ROBERT E. HARKAVY, BASES ABROAD: THE GLOBAL FOREIGN MILITARY PRESENCE, OXFORD: OXFORD UNIVERSITY PRESS, 1989

which had been constructed to provide several hours' warning of bomber attacks. To cope with the missile threat, the USA built, beginning around 1958, the Ballistic Missile Early Warning System (BMEWS), the three hinges of which were in Fairbanks (Alaska), Thule (Greenland) and Fylingdales Moor (Yorkshire, UK).[12]

In the mid- to late-1950s, the USA underwent its famed 'missile-gap scare', following the Soviet Union's initial testing of IRBMs and ICBMs, and the launching of the first 'Sputnik' satellite. Coming before the deployments of Atlas, Titan and Minuteman ICBMs and Polaris SLBMs, this created a perceived 'window of vulnerability' which, in turn, impelled the short-term solution of US installation of IRBMs in Europe adjacent to the Soviet Union. Specifically, this involved emplacement in 1958 of sixty 2400-km range Thor missiles in the UK at 20 bases, with headquarters at Great Driffield, North Luffenham, Hemswell and Feltwell; 30 Jupiter missiles in Italy (at Gioia del Colle); and 15 Jupiters in Turkey, installed in 1961 at Cigli Air Base (these were removed as part of the deal in which the USSR removed IRBMs and also IL-28 aircraft from Cuba, after the Cuban missile crisis of October 1962—though the orders for their removal had apparently been given earlier).[13]

Late in 1960 the USA deployed its first Polaris submarines and then its long-range, counter-value Atlas and Titan ICBMs, thus quickly defusing the 'missile-gap scare'—though the forward-based IRBMs were to remain in place for an additional two to three years.[14]

As noted in chapter 6, US overseas facilities also played a crucial role during this period in the surveillance of the Soviet buildup of strategic bombers and missiles, prior to the utilization of the first spy satellites which began in the early 1960s. Specifically, this involved U-2 surveillance flights and those of 'ferret', that is, ELINT aircraft. Subsequently, early ground activities related to satellite reconnaissance were established.

The U-2, which began its career in 1956, served to compensate for the US disadvantage *vis-à-vis* the USSR with respect to strategic intelligence, resulting from the 'closed' nature of Soviet frontiers and society, which could only in part be made up for by intelligence from human sources. In 1957, U-2 flights operating out of Peshawar in Pakistan overflew the then new Soviet missile test site at Tyuratam near the Aral Sea and revealed the progress of the Soviet ICBM programme which hitherto had been monitored by a giant radar at Diyarbakir on the Turkish Black Sea coast.[15] These flights continued until 1960, ending with the fateful mission in which Gary Powers was shot down by missiles over Sverdlovsk while *en route* from Peshawar to Bodø, Norway.[16]

During this period—and well after—U-2 missions were flown from bases in Pakistan (Peshawar), Turkey (Adana), Norway (Bodø), FR Germany (Wiesbaden), Cyprus (Akrotiri), the UK (Alconbury) and Japan (Atsugi), among other places. Even without overflights of Soviet territory, these aircraft could take pictures of targets as far as 100 miles away by means of oblique-angle photography from high altitudes.[17]

In connection with emerging satellite developments, the USA made early use

of external facilities for radio transmissions and for mid-air physical recovery procedures. In connection with the former, ground stations were deployed (supplementing those in New Hampshire, California, Alaska, Hawaii and Guam) in the British-held Seychelles Islands, and in at least one African country.[18] From 1964 several shipboard stations with 30-foot antennas were also used, and these too presumably relied—either directly or indirectly—on foreign ports for refuelling, food and water supplies.[19]

Complementary to BMEWS, the USA developed early-warning satellites under the MIDAS satellite programme. This involved combined use of infra-red sensors and telephoto lenses for immediate detection of missile-launching tracks and transmission of this information to US decision-makers. Launched by Atlas/Agena D missiles, advanced MIDAS satellites deployed in 1969 could be 'parked' in synchronous orbits, allowing for continuous coverage of the western USSR and the China–Siberia region as well as areas where Soviet submarines lurked in firing positions.[20] As noted in chapter 6, this involved the critical data down-link in Australia at Nurrungar, a related control facility in Guam and an underwater cable terminal near Vancouver in Canada.

One other key element of the strategic deterrence system came to depend upon overseas access: long-distance and protracted deployment of the Polaris nuclear-submarine force. The Polaris submarines were initially deployed early in the Kennedy Administration. The proportion of that fleet which the USA was able to deploy at any given time was enhanced by replenishment and repair facilities at Holy Loch, Scotland; Rota, Spain; and at Guam. Indeed, the asymmetries which these facilities created *vis-à-vis* subsequent Soviet SSBN deployment allowed the USA to negotiate that part of the SALT I Treaty which gave the USSR a 62 to 44 advantage in strategic submarines, but which was claimed to be counterbalanced by the efficiencies accruing to the USA from its overseas replenishment facilities.[21]

Throughout the early post-war period, the USSR lacked overseas facilities which might have served to moderate the unfavourable strategic balance it confronted. Indeed, throughout much of the 1950s its deterrent capability was based on bombers which could fly only one-way missions against the USA. The Soviet Union also lagged behind the USA in tanker-refuelling capability.

In the early 1960s, after the brief US missile-gap scare, the Soviet Union underwent a scare period of its own, as several US strategic programmes were phased in. To compensate, Moscow gambled with the introduction in 1962 of some 40 MRBMs into Cuba at several installations, precipitating the Cuban missile crisis.[22] (One recent report claims that these missiles were not accompanied by nuclear warheads.[23]) The history of that crisis bears no repeating here, but it is worth noting that only by the early 1960s did the Cuban revolution avail the USSR of its first valuable overseas assets applicable to the strategic nuclear equation. Henceforth, Cuba would become a very valuable Soviet base, its proximity to the USA providing irreplaceable assets related to intelligence, communications, naval replenishment, and so on, along with contingent bomber recovery bases in the event of a major war.