general patrol, escort and anti-submarine sorties. However by late 1944 the squadron was concentrating its efforts on its new mine-laying role, and it was evident that PR could be carried out most effectively as a separate specialisation. On 14 December 1944 a PR flight, C Flight (not to be confused with the earlier electronics reconnaissance C Flight), was formed with four crews dedicated, although not all exclusively, to PR work. Its original members were W/O Hughes (RAF), F/O Jackson (RCAF), F/O Jones (RAAF), and F/L Leeper (RCAF).

The following is a brief outline of the tactics employed on daylight PR sorties.

The equipment

C Flight was assigned two B-24 Liberator Mk III aircraft with the perspex nose, and painted the standard PR blue. This mark carried fuel tanks in the forward bomb bay, plus two small tanks in the rear bomb bay for a total fuel load of 2,770 gallons. The K17 camera was used for survey or mapping which constituted most of the flight's work, with the F52 being used for specific targets. The Mark III was nimbler than the Mark V.

Preparation

PR sorties were flown the squadron bases at Sigiriya, Kankesanturai and Minneriya and on detachment from China Bay. Sorties were usually scheduled to arrive over the target as soon as there was light enough for photography and before clouds built up along the enemy coast. Thus take off was around 0100 hrs, with crews being wakened at around 2300 hrs to proceed to their respective messes before being driven to the operations room for briefing.

Briefings were not elaborate, inasmuch as most targets were short camera runs near the coast and there was little helpful intelligence on enemy defences to affect the flight. The general assumption was that the main Japanese fighter strength was at Medan, with some fighters possibly stationed nearer the area of 160 Sqn PR sorties at Sebang, Keota Raja, Meulaboh or Treomon. The "Form Green", the printed order for the sortie, followed the admirable RAF custom of simply stating what photographs were required, and leaving it to crews' initiative to get the job done.

Outward bound

After takeoff the captain would choose a cruising altitude normally on a course direct to the target or to a selected landfall. If the sky was clear with the usually scattering of small cumulus, the choice of altitude would depend on the navigator's need to see the stars and the avoidance of turbulence, not to mention the crew's desire for cool air after the jungle's heat and humidity. There were no radio aids and thus navigation was by dead reckoning, using three-course wind-drift triangulation and the occasional star shot. Since first contact with enemy territory would be in daylight, it was thought prudent to avoid landfall too near an enemy airfield.

With no reliable weather forecasts available, and in an area of intense tropical storms including the inter-tropical front capable of destroying an aircraft, the weather was an every-present concern to PR captains and navigators. At night, and without radar, let alone the advanced equipment of mine-laying aircraft, it was impossible to guess the best path through a barrage of lightning that couldn't be outflanked, or to record accurately the course changes necessary in groping through the turbulence encountered within the storm. With the greatest danger being the updrafts and downdrafts in the body of the cloud, the only passage through was just under the cloud base at what the altimeter indicated to be around 500 to 800 feet. At that height the turbulence was still violent but manageable, although the standard barometric altimeter was hardly reliable, and PR aircraft did not carry a radio-altimeter.

Photography

With the coming of dawn, crews would retrieve heavy flying clothing from their duffle bags, don side-arms, flying helmets, oxygen masks and parachute harnesses, and man their combat positions. Approaching the enemy coast, height would be reduced to 500 feet or

less to remain as long as possible undetected by Japanese land-based radar and then, about 30 minutes before the target and taking into account the time to climb to 20,000/25,000 feet from virtually seal-level, throttles would be advanced and superchargers engaged to full climbing power. PR aircraft carried a receiver that flashed a red light when it detected Japanese radar transmissions, but PR crews were unconvinced as to its operational value. At 10,000 feet oxygen would be turned on.

Most PR work was aerial mapping of Sumatra and the offshore island of Simoleur, and photographs were usually to be taken from 20,000 or 25,000 feet true altitude on a track specified at the briefing, which required the navigator to calculate both a compass course and an indicated altitude for the pilots to hold on their instruments. On most missions a camera altitude of 25,000 feet was favoured, but the captain could opt for 20,000 feet if the weather at height so dictated. Once altitude was gained the navigator would direct the pilots onto the starting points of the runs, and direct the camera operator in the bomb bay, usually a flight engineer or wireless air gunner, to turn the camera on. The pilots' duty was to maintain altitude and course precisely, which at high altitude was quite demanding. The duty of gunners in the turrets and on the beam guns was to watch for enemy aircraft.

An additional task for the beam gunners was to unpack and unload several thousand propaganda leaflets, on the assumption the prevailing wind would not scatter them seaward. More satisfying was the occasional unauthorized ejection of empty beer bottles, which were said to sound like screaming bombs as they descended.

When the navigator signaled the runs completed and ordered the cameras off, the aircraft set course, usually directly, for Ceylon, making a gradual descent to cruising altitude with the crew alert for enemy fighters for the next hour. Oxygen would be turned off at 10,000 feet, after which flying rations, made cool and delicious by altitude and stress, would be handed out.

Not all sorties were for high altitude mapping, and tactics were adjusted accordingly, sometimes on the spot. One sortie called for photographs of Sabang for damage assessment the day after an attack by the RN Eastern Fleet, and was pressed home without the cloud cover the briefing had stipulated as a necessary minimum (Jerry Boyle's report in the 160 Sqdn newsletter "Chotta Coggage", number 27, Winter 2003). The new Troemon airfield was first sighted from a mapping run, and photographs were obtained after the run

although the aircraft had been sighted approaching Sumatra by a Japanese fighter (the writer's report in "Chotta Cogga" number 17, Summer 2001). Yet another sortie, the squadron's deepest PR penetration of enemy airspace, required the audacious daylight crossing of the Mallaca Strait for oblique photographs from 1,000 feet of potential landing beaches at Phuket Island (described by Laurie Jones in "Chotta Coggage" number 18, Autumn 2001). Astonishingly, the aircraft incurred only a little damage from light flak.

Return to base

Returning to base by daylight made encounters with bad weather less difficult than at night, and it was usually possible to maintain very economical engine settings. This compensated to some extent for the fuel burnt in climbing to and flying at high altitude, although with PR sorties averaging about 15 hours and 30 minutes it was not unusual to land with an engine (and at least in one case, two) shut down for lack of fuel.

The main determinant of the success or failure of a high level PR sortie was the weather, which was as unpredictable over the target as it was en route, and made about 50% of PR flights abortive. Even such intelligence as was available, such as from RN submarines, was no guide to the visibility from 20,000 feet, and in fact crews nearly always found it necessary to make the climb to altitude before deciding photography was impossible. When PR aircraft were about half way home a coded signal would be sent to indicate the sortie's success or failure, the latter enabling the Harvard or Hurricane ready to courier the film to Colombo to be stood down