CF-18 is not unexpected. The initial contract with McDonnell Douglas of St. Louis allowed a follow-on purchase at the original price, but several years ago the Canadian Forces gave up this right, lacking the funding to proceed with the order. Present plans to purchase additional aircraft will not be cheap – the unit cost is now around $40 million, so the purchase of fifteen will add about $600 million to the defence bill.

Low-Level Air Defence

■ When the Department of National Defence made the decision to buy the Oerlikon Air Defence Anti-tank (ADATS) system for use with the Canadian Armed Forces in Europe, defence officials were optimistic about the prospects for further sales in the US. Their confidence has been justified; the US has chosen the Oerlikon system. Canadian partner firms in the Oerlikon programme, including Litton and Spar Aerospace, will share contracts valued at $950 million.

Soviet Lasers

■ Gorbachev's comment, during a live television interview before the Washington summit, that the Soviet Union has its own Strategic Defence Initiative (SDI) may have been an unusual public admission, but the programme itself has been watched closely by Western analysts for several years. Unconfirmed reports have circulated for much of the past year that the Soviets have developed a very large laser facility at Dushambe, in Kazakhstan. Recent satellite photographs appear to confirm the existence of a military facility on a mountain top in this remote area, although there is little to indicate the potential military capabilities of the facility. The Pentagon has not commented officially on the Dushambe facility, but, one day after photographs appeared in the US press, General Pietrowski, Commander-in-Chief US Space Command, expressed public concern about the capabilities of the known Soviet laser facilities at Sary Shagan, in Soviet Central Asia.

General Pietrowski stated that Soviet lasers could destroy US satellites in low earth orbit, and damage intelligence and communications satellites even if they were in high earth orbit. He called for the resumption and acceleration of the US anti-satellite programme, which uses a miniature homing vehicle to smash into Soviet low earth satellites at velocities approaching 58,000 kilometres per hour. If the Dushambe facility proved to have a capability against intercontinental ballistic missiles (ICBMs) it would constitute a violation of the ABM Treaty since it is not at the designated test site (Sary Shagan). Anti-satellite weapons which can attack slower moving satellites but not ICBMs would not constitute a violation, although this has long been recognised as a gap in the ABM Treaty.

US Nuclear Weapons Developments

■ The US is also proceeding with the development of exotic weapons, mainly but not entirely through the SDI programme. Recent discussions about the need for continued nuclear weapon tests have provided important statements on the kind of weapons which are now under development. "Third generation" nuclear weapons are of two kinds. First, there are weapons to mate with the new delivery systems now coming on stream: the Trident D-5, the Midgetman, new short-range attack missiles and possibly the advance cruise missile come under this category. Typically, development is required so that the stresses to which a new device are subject, such as an earth-penetrating warhead, do not affect the explosive yield of the weapon.

Second, special effects warheads are under development which would include, for example, the X-ray laser and devices intended to maximize microwave emissions for purposes of damaging the electronic components of enemy missiles and communications systems. The indications are that such developments will require lengthy development programmes involving several hundreds of tests.

SDI Research Developments

■ The thrust in SDI research appears to have moved to mid-course interception. Because it is in this phase of a ballistic missile's flight that the tracking of nuclear warheads is the most difficult, mid-course interception has long been thought the most intractable problems of a ballistic missile defence. In the early fall Caspar Weinberger approved the accelerated development of six technologies relating to mid-course interception, including a ground-based "pop-up" sensor system for tracking ICBMs in mid-course, and a missile interceptor that destroys the target by smashing into it at high speed. The research demonstration and validation phase is expected to last several years, which would likely put off a decision on full-scale deployment until the mid-1990s. In the meantime, the costs of a first generation ballistic missile defence have almost doubled in the last six months: General Abrahamson advised Congress in the spring that such a system, relying primarily on known technologies, would cost US$40-60 billion, but his more recent statements put the price at $70-100 billion. □

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nuclear-tipped air-launched cruise missiles from European-based aircraft which are not covered by strategic arms talks.

More broadly, the INF agreement has sharpened the debate about NATO's defence posture, and focussed attention again on the controversial question of the conventional force balance. Representative Les Aspin, the influential chairman of the US House Armed Services Committee, has said that the ten extra divisions that NATO would need to achieve parity with the Warsaw Pact would involve an initial expenditure of US$70 billion, and $20 billion per year thereafter. Nuclear weapons, in short, are cheaper.

Other defence commentators have said that the force imbalance is not critical. In testimony to Congress they argued that defence planners need to reallocate resources to bolster the NATO stockpile of anti-armour weapons, to create defensive barriers to tank attack, and to improve re-supply and reinforcement. They have received unexpected support from the US Joint Chiefs of Staff, who recently completed an assessment of the force balance in Europe, and concluded, apparently with the concurrence of Caspar Weinberger (the recently departed Secretary of Defense), that NATO's forces were adequate to deter a Soviet attack on Western Europe.

NATO Appointment

■ Kaare Willoch, a former Norwegian prime minister, has abandoned his effort to become Secretary-General of NATO, thus clearing the way for the appointment of West German Manfred Wörner. Mr. Wörner's appointment is seen as ensuring that, in the aftermath of the INF agreement, the Federal Republic of Germany's security concerns will be strongly represented in NATO councils.

Editor's Note

This issue marks the departure of one author of a regular department and the debut of two others. Jane Boulden began the "Arms Control Digest" segment in the first issue of Peace&Security *and researched and compiled it in every subsequent issue. With her departure for Queen's University, Ron Purver, CIIPS Research Associate, takes over the column. In addition, David Cox, Professor of Political Studies at Queen's University and formerly CIIPS Director of Research, will write "Defence Notes."*