Fighter Dispute Raises Questions About Navy's Future Role

Probably the bitterest military policy dispute of the coming year will be not what tricks the Russians are up to, nor whether to launch some new megabucks supersystem. Rather, the big fight will be whether the Navy must do what the Secretary of Defense has ordered and begin production of a new type of lightweight fighter plane to serve aboard its aircraft carriers during the 1980's and 1990's—the F-18.

The budget just submitted to Congress contains $864 million in funds to start production of the F-18. But most Navy leaders would like to see that money go to finish production of another fighter, the F-14, whose first models are now in service.

The two planes are rivals in the sense that either can serve as a replacement to Navy and Marine Corps F-4's, the ubiquitous fighter, known as the Phantom, that has been a mainstay of Naval aviation for some 15 years.

In the battle of competing fighters, however, larger stakes are at issue, including the future role of the Navy's aircraft carrier fleet. And both sides, in Congress, the Navy, and elsewhere invoke political, strategic, and plain old budgetary arguments to support their respective views.

The F-14, or "Tomcat," is a swing-wing, two-seated aircraft. It is the only plane that can carry the unequaled Phoenix air-to-air missile system, which simultaneously tracks large numbers of incoming planes and missiles and shoots them down—six at a time—at ranges of up to 100 miles. As such, it is the best defense against a sophisticated attack on aircraft carriers, which are often criticized for their vulnerability to Soviet bombers and cruise missiles.

To date, 279 F-14's have been produced by the Grumman Corporation on Long Island; production of more than 521 is planned. But over Navy objections, the Secretary of Defense ordered that F-14 production be slowed from 36 to 24 per year in coming fiscal years in order to free up funds to begin production of the F-18. Both the Navy and Grumman object that the slowdown will greatly increase the unit production cost of the F-14, from some $20 million in fiscal 1978 to $28 million per plane in fiscal 1979.

The F-18 or "Hornet" is, as its nickname implies, a smaller, fixed-wing one-man aircraft capable of dogfighting at short range and of attacking both air and ground targets. Its cost-conscious proponents note that it was designed not only to replace one system—the F-4 Navy fighters—but many: the Navy's A-7's and the Marine's A-4's and possibly the Harrier attack craft. The F-14 is not adaptable to some of these latter uses and the Marines have chosen the F-18.

Most estimates show the cost of an F-18 to be two thirds the cost of an F-14, but besides the F-18's simpler design, these estimates rely heavily on the plans to produce F-18's in great quantity, perhaps 100 to 200 per year, with more than 800 of them eventually coming into service.

The F-14/F-18 debate has become enmeshed in the larger controversy over the future of the giant nuclear-powered aircraft carriers these planes are meant to decorate. The F-14 evolved in the 1960's, when the carrier's role as the bearer of American strategic might to all corners of the world was unquestioned. Among other roles, the carriers were envisioned as being used in a protracted conflict with the Soviet Union—or even to launch a strike against Soviet territory. So the F-14 was designed to counter sophisticated Soviet weapons systems.

But current critics of the carrier fleet are arguing that such a war with the Soviet Union is unlikely, or that if it takes place, other weapons systems—such as our own land-based missiles and bombers—would be used for these roles. Carriers, they say, will be used mainly in protecting shipping and in connection with conflicts in the Third World; they say that in those settings an F-14 and its fancy Phoenix missile system will be so much gold-plating. Therefore, many people, including many in Congress, plan to tug at the purse strings of the Navy fighter budget as a way to influence the larger, less focused debate on the future role of aircraft carriers.

The fighter controversy is also linked to conflicting views of the Navy's newest aviation technology, vertical and short takeoff and landing craft (V/STOL). The Navy's main foray into V/STOL development is the Harrier program run by the Marines. The older British-developed Harrier now in service has had several engineering difficulties. A newer version—numbered AV-8B—faces a crucial Pentagon review next year. Those who think the Harrier's problems can be solved so that the Navy can start relying on V/STOL in the early 1980's, favor the F-14, since it would clearly allow the new Harrier program to go forward. On the other hand, others, apparently including Defense Secretary Harold Brown, doubt that V/STOL technology is ready for such early, widespread application, and propose the F-18 as an interm measure while V/STOL's problems are being worked out. Finally, of course, everything relates to everything else: the V/STOL debate is part of the carrier debate, since one alternative to today's mammoth ships would be smaller ones with shorter landing decks to accommodate V/STOL instead of airplanes.

