DECEMBER 1975 / $2

AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION

MAGAZINE

THE MILITARY BALANCE

1975/76

Longest duration flight. RPV/turbofan altitude record.

Those are the unofficial marks set recently by the Garrett ATF3 advanced technology turbofan.

We can't give out the precise duration of the unrefueled mission, or the exact altitude reached—they're understandably classified—but we can tell you the altitude was in excess of 55,000 feet and the duration was more than 24 hours.

The flight was aboard a Teledyne Ryan Compass Cope 'R' Remotely Piloted Vehicle (RPV) originating at the Air Force Flight Test Center at Edwards Air Force Base, California.

The ATF3 was developed to deliver high performance in many areas of aviation both for military and commercial aircraft, and is the logical choice to power manned systems as well as RPVs because its low thrust specific fuel consumption (TSFC) means greater range and loiter ability. And the ATF3 is safer from heat-seeking missiles, because its low-noise, mixed-flow exhaust provides a low infrared signature.

ATF3: best for RPV missions and applications such as attack/trainer aircraft designs, strike/reconnaissance multi-mission RPVs, and micro fighters.

Produced by AiResearch Manufacturing Company of Arizona, P.O. Box 5217, Phoenix, Arizona 85010.

The Garrett Corporation
One of The Signal Companies

GARRETT ATF 3

Ready now for tomorrow's missions.

Hercules.
The airlifter that keeps acting newer and newer.

Outside Hercules looks much as it did when it first rolled off production lines. Inside it acts like new.

You begin with a simple functional airframe that is almost timeless in its capability to handle airlift missions. Then you improve the operating and avionics systems every chance you get.

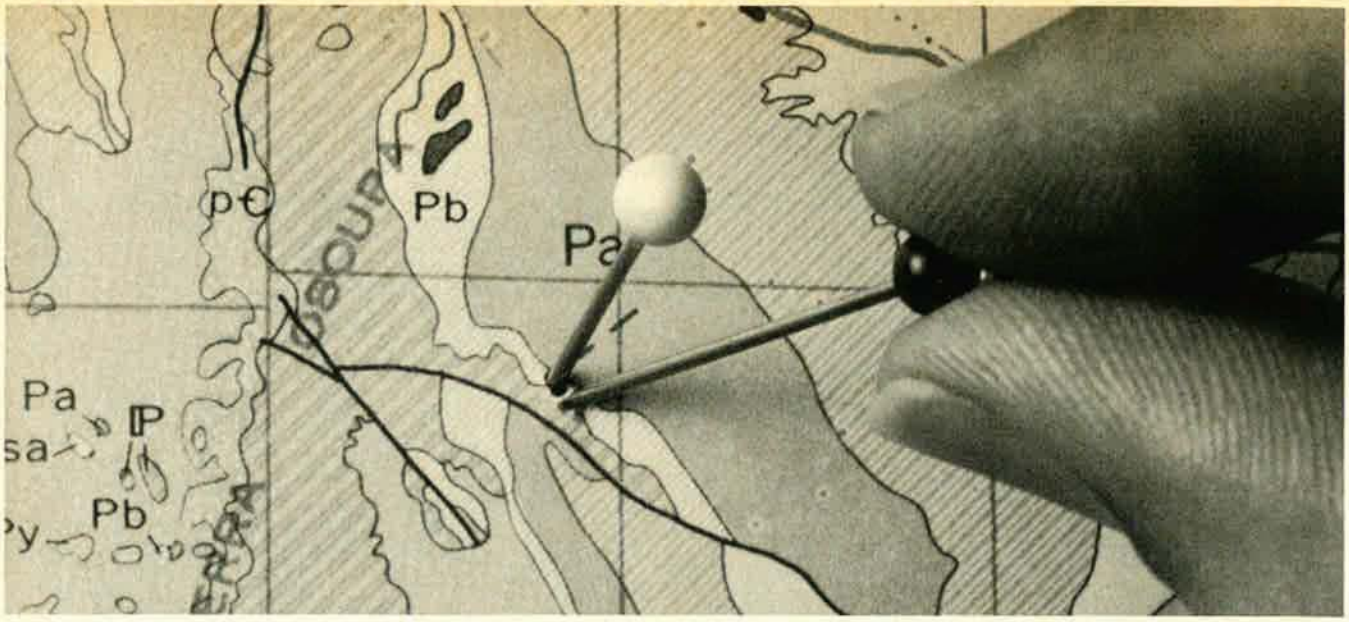
The result: the world's most modern tactical and country-building airlifter. An airlifter so sturdy and functional that seven nations reordered it in 1974 and three others chose it for the first time.

The high Hercules wing lets the cargo floor almost hug the ground for fast loading and unloading. Sturdy landing gear lets Hercules go where the cargo is needed. Hercules lands on short dirt, sand, gravel or snowy runways. The huge 9' x 10' rear cargo opening lets bulldozers and trucks roll out, fully assembled and ready to go to work.

Inside that simple airframe, all Hercules' systems have been improved. The 1975 Hercs, for example, will have new radar, new autopilot, air conditioning and auxiliary power systems.

Since Hercules first flew, the range has gone from 1,600 to 2,800 nautical miles. Payload has been increased from 30,000 pounds to 45,000 pounds, and even 50,000 pounds in some models. And 37 nations have chosen this timeless airlifter.

Lockheed Hercules



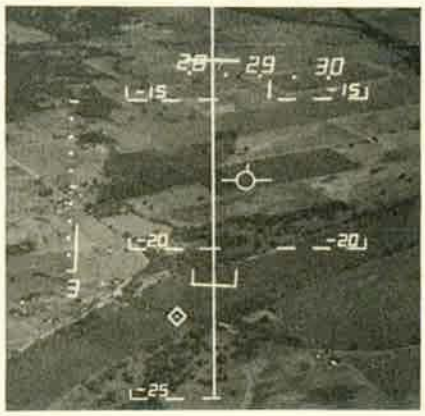
The combat-proven A-7. It provides air support that's always better than close.

The A-7 has the most accurate navigation and weapons delivery system in the world for close air support.

A digital computer is the heart of the system.

It analyzes and coordinates data from forward looking radar, Doppler radar, inertial measurement set, air data computer and pilot commands. This data supports a navigation capability that's completely self-contained and automatic, eliminating any reference to ground-based aids.

The computer-driven Head-Up Display helps insure accurate navigation. It provides a continuous representation of aircraft attitude, heading, altitude, velocity and steering cues to selected destinations. The computer also drives a projected map display



that continually shows aircraft geographical location.

For automatic weapons delivery, the computer instantly solves ballistic prediction problems—targets can be approached

from almost any attitude or airspeed.

Close air support by the A-7 depends on a navigation and weapons delivery system that's totally integrated and computerized.

Because "close" isn't good enough when you're depending on pinpoint accuracy.

LTV AEROSPACE CORPORATION
A SUBSIDIARY OF THE LTV CORPORATION

AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

DECEMBER 1975
VOLUME 58, NUMBER 12

This Month

The Military Balance 1975/76

A Publication of The International Institute for Strategic Studies, London

ABOUT THE COVER

The Editors of AIR FORCE Magazine are once again privileged to present "The Military Balance," a detailed compilation of the world's armed strength and resources. See p. 43.