The most emotional and politically volatile element in the fighter controversy has been introduced by several aerospace companies, major twists in whose fortunes depend, one way or another, on the outcome. Grumman, the chief contractor for the F-14, has already weathered searing criticism for its management of the program and is lobbying hard to get future production increased (so hard in fact that the Secretary of Defense recently ordered an investigation into Grumman's lobbying tactics). The prime contractor for the F-18, the McDonnell Douglas Corporation, is also working hard to get the program into the production phase. Part of the political muscle of the F-18 is the fact that its engines will be built by a General Electric Corporation plant in Lynn, Massachusetts, in the district of House Speaker Tip O'Neill (D–Mass.) and in the home state of Senator Edward M. Kennedy (D–Mass.). Other companies have stakes in the results too; the LTV Corporation, of Dallas, Texas, and hence members of the Texas delegation, care fervidly about the outcome. LTV builds the A-7 whose production is scheduled to cease soon. If the F-18 goes forward, A-7 production will definitely stop, whereas if the F-18 program is killed, there is a better chance the Navy will order more A-7's. Therefore the LTV and many Texas congressmen favor the F-14.

The F-14/F-18 controversy can best be understood chronologically, since the two planes are products of different eras in Navy military strategy and pro-

0036-8075/78/0324-1317$00.75/0

Artist's rendition of the F-18 fighter (left) and its attack version (right), the A-18, which would replace A-7's and A-4's.

curement philosophy. The story started when the Navy began extricating itself from the TFX mess in the late 1960's; it was then influenced by national attitudes towards Grumman and the rest of the ailing aerospace industry during the recession of the early 1970's. Today, the fighter issue had become a dispute between competing schools on the need for fewer but "smarter" weapons systems, or alternatively for more "simpler" ones. And ironically, among the sound and fury are cries that Secretary Brown, like former Defense Secretary Robert McNamara with the now-infamous TFX, is embroiling the Navy in another TFX-type situation.

The F-14 has its roots in the TFX (for tactical fighter experimental), the joint Air Force–Navy fighter ordered by McNamara in the early 1960's. Later designated the F-111, the plane became a problem as it evolved because of the strange potpourri of things it was required to do: it had to be able to take off and land on semiprepared airfields and on aircraft carriers. It had to be able to cross the Atlantic without refueling and penetrate Soviet airspace at very low altitude and supersonic speeds. In short the F-111 was to be a sort of carrier-capable B-1 bomber. And, by the late 1960's when a number of the F-111's had crashed, and the plane had become too heavy and costly for Navy use, the Navy was finally permitted to go ahead and design its own long-range fighter, which became, almost overnight, the F-14.

The program started up quickly, partly because two of its crucial technologies had been developed for the F-111: its Pratt and Whitney engines and its radar and missile system. In the tradition of a lot of mid-1960's weapons systems such as the now-canceled B-1 bomber, the F-14 was conceived as a complete flying-fighter system aimed primarily against a sophisticated enemy but also capable of doing other jobs. "It can perform against Backfire, Foxbat, and the cruise missile," says George Spangenberg, a retired Naval officer who frequently testifies on behalf of the F-14.

In any event, Grumman Corporation became the chief contractor on the plane, and began production rapidly in fiscal 1970 of what it expected would be an order of 463 planes over 7 years, at a program cost then estimated at $13.1 million apiece.

But 1971 through 1974 proved to be the traumatic years for Grumman, which lost several other contracts and whose ongoing aerospace business was being affected by the wind-down of the Vietnam war. As a result of business reversals, in March 1971, Grumman came to the Navy and recommended that it complete only the first 3 years of production because the 7-year contract should, it said, be renegotiated. Grumman's troubles became front-page news and everyone, from the Navy to the General Accounting Office began investigating.

When Grumman failed to get commercial credit from American banks in 1972, the Navy suggested that it help the company out by advancing funds that would be forthcoming anyway under the F-14 contract. But Congress, fresh from a bitter, close fight over whether to bail out Lockheed and other large aerospace companies, vetoed the Navy proposal. Grumman became a notorious newsmaker again in 1974 when the ailing company's angel of mercy turned out to be the Shah of Iran, who extended Grumman a $200 million loan and ordered 80 F-14's, thus, in a few brief strokes, solving the company's cash crisis and enabling the F-14 production line to resume efficient operation.

This history is important to the birth of the F-18, which is a plane largely conceived by Congress as a response to the F-14's and Grumman's woes. The initiative first came from Deputy Secretary of Defense William P. Clements, who in 1973 proposed that Congress add another half-billion dollars to the fiscal 1974 budget for a low-cost multimission Navy fighter. Clements's suggestion did not fly, but the following year Congress came up with a suggestion of its own, based on the fact that the Air Force had traditionally been able to build large numbers of relatively cheap planes and had a successful lightweight fighter competition in progress. The directive appeared in the conference report on the fiscal 1975 defense department authorization:

> The conferees support the need for a lower cost, alternative fighter to complement the F-14A and replace F-4 and A-7 aircraft; however the conferees direct that the development of this aircraft make maximum use of the Air Force Lightweight Fighter and Air Combat Fighter technology and hardware.

In other words. Congress—in the same era as it directed a reluctant Air Force to study the long-range, strategic potential of thousands of small cruise missiles as a replacement for the B-1—was telling the Navy to use the Air Force technology to develop smaller, cheaper, multipurpose planes.

And so the Navy, looking over Air Force prototypes named F-16 and F-17, chose a derivative of the F-17. Clements later testified that the derivative version—which had to be outfitted for carrier use and other special Navy requirements—was so different from the F-17, that late one evening, as he was examining the Navy's choice, he decided to rename it the F-18.

The program started up with continued development work (which proponents argue has been cheaper because of taking advantage of the prior Air Force program) and set its sights at producing a total of some 800 planes.

The low unit cost, high production philosophy behind the F-18, which seems to be a main reason for producing F-18's instead of more F-14's, was expressed in the annual military posture statement submitted to Congress in early February. It said:

> For the F-18 to be a low-cost aircraft we must emphasize its procurement in quantity. Along these lines, we tentatively plan to increase F/A-18 procurement gradually to 108 units per year by FY 1983 and even higher later in the 1980's.

With this perspective, the arguments about whether the Navy should indeed proceed with F-18 production in the next

year, as the Secretary has ordered, become clear. A major argument is over cost. The faction in favor of the F-18 argues that, if the Navy builds only F-14's now, and waits several years before replacing the Marine's fighter and attack planes and the Navy's attack planes, those replacements will become proportionately more expensive than replacing them now, with a single, large purchase of F-18's. The pro-F-14 faction counter that it will be cheaper in the long run to go on buying F-14's as fast as possible and simply replacing the A-7 attack planes with more A-7's as they wear out.

Another pro-F-14 argument is that the cost per unit of the F-18 has risen to $15 million—it is now more expensive than the first F-14's—and that the Navy has no business spending that sort of money on less capable aircraft. The F-18 faction counters that in future year dollars, 1975–1987, the kind for which the $15 million figure applies, the cost per unit of the F-14 will be no less than $35.8 million!

The cost arguments rapidly escalate into ideological ones. The pro-F-18 faction argues that with the costs of submarines, carriers, smaller ships, and aircraft rising exponentially, it is high time the Navy was taught the lesson that the B-1 cancellation was meant to teach the Air Force: that the country cannot always afford, and does not always need, the most elaborate and expensive systems.

The swing-wing, two-seater F-14 in flight.

Equally vehement, however, are the pro-F-14 arguments which invoke the cost savings of building only F-14's, and holding back on the modernization of the attack forces, as examples of surefooted, refined military judgment. Those who favor the F-14 often add that the F-18 is taking on the earmarks of the TFX, in having been conceived by outsiders without regard for real Navy requirements, and in its recent alleged gains in aircraft weight and cost.

It is obviously too soon to predict where all this will come out. The House Armed Services Committee recently, in a predictable opening move, authorized production of half again as many F-14's as the Secretary asked for in his budget. On the other hand, the Senate, which has yet to act on the authorization measure, is expected to be somewhat more partial to the F-18. In the midst of all this, however, one irony should not go overlooked—namely, that the F-18 story seems to show that it is sometimes as hard for outsiders to the armed services to introduce a new weapons system as it is for them to terminate one.

—DEBORAH SHAPLEY

Congress Set to Grapple Again with Gene Splicing

The stage has now been set for Congress to try again at what it failed to do last session—pass a bill to govern gene splicing research. How the action will unfold is far from clear. Some observers believe agreement will crystallize around a new bill being framed in the House. Others predict the same deadlock as that which produced last session's legislative morass.

At present the principal object of attention is the new draft bill devised by Burke Zimmerman, staff aide to House health subcommittee chairman Paul Rogers. The draft was designed so as to win maximum agreement among all interested parties, and almost succeeded. NIH director Donald Fredrickson has endorsed it as "the most promising solution yet proposed." But an attempted agreement with Senator Edward Kennedy's staff that he would also support the draft did not work out. On 1 March Kennedy introduced the Rogers bill but with amendments that restate much of the position he declared but later receded from during the last session. "We are almost where we were six months ago—little has changed; the new Rogers bill is probably more acceptable than anthing else but it doesn't resolve any of the big issues," says a Senate aide.

Both substance and personalities are pertinent to understanding the sometimes mysterious ways in which Congress works its collective will. One sometimes relevant fact is that Kennedy and Rogers, chairmen of the Senate and House health subcommittees respectively, each likes to see his own version of a bill prevail. Another is that Rogers' initiatives are not invariably smiled upon by Harley Staggers, the chairman of Rogers' parent committee. Rogers' hand is often strengthened in full committee by having all his subcommittee members on board. Kennedy has greater flexibility to follow his own course.

Abrupt changes of course have characterized Kennedy's stance on recombinant DNA. At hearings held in September 1976, a few months after the NIH guidelines on the research had been issued, Kennedy indicated that he would consider legislation only if industry did not comply. But last spring he introduced a bill that appeared to scientists and others to be a bad case of regulatory overkill.

Intensive lobbying by individuals and scientific groups created a basis for senators such as Gaylord Nelson and Adlai Stevenson to oppose Kennedy (*Science*, 20 January 1978). Citing new evidence

0036-8075/78/0324-1319$00.50/0