Departments

AIR FORCE Magazine (including SPACE DIGEST) is published monthly by the Air Force Association, Suite 400, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006. **Phone:** (202) 452-7300. Second-class postage paid at Washington, D.C. **Membership rate:** $10 per year (includes $9 for one-year subscription); $24 for three-year membership (includes $21 for subscription). **Subscription rate:** $10 per year; $2 additional for foreign postage. Single copy $1. Special issues (Spring and Fall Almanac Issues and "Military Balance" Issue) $2 each. **Change of address** requires four weeks' notice. Please include mailing label. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association.

BPA Circulation audited by Business Publication Audit

The world has waited 43 years for this

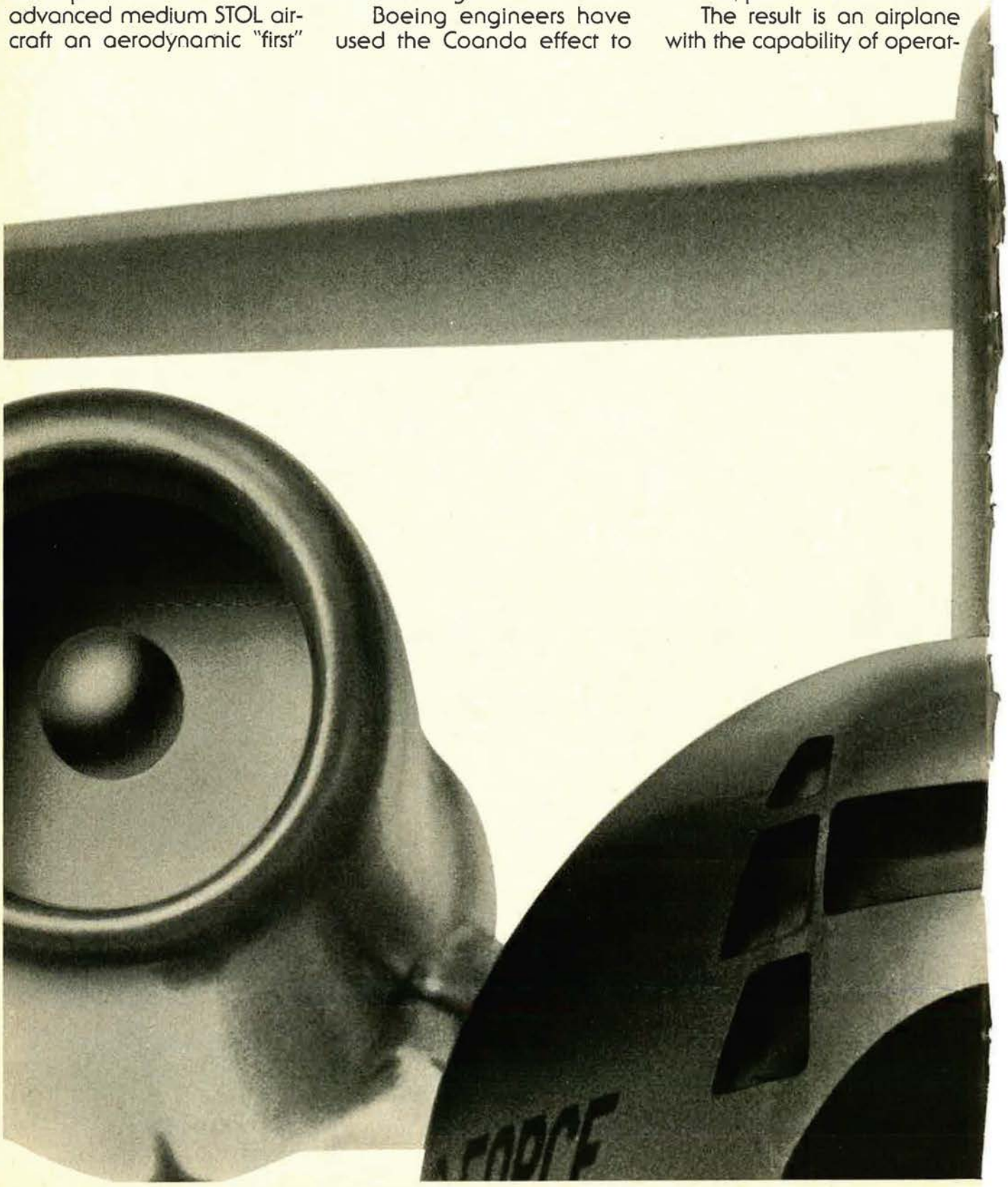
The Boeing YC-14 two-engine jet transport will fly in 1976.

The revolutionary, new concept that will make this advanced medium STOL aircraft an aerodynamic "first" was patented by Henri Coanda in 1932.

The Boeing adaptation of this idea is called upper surface blowing.

Boeing engineers have used the Coanda effect to create powered lift. Thrust from the aircraft's two engines is blown over the wing flaps and is directed downward for added, powered lift.

The result is an airplane with the capability of operat-



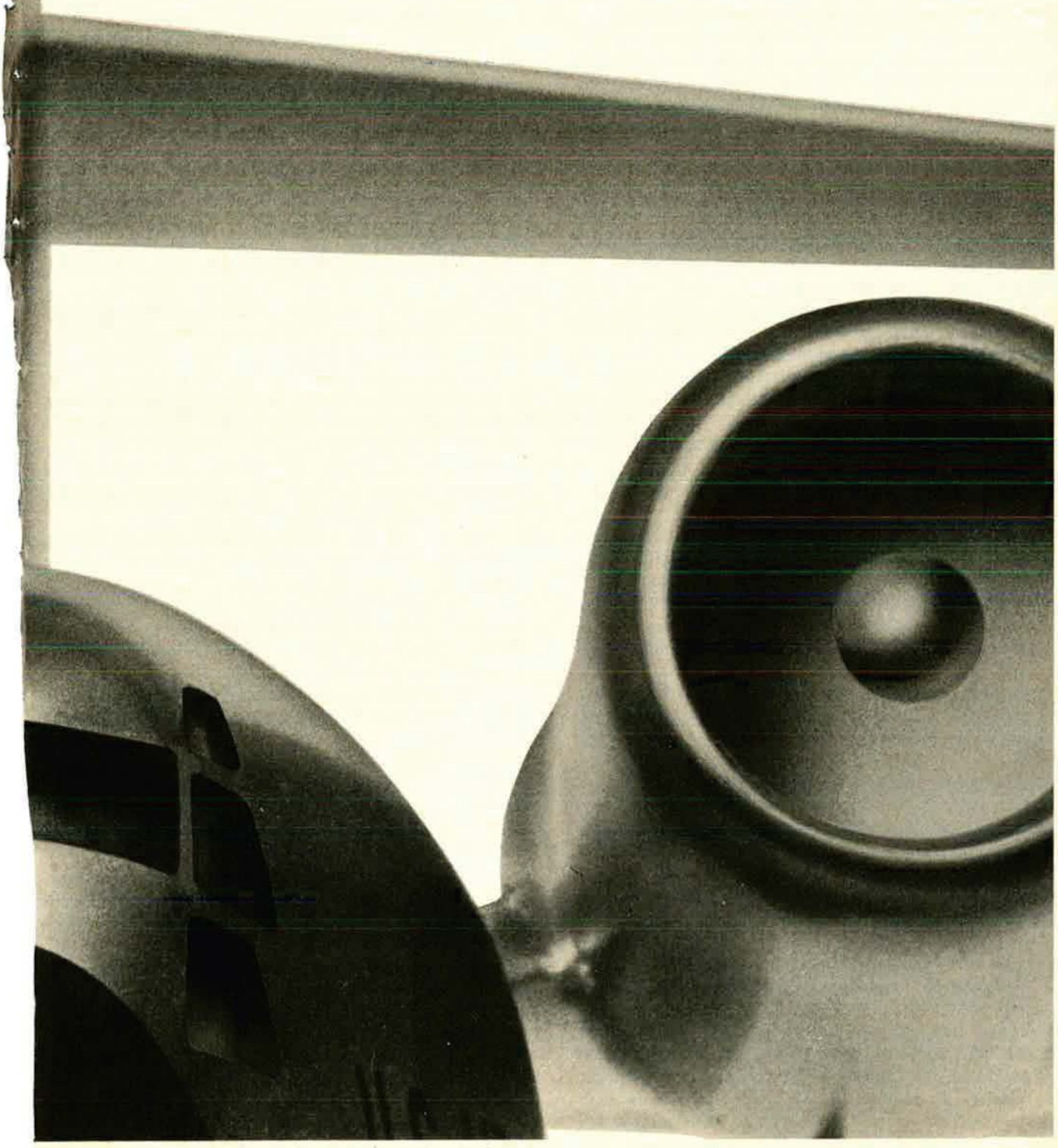
idea. It's worth waiting one more.

ing from an unimproved field less than half the length of those required by standard aircraft of comparable size.

The YC-14 can take off and land on a 2,000-foot field with a 27,000-pound payload. Carry 69,000 pounds to and from a 4,100-foot field. Cruise at 450 miles per hour and land at a lazy 100 miles per hour.

There's no other plane like it. And after 43 years, it's worth waiting one more.

BOEING YC-14



Of Arms and of a Man

By John L. Frisbee
EXECUTIVE EDITOR

WASHINGTON, D. C., NOVEMBER 11

DR. James Schlesinger presided over the Department of Defense during some of its most turbulent peacetime years. On July 2, 1973, he inherited a post-Vietnam defense structure at a low ebb of public esteem, racked by personnel problems, and badly in need of modernization. The Department faced an unprecedented increase in the Soviet threat, while its ability to counter that threat was severely inhibited by a budget that, in purchasing power, was the lowest in two decades.

Twenty-eight months to the day later, on November 2, Dr. Schlesinger was abruptly dismissed from office. He left behind a Defense Department largely restored in morale and public confidence, well started on the road to modernization despite rising personnel costs that leave a constantly smaller share of the budget for R&D and procurement, and vastly more combat-capable than in 1973. These accomplishments, and others less directly related to management, mark him as probably the most effective Secretary in the history of the Defense Department.

Dr. Schlesinger combines the analytical ability of an economist with theoretical and practical experience in budgeting, strategic analysis, atomic energy, and intelligence. In technical competence, he is without a peer among Secretaries of Defense. He has a rare talent for articulating complex defense issues in a manner understandable, and generally persuasive, to those outside the defense community.

Although sometimes described as intellectually arrogant, his relations with senior military officials rested soundly on a foundation of mutual regard. He respected the military as an institution and its leaders for their competence in managing military forces. In turn, they respected his stature as a strategic thinker, analyst, and proponent of strong national defense. His intellectual integrity always has been beyond question.

Dr. Schlesinger's brand of leadership was both innovative and adaptive. Some of the ideas associated with his administration predated his appointment as Secretary. Strategic flexibility, for example, had been a vaguely defined goal for several years. But it was Dr. Schlesinger who provided the rationale for more effective deterrence based on a modified targeting doctrine and the development of flexible strategic forces.

To meet the expanding threat with contracting purchasing power, he successfully supported many innovations and adaptations—prototyping, the Air Combat Fighter, the high/low mix, Life Cycle Costing, airlift enhancement, the cruise missile, reduction of support in relation to combat forces. (The last-named may now be carried too far in the name of economy. US combat superiority has depended on the ability to sustain combat operations.)

Although apolitical in domestic affairs, Dr. Schlesinger was sensitive to international political realities. His view of the relationship between military strength and foreign policy was that of a statesman, always devoid of parochialism. When Vietnam fell last spring, he played a leading role in assuring our allies of America's resolve to uphold its obligations, based on a mature understanding of the national interest. The force of his arguments was a major factor in checking the deterioration of NATO, and he has been dominant in advancing equipment standardization within the Alliance.

Two of Dr. Schlesinger's greatest contributions have been his exposition—almost alone among senior Administration officials—of the growing Soviet military threat, and his skepticism regarding the USSR's détente objectives. His strong advocacy of US equivalence to Soviet military might and his vigorous opposition to unwarranted cuts in the defense budget provided, in negotiations with the USSR, the "stick" that complemented Secretary Kissinger's "carrot" of technical assistance, trade, and compromise.

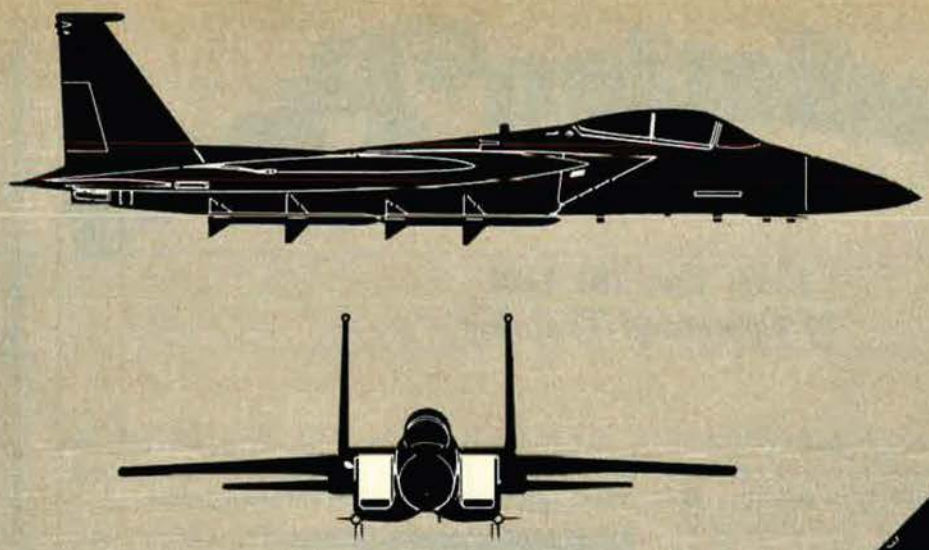
At a farewell ceremony on November 10, Dr. Schlesinger summed up his view of détente in these words:

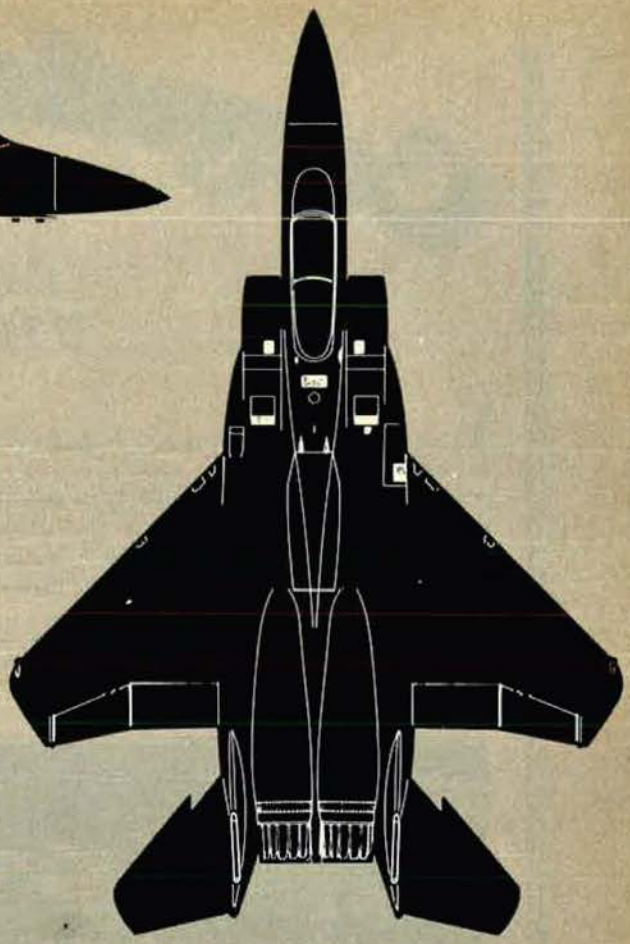
"Though we should pursue détente—vigorously—we should pursue it without illusion. Détente rests upon an underlying equilibrium of force, the maintenance of a military balance. Only the United States can serve as a counterweight to the power of the Soviet Union. There will be no *deus ex machina;* there is no one else waiting in the wings."

Dr. Schlesinger often ornamented his public statements with classical quotations and allusions. As he leaves office, we commend to him the words of Francis Bacon: "No pleasure is comparable to the standing upon the vantage point of truth."

No one can take joy in the manner of Dr. Schlesinger's departure, but he should find much satisfaction in the record of his stewardship. He served his fellow citizens well, and he stood uncompromisingly upon the vantage point of truth as he so clearly saw it. That was his strength, and his undoing.

We trust that Dr. Schlesinger will continue to speak out on national security issues. We wish his successor, Donald Rumsfeld, well and hope that he will continue the sure grasp of defense issues that characterized the leadership of the Department of Defense over the past twenty-eight months. ■





What makes this aircraft so hard to identify?

It is probably easy for you to identify this aircraft as the McDonnell Douglas F-15 Air Superiority Fighter.

But, under combat circumstances, it would be very difficult for enemy forces to identify, or even find, the F-15.

That's because Northrop's Internal Countermeasures Set (ICS) provides automatic jamming of enemy radar signals as part of the F-15's Tactical Electronic Warfare System. The ICS, designated AN/ALQ-135, enhances survivability and mission success in a hostile environment.

An important feature of the Northrop ICS is that it is carried internally so as not to affect the F-15's performance or maneuverability.

Northrop's F-15 ICS provides maximum protection because it is the most advanced Electronic Countermeasures (ECM) system yet developed for a tactical aircraft. It operates automatically, permitting the pilot to concentrate on his mission, even within the densest radar environments.

Production of the F-15 ICS has begun at Northrop's Defense Systems Department, Rolling Meadows, Illinois. Since 1952 this department of Northrop (formerly the Hallicrafters Co.) has designed and manufactured more than 10,000 jamming transmitters, including the radar-jamming ECM systems that have helped protect the B-52 bomber for nearly two decades.

With this background and experience, we can say with confidence that production of the new F-15 ICS will be carried out with Northrop's customary efficiency—on time, on cost, and with the promised performance, or better.

Northrop Corporation, 1800 Century Park East, Los Angeles, California 90067, U.S.A.

NORTHROP

Conversation Pieces

Catts Cuts the Cost of Command Training

Every time there's a military budget squeeze, the Army is forced to cut back on field exercises. It's inevitable. In terms of logistics alone, live training is expensive. But there are much more serious costs in terms of lost opportunities for realistic practise, particularly in the difficult art of making command decisions at the battalion level.

Fortunately, something can be done about it and the Army is doing it... with CATTS, which is TRW's Combined Arms Tactical Training Simulator.

Instructors in command center.

To people who have already used this system, it is almost misleading to call it a "simulator." Because what impresses them most is its realism.

The students work in a standard mobile command post with fully functional communications equipment. In a separate area, teams of experienced controllers play the parts of subordinate units, adjacent units, higher headquarters, and a wily, well-equipped enemy force. Operating through a carefully programmed computer system, the controllers present their students with changing battlefield conditions, analyze their responses, and challenge them with new problems that range from bad weather, misunderstood orders, and supply foul-ups to unexpected increases in enemy strength.

The student is forced to think, sweat, and make life or death decisions under conditions of stress that very closely approximate real battlefield environments.

Student commanders in tactical operations center.

In addition to its realism, CATTS has a fundamental advantage over the old-time sand table and other less sophisticated systems. This is its objectivity. The computers model the effects of decisions and the computers have been programmed by independent specialists who are not involved in the training at all. This eliminates a lot of judgement calls at the operational level and frees the judges for the more important business of judging on the basis of actual results.

In order to develop CATTS, TRW started an independent research and development program of formidable size and complexity several years ago. This provided a solid foundation of experience on which the detailed models and software for CATTS were built. The result is an unusual capability that is now being applied to even more complex training needs within the Department of Defense. If you are interested in using TRW's skills in this area, you are invited to write and tell us about your specific needs.

TRW®
SYSTEMS GROUP

Attention: Marketing Communications, E2/9043
One Space Park Redondo Beach, California 90278

Airmail

The "Documentary" That Wasn't

Gentlemen: As a charter member of the Air Force Association and a former National Director, it's been a pleasure down through the years to note the almost complete lack of editorializing in your news articles.

However, you more than made up for a good past record with your statement in the October issue, page 14, "The Wayward Press," when you refer to CBS's "Guns of Autumn" as a "documentary about hunting."

The big fuss by thinking people has been over the fact that this is *not* a documentary. It's a definitely contrived show, to put forth the CBS editors' opinion about hunting. Why dignify it with the title "documentary"?

Col. Case S. Hough, USAFR (Ret.)
Rogers, Ark.

Gentlemen: The irony of the unintentional demonstration of "The Wayward Press" is both amusing and thought-provoking. As a longtime member of both Air Force Association and the National Rifle Association (but primarily as a concerned US citizen), I am impelled to clarify the NRA "Guns of Autumn" issue.

Obviously your writer did not even see the CBS TV show which he proceeds to summarize as "the papers say it contained graphic scenes of the killing of animals." However, this is a valid summary of "The Guns of Autumn" because that is what was presented. However, your writer also twice called the show "a documentary about hunting." If one accepts "documentary" as meaning a factual and objective presentation, no one could possibly refer to "The Guns of Autumn" as a documentary about hunting—it is properly called antigun propaganda, displaying *killing* rather than *hunting*. The fact that the NRA is the organization most concerned about "slob hunters" who reflect discredit on the millions of lawful, conservation-supporting hunters was also unknown to or conveniently omitted by your writer. . . .

Another inference in the article that is refuted by facts is that NRA would try to suppress "a documentary about hunting." To the contrary, NRA supported and participated in a sequel called "Echoes of the Guns of Autumn," which was a much more objective presentation if not a real "documentary." The NRA and millions of hunters object to antigun propaganda emphasizing a small part of hunting and hunters that distorts a so-called documentary to support a preconceived idea. But the NRA and its members do support objective presentations on guns and hunting. . . .

Your writer's final paragraph is equally applicable to "The Guns of Autumn," merely by substituting the name of the TV show for the name of the book being "reviewed." Unfortunately, his last paragraph is also applicable to his own article in that it is, in my opinion, "gossipy, sometimes inaccurate, highly unbalanced."

Lest you think me just another superserious gun nut without a sense of humor, let me assure you that the irony of your "Wayward Press" demonstration has made my day. Is it possible that the whole thing was a put-on, and that I've now fallen into the trap?

Col. Dorrence O. Sandfort
Alexandria, Va.

Gentlemen: "The Wayward Press" section of your magazine usually examines inaccuracies found in news media releases objectively. Your October issue examined the relationship between CBS and some advertisers regarding the CBS special, "The Guns of Autumn." It also related the difficulty author Robert Metz is having publicizing his book, *CBS: Reflections in a Bloodshot Eye,* using the electronic medium, television. The report, excluding the last paragraph, is objective and based on fact.

The final paragraph proceeds to attack the Metz book with general, vague charges, omitting substantiating proof. If "The Wayward Press" department believes so strongly that it should stop the reader "from wasting $13.50," I believe it should present a formal critique, utilize substantiating evidence for this argument, and print it in the "Airman's Bookshelf." Printing opinion without evidence is as much an inaccuracy of reporting as basing news stories on remarks taken out of context.

A column based on exposing inaccuracies committed by the news media will lose its credentials as an objective watchdog by using the same technique as those it criticizes. In the future, I hope "The Wayward Press" will not be found so close to home.

Robert J. Teitsma (Student)
Michigan State University
Lansing, Mich.

Gentlemen: In your continuing battle to urge the media to police itself, you are performing a great service to the thousands of readers who like to look at the other side of the coin. Your "Wayward Press" feature has become a staple and is the first article we read every month. . . .

Best wishes for continued success.

Lt. Col. William W. Lofgren, Jr.
Oxon Hill, Md.

Oldfield's Scholarships

Gentlemen: Your October article on "The Falcon Foundation," by a University of Nebraska graduate, Class of 1933, is credited by you in your author's thumbnail profile as helping with a scholarship program at his alma mater. We are pleased about that as we have just made Col. Barney Oldfield, USAF (Ret.), a member of the Board of Trustees of the University of Nebraska Foundation. He is also the founder and treasurer of the Radio and Television News Directors Foundation, which provides electronic journalism scholarships annually.

Here at the University of Nebraska, the tenth student is in school on the scholarship he and his wife (she was a WAC with Headquarters Twelfth Air Force in Italy in WW II) endowed in the name of their parents, and it's for a deserving ROTC student of any service. Next spring, one named for his wife, a Vada Kinman Oldfield Fine Arts scholarship, fully endowed, will award $2,000 annually, and shortly after that, a journalism scholarship will be a regular feature.

He makes giving for education a game, which is played with some versatility. To give you an idea, he started the first scholarship when he beat Groucho Marx on his old "You Bet Your Life," on NBC, and

Airmail

by the time it was fully endowed he had "Tom Sawyered" about two hundred other people in the act with him!

Thanks for calling attention to another great institution, the Air Force Academy, and the funding problems of higher education in general. This is one which will never go away, and there's room for everyone to get in the act—as the Falcon Foundation's list of eminent men and companies indicated.

Harry R. Haynie, President
Univ. of Nebraska Foundation
Lincoln, Neb.

Exploits or Exploitation?

Greetings: On page 73 of the October issue there is a picture of a weapons-loading team. The caption begins, "This all-girl weapons-loading team . . ." and continues about their exploits. If the four people in the picture had been male, would the caption have read "This all-boy weapons-loading team . . ." and so on? Those people are four adult women who do a very complex job—to call them girls is hardly appropriate.

Sexism is almost universal in this country. It will not even start to fade until people who consider any female a girl, regardless of her age or occupation, realize the significance of their attitude.

Please do not change the salutation on this letter to your traditional "Gentlemen." There are many women on your staff and among your readers, and I would not care to exclude them as is traditionally done in formal correspondence.

Capt. Robert J. Pustell
Norton AFB, Calif.

Prime Contractor

Gentlemen: The "Jane's All The World's Aircraft Supplement" that appeared in the October '75 issue of AIR FORCE Magazine identified the General Dynamics Corporation Convair Division as Prime Contractor for the F-16 Air Combat Fighter. I and the other 6,800 employees of the General Dynamics Corporation *Fort Worth Division* would be grateful if you would change the Prime Contractor designation to reflect the outstanding results achieved by the Fort Worth Division in providing the free world with the finest air combat fighter in existence.

I have amended my Supplement to read: General Dynamics, Fort Worth Division; Address: P. O. Box 748, Fort Worth, Tex. 76101, USA.

Constantin Costen, Jr.
Fort Worth, Tex.

Neglected Civil Defense

Gentlemen: The article in October, "Civil Defense in the USSR," by Harriet Fast Scott, was excellent and should be read by everyone.

Civil defense is the one area in our defense planning to which attention is sorely needed. Our nation needs a civil defense program of its own. It need not suggest an atmosphere of fright (such as was caused by the development of fallout shelters in the early 1960s), but a national civil defense program could stress (1) education of all Americans in the essentials of survival after any attack; (2) construction of adequate shelters; and (3) contingencies for protection of our population in the period after an attack.

The Air Force Association and all military personnel should demand that our government formulate a sound, practical, national civil defense policy.

2d Lt. Earl N. Richardson
Offutt AFB, Neb.

Not Mentioned

Gentlemen: Steve Birdsall's article "Target: Rabaul!" in the September issue was great, but it should have been "Phase II."

No mention was made of the 19th Bombardment Group, which from mid-March 1942, terribly outnumbered but fighting hard all through 1942, systematically inflicted great damage to the enemy fleet and air force. Gen. George C. Kenney, in a letter to the undersigned, stated ". . . the 19th Group's big strike on the Jap airdrome at Vunnakanau near Rabaul (August 7, 1942) practically wiped out the Jap bombers and fighters that had been assembled there to take care of the Navy's landing at Guadalcanal. The Admiral sent us a 'Well done,' for the job, and General MacArthur started buying the Air Force as of that date." . . .

Dean H. Anholt, President
19th Bombardment Group Association
Springfield, Mo.

Eighth and Ninth AF Activities

Gentlemen: The Air Force Museum at Wright-Patterson AFB advised me to contact your organization in seeking information regarding the activities of the Eighth and Ninth Army Air Forces in England during the period 1943–45.

As a student of aviation history during the 1939–45 period, I am seeking details in particular on the following B-26 groups: 322d, 323d, 386th, 387th, 394th, and 397th, operating from Andrews Field (Saling), Earls Colne, Boreham, Chipping Ongar, Dunmow, and Rivenhall. Also the 363d Fighter Group, which was based at Rivenhall, and the 94th and 96th Bomb Groups flying B-17s from Andrews Field and Earls Colne during May and June 1943.

I would be extremely grateful if I could hear from former personnel of these groups.

A. W. Carey
9 Rose Glen,
Chelmsford,
Essex, England

Nuclear Weapons History

Gentlemen: I am presently collecting data for a detailed and definitive history of post-World War II nuclear weapons development. I would appreciate hearing from any readers who might have access to unclassified technical documents describing nuclear weapons testing in both the Nevada and Pacific Proving Grounds from 1946 to the present, and other information regarding construction and design techniques and materials used in such weapons.

All letters will be answered.

Chuck Hansen
2330 California St., Apt. 26
Mountain View, Calif. 94040

Objectionable Terms

Gentlemen: I am very disappointed with AIR FORCE Magazine for having published "P-47—The Beautiful Beast" in the manner in which it appeared in your September issue. Lt. Col. William Dunn, USAF (Ret.), sadly spoiled his otherwise informative and interesting article by the use of some insulting references that were directed toward the Germans. More specifically, I refer to the following: page 92, column 3, the second to the last line of the page, as well as page 93, column 1, line 10. I felt these remarks were in extremely poor taste.

Three articles concerning World War II appeared in the September issue; only Colonel Dunn's article made any disparaging comments when referring to a former enemy. World War II ended thirty years ago; I see no reason to continue

U. S. Air Force

Task Masters.

For the jobs that need to be done, the engines to do the job.

The F101-powered B-1 strategic aircraft.

The TF34-powered A-10 close support aircraft.

The F103-powered YC-14 Advanced Medium STOL Transport.

The F103-powered E-4A Advanced Airborne Command Post.

General Electric engines continue to prove they can handle the toughest Air Force assignment.

The B-1, for example, is now successfully airborne. Powered by four advanced-technology F101 augmented turbofans, the B-1 will fly from low-level penetration speeds just under Mach 1 to supersonic speeds at high altitudes. And it will cover a longer mission range with greater survivability and nearly twice the payload of America's current intercontinental bomber.

The A-10, powered by twin GE TF34 high bypass turbofans, is poised to meet its mission requirements, too. The TF34's high thrust-to-weight ratio and low fuel consumption provide the A-10 with unmatched performance capability for its close air support mission. Plus improved short-field takeoffs and landings, exceptional maneuverability and the capability for increased loiter time in the mission area.

Two advanced aircraft are powered by GE's F103 engine. Powering the YC-14 Advanced Medium STOL Transport (AMST), twin F103s will provide that aircraft with outstanding and reliable short-field capabilities plus excellent mission range and payload. Powering the E-4A Advanced Airborne Command Post, four F103 high bypass turbofans give that aircraft the power, reliability and low fuel consumption needed to meet its varied and complex mission objectives.

General Electric engines. Once again, the Task Masters for critical Air Force missions. 205-115

GENERAL ELECTRIC

SCIENCE/SCOPE

The U.S. Air Force's 407L Tactical Air Control System is being upgraded to enable it to exchange radar tracking information with the command and control systems of the U.S. Army, Navy, and Marine Corps on a secure, real-time basis. At present, such data must be relayed by voice or written text. Hughes is building four sets of Message Processing Modules (MPMs) and modifying 14 existing control centers. An MPM will use a Hughes HM-4118 computer to translate digital data from one system into formats understood by the others, then process and transmit the data.

The U.S. Marine Corps has a new position locator system which pinpoints individual men, units, and vehicles. The Hughes-built engineering development model of the PLRS (Position Location Reporting System) includes a commander's mobile master unit and 17 user units, which can be man-packed or mounted in vehicles and aircraft. PLRS uses "time of arrival", burst-transmission, and spread-spectrum techniques. It does its job faster, more accurately, and in greater volume than older methods such as sight and sound reporting, radio triangulation, or even radar.

A high-speed, 16-bit microcomputer that can operate throughout the military-applications temperature range is being tested at Hughes. The AN/UYK(XN-1) has a capability of up to 500,000 operations per second -- 10 times greater than top state-of-the-art compact systems just months ago. Speed and flexibility were achieved at low cost through use of commercially available LSI microprocessor chips. The AN/UYK was developed for a Naval Air Systems Command digital missile autopilot R&D program. Other potential applications include mobile ground and helicopter fire-control systems, digital scan converters, and various distributed processor systems.

A highly directional millimeter-wave radio, developed by Hughes, is being tested by the U.S. Navy, both as a video link and as a point-to-point voice and data transmission network. The radio can transmit everything from voice to color television. It offers maximum security because of its highly directional beam. Teletype and wideband data can be transmitted up to 10 miles.

Improved bombing accuracy for U.S. Marine Corps aircraft -- day and night -- is the promise of ARBS, the new angular-rate bombing system now in pre-production at Hughes. ARBS automatically tracks ground targets and acquires laser-designated targets on first pass. Though intended for close-support delivery of unguided ordnance, it also directs gun fire and is compatible with guided missiles. Designed for the A-4M, it is also compatible with the AV-8 Harrier VSTOL aircraft. The first ARBS system will be delivered in April and flight-tested next summer.

Closed-circuit TV security systems could be made more effective and less costly by AML, a multi-channel transmission technique now used by more than 100 community antenna television systems throughout the U.S. as well as abroad. Using AML equipment, a security system operator can receive from as many as 40 TV cameras up to 20 miles away with only one receiver (conventional microwave systems require a receiver for each camera). No cables or leased lines are used. Potential users include manufacturers with several plants throughout a city, department store chains, banks with multiple branches, municipal complexes, college campuses, and military bases. AML is built by Theta-Com, a Hughes subsidiary, located in Phoenix, Ariz.

Airmail

the pain and hatred it may have caused. Those countries that were our enemies in that conflict are now some of our dearest allies. If we, as a nation, are truly dedicated to seeking world peace, then it does not seem proper for individual citizens to insult any other people—least of all our friends.

There are members of the German Armed Forces present in the United States—I would like to think AIR FORCE Magazine, and Colonel Dunn, would be quite embarrassed should any one of them read "P-47—The Beautiful Beast."

2d Lt. Wayne L. Embree,
USAFRes
Monmouth, Ore.

• *Reader Embree's reference is to the use, one time each, of the terms "Kraut" and "Hun." One must remember that Colonel Dunn was writing in the vernacular of the time described. We doubt seriously whether our longtime staunch allies, the British, are very upset when a Revolutionary War story refers to British troops as "lobsterbacks."*—THE EDITORS

Anyone Remember Them?

Gentlemen: I am trying to trace two former members of the USAAF—a Colonel Garrison and a Major Wellburn. My reason is that they were among members of a unit sent to train RAF aircrews (of which my father was a member) to fly the famous B-26, or Marauder as the RAF called it. Training for the aircrews began in August 1942.

My father was Flt/Sgt. Walter Rice, of No. 14 Squadron, which was the first RAF squadron to use the Marauder.

I would be interested in hearing from any former members of the USAAF units concerned. More so, of course, from any friends or relatives of Colonel Garrison or Major Wellburn.

Colin Rice
45 Ridgemead,
Calne,
Wiltshire, England

Birdsall's At It Again!

Gentlemen: Once again I would like to ask AIR FORCE Magazine readers for their help.

I am working on a new book for Doubleday that will tell the story of five American bombers of WW II—the B-17, B-24, B-25, B-26, and B-29. It will be a subjective chronicle of these aircraft—from what they were like to fly to how the enemy shot them down, told as much as possible in the words of the men who flew them. Hopefully, it will point up the virtues, vices, and achievements of these victorious airplanes in all the types of war they fought.

I seek photographs, clippings, and other records of these aircraft, particularly the remarkable and unusual—the 100-mission aircraft, the lucky, the unlucky, and the like.

I am particularly anxious to hear from veterans of the 11th, 91st, 322d, 345th, and 497th Bomb Groups, but all help will be equally appreciated. All material will be returned in original condition.

Steve Birdsall
20 Royal Street
Chatswood 2067
Sydney, Australia

The Airman and Small Arms

Gentlemen: Your informative article, "The Armed Airman," by Maj. John Correll, in the September issue, did not mention one aspect of the Air

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1. TITLE OF PUBLICATION	2. DATE OF FILING
AIR FORCE Magazine	October 1, 1975
3. FREQUENCY OF ISSUE	3A. ANNUAL SUBSCRIPTION PRICE
Monthly	$10.00

4. LOCATION OF KNOWN OFFICE OF PUBLICATION *(Street, city, county, state and ZIP code) (Not printers)*
1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS *(Not printers)*
1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER *(Name and address)*
James H. Straubel, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

EDITOR *(Name and address)*
John F. Loosbrock, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

MANAGING EDITOR *(Name and address)*
Richard M. Skinner, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

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B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	1,095	374
2. MAIL SUBSCRIPTIONS	141,763	143,532
C. TOTAL PAID CIRCULATION	142,858	143,906
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	6,414	10,905
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F. COPIES NOT DISTRIBUTED 1. OFFICE USE, LEFT OVER, UNACCOUNTED, SPOILED AFTER PRINTING	4,826	3,746
2. RETURNS FROM NEWS AGENTS	- 0 -	- 0 -
G. TOTAL *(Sum of E & F—should equal net press run shown in A)*	154,098	158,557

I certify that the statements made by me above are correct and complete.

SIGNATURE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER: John F. Loosbrock

Airmail

Force's deemphasis of small-arms proficiency. In July 1973, Headquarters USAF downgraded the competitive shooting program from advanced marksmanship training to a sports activity. As such, those installations which continued to support competitive shooting had to pay for it largely with nonappropriated funds.

This change of policy also removed competitive shooting from the official duties of small-arms specialists. Accordingly, the Department of Marksmanship Training at Lackland AFB, Tex., dropped three weeks of instruction from its small-arms training course. It also stopped training and managing the renowned Air Force shooting teams which in the past had won numerous medals in both national and international matches. The Department had been founded in 1957 as the USAF Marksmanship Center and was redesignated the USAF Marksmanship School in 1959 before assuming its present name as part of Lackland's Tech School in 1970.

The Air Force is undeniably saving money by no longer sponsoring competitive shooting, as well as by ending the annual weapons qualifications. Such economy measures, however, may detract from the prestige and high professional standards among its small-arms specialists which the challenge of competition had helped encourage.

Lawrence R. Benson, Historian
Air Force Military Training Center
Lackland AFB, Tex.

Gentlemen: In reference to Major Correll's article on "The Armed Airman," I feel that his analysis of the .45 ACP versus the .38 Special as a combat caliber did an injustice in failing to mention the origin of the .45 ACP.

It was designed in 1905 to replace a caliber that was rather ineffective in combat. The caliber was the .38 Special, and the place it was ineffective was the Philippines.

SSgt. Shawn R. Keenen
Vandenberg AFB, Calif.

What Happened to Magel?

Gentlemen: On August 7, 1944, Lt. Robert Magel, 63d Squadron of the 56th Fighter Group, crashed in his P-47 in France and was taken prisoner. He was a POW at Stalag Luft III until early 1945 when the Germans force-marched the entire camp to Mooseburg in the infamous death march. General Patton's Third Army rescued them on April 29, 1945.

His twin brother, David Magel, replaced Bob in the 63d. On February 3, 1945, his P-47 was flamed by an FW-190 on a mission to Berlin. This FW-190 was in turn destroyed by Major Conger of the 56th. Magel was seen to bail out and landed in a wooded area southeast of Berlin. Nothing more has ever been heard from him, and he was listed as MIA.

Can any readers shed any light on what happened to David Magel?

Larry Hebach
212 Cortez Rd.
W. Palm Beach, Fla. 33405

Brescia Raids

Gentlemen: I would much appreciate hearing from some American pilots who took part in air raids on Brescia and its Province in 1944–45.

In finishing a history about the bombings made on the area during WW II, it would help greatly to obtain a realistic and true picture of the facts by receiving direct personal impressions from pilots who took part in such missions.

Galli Lodovico
Camera di Commercio
Brescia, Italy

AAF Enlisted Fighter Pilots?

Gentlemen: In an article about the 354th TFG in WW II entitled, "Where the Mustang Rose to Fame" (*Fighter Aircraft and Fighter Pilots,* issue #3) . . . British aviation writer Roger A. Freeman has stated that the 354th "had the only non-commissioned fighter pilots in the USAAF—five US-born sergeant pilots who had flown Spitfires with the RCAF and transferred to the 354th early in 1944."

Several old-timers I've asked about this claim that it is valid, but are unable to name specific units which had enlisted fighter pilots. I wonder if any of your readers might have verifiable information on this matter.

Sidney G. Depner
354th TFW Historian
Myrtle Beach AFB, S. C.

UNIT REUNIONS

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All officers ever assigned to APGC/ADTC Test Operations are invited to the third annual reunion/Christmas Party on December 6. Contact

Sara Bonnell
Phone: (904) 882-3955
or
Maj. John J. Francis
Phone: (904) 882-5480

7th Bomb Group

The 7th Bomb Group (H), 10th Air Force, CBI, WW II, is planning a reunion in the Dayton, Ohio, area during the third week of June 1976. Existing roster is being updated. Get in touch with

Morris "Rib" Ribbler
1912 Hazel Ave.
Kettering, Ohio 45420

Class 42-B

The 34th annual reunion of Mather and Luke Field graduates is scheduled for February 20–21, 1976, in Southern California, with our headquarters at the Disneyland Hotel, Anaheim. Information and reunion schedule will be sent out in January '76. Send names of other 42-B'ers you feel may be interested. Contact either

R. E. Monroe
1210 Park Newport, #215
Newport Beach, Calif. 92660
Phone: (714) 640-1516
or
W. E. Radtke
Thompkins & Co.
500 Sansome St.
San Francisco, Calif. 94111
Phone: (415) 397-6560

335th Military Airlift Sqdn.

The Silver Anniversary Reunion Dinner Dance for members and wives of the 335th MAS and 514th Military Airlift Wing will be held at McGuire AFB, N. J., at the Recreation Center, on December 6, 1975. Contact

Maj. Wayne E. DeLawter
20 Tiffany Lane
Willingboro, N. J. 08046
Phone: (209) 724-2100, ext. 3905

401st Bomb Group

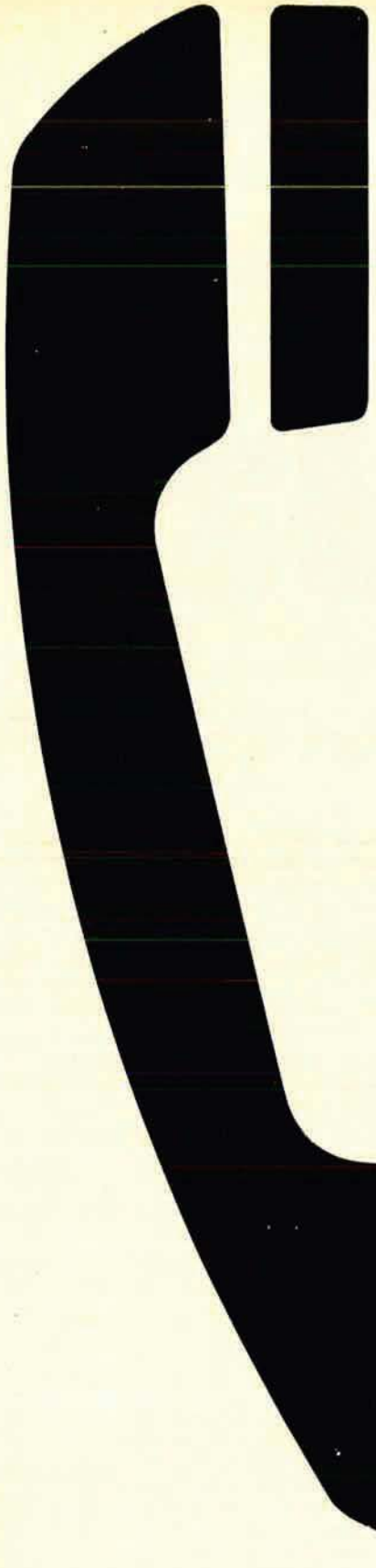
The 401st Bomb Group (H) stationed at Deenethorpe, England, in WW II, had a first reunion in '74. It was great! Any former members who would like to join us in a reunion in 1976 in England please contact

Ralph Trout
P. O. Box 22044
Tampa, Fla. 33622

456th Bomb Group (H)

Anyone interested in a 1976 reunion of B-24 Liberator crews and support elements (304th Bomb Wing, 15th AF, Italy, WW II) please contact

Maj. Larry Rijnovan, USAF (Ret.)
2013 N. Armistead Ave., #E-21
Hampton, Va. 23666
Phone: (804) 838-1081
or
Arnold J. Rosemeyer
1023 Schiff
Cincinnati, Ohio 45205
Phone: (513) 251-0791



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Airpower in the News

By Claude Witze
SENIOR EDITOR

View from a Hospital Bed

Washington, D. C., November 5

In more than twenty years of monitoring aspects of national defense in the capital, this reporter never has approached a holiday season and year-end when the atmosphere has been as disconcerting as it is in 1975.

National security is suffering, and it will suffer more. Yet it is hard to stay focused on defense in this hospital ward, because there is so much pain on adjoining beds. The intelligence community, essential to our survival, is in a state of shock. The news, for weeks, has been dominated by New York City and its self-inflicted wounds. And, as this final editorial effort of 1975 goes to press, we face the Bicentennial Year with new specialists and surgeons in the wards. For the most part, their skill is unproven, their medication undefined, and their allegiance to the Hippocratic Oath possibly vacillatory.

Three days ago, on a Sunday afternoon as quiet as Pearl Harbor Day was in 1941, Sen. Henry Jackson, a Democrat from the State of Washington who aspires to the White House, disclosed that the Gerald Ford Republican Administration had—that morning—fired James R. Schlesinger, the Secretary of Defense, and William E. Colby, Director of Central Intelligence. They are being replaced by Donald Rumsfeld, who will move to the Pentagon from his chair as White House Chief of Staff, and George W. Bush, recalled to CIA from a post in Peking.

On top of this, Mr. Jackson revealed, Secretary of State Henry Kissinger is giving up his second job, as head of the National Security Council, which made him the White House adviser on security affairs.

Mr. Jackson, of course, lived up to his nickname. He scooped President Ford, who waited until Monday evening to confirm the news. By that time, the only surprise he had left was the selection of Elliot L. Richardson to succeed Rogers C. B. Morton as Secretary of Commerce.

The fact that the Senator made the first headlines was no more surprising than the news itself. According to his associates, Mr. Jackson himself was as much in the dark as everyone else, including Republican leaders on Capitol Hill. A news magazine, checking on the rumor, called the Senator and asked for comment. He checked, found that Dr. Schlesinger and Mr. Colby had, indeed, been discharged. He used the opportunity to announce the news and express his dismay. He said the removal of Dr. Schlesinger indicates the White House "cannot tolerate different views and honest advice on the most serious issues of national security." Mr. Jackson, of course, has long frowned on Henry Kissinger and his enthusiasm for détente with Russia. His obvious reaction, and that of many others, was that the Secretary of State had won out in a policy brawl with the Secretary of Defense.

Dr. Schlesinger

Mr. Colby

There is no unanimity about this. One rumor in the Pentagon was that Dr. Kissinger had agreed to relinquish his NSC responsibility, under pressure generated to some degree by Mr. Rumsfeld, only with the understanding that Dr. Schlesinger be replaced. This assumes he could make such a demand and prevail, which is not likely. A better case can be made for the theory that the White House staff chief convinced

Dismissed by the White House, Defense Secretary James R. Schlesinger marches with head high and salutes the colors at his retirement ceremony held outside the Pentagon. USAF Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, took part in the exercises, paying high tribute to his civilian boss on behalf of all US armed forces.

the President that Dr. Kissinger had too much power, and it was cut back. Both Mr. Ford and Mr. Rumsfeld were known to be critical of Dr. Schlesinger's performance on Capitol Hill.

Even this, upon examination, proves flawed. It is true the Secretary used some strong words to express his disappointment with House cuts in the defense budget. And the reductions projected for his Fiscal 1977 request, not being readily digested by the Office of Management and Budget, are known to have upset him. But it is not true that Dr. Schlesinger lacks support in Congress. There, the conservative faction valued him as the lone critic of détente in the executive branch. Typical is the Virginia Independent, Harry F. Byrd, who fears the firing of Dr. Schlesinger "means more emphasis on détente and more concessions to the Russians." As for the liberal, and usually younger members, including some stern critics of defense spending and friends of détente, they retain respect for James Schlesinger. They openly admire his integrity, his expertise, and his intellectualism. When they argue, he argues on their level and is a more than worthy antagonist.

When Dr. Schlesinger became Secretary in July 1973, AIR FORCE Magazine suggested that he came to the post with better credentials than any of his predecessors. An economist, an expert in strategic analysis for the Rand Corp., defense expert at OMB, and Director of CIA, his background was ideal. Many observers feel that it is these capabilities, many of them requiring an appreciation of highly sophisticated strategies and weaponry, that helped make the Secretary a thorn in the side of the State Department. Dr. Kissinger has, on occasion, displayed what at least one critic has called "technological incompetence." He has been known to bargain about weaponry without knowing essential facts about the weaponry. A recent example, details of which still are blanketed by secrecy, was his agreement to consider giving the Pershing missile to Israel. Dr. Schlesinger's discomfort on this issue—the capabilities of the Pershing and the status of the production facility not having been considered—has not been hidden. The agreement, he hoped, was a pledge to do no more than weigh the idea, and find it wanting.

The quality of Dr. Schlesinger's Pentagon leadership

DONALD RUMSFELD—THE NEW SECRETARY OF DEFENSE

Pentagon officials who want to keep up with Donald Rumsfeld, the new Secretary of Defense, will have to get up early in the morning. The man is a former wrestler, a physical-fitness buff, and he goes to work at 7:00 o'clock, ready for a long, hard day.

There are two aspects to his military background. He went into the Navy as an ROTC graduate from Princeton University in 1954 and served two years as a flight instructor. At a vastly different level, he also was our ambassador to the North Atlantic Treaty Organization for most of 1973 and 1974.

Mr. Rumsfeld was put in the upper strata of the executive branch by Richard Nixon, and there are many who believe he survived the debacle of Watergate only because he was serving in the Brussels post, far from the White House scene, when the end came.

The new Secretary was only thirty-seven years old when he came to Washington a dozen years ago as the new Republican congressman from the Thirteenth District of Illinois. Thus, half of his career in public life was spent on Capitol Hill, where he knew Gerald Ford and helped him defeat Charles Halleck for the post as Republican leader. That was in 1965, and probably was the highlight of Mr. Rumsfeld's record in Congress, where he was viewed as a bit of a maverick from a district that was not representative of mainstream America.

He did serve on the Government Operations, Science and Astronautics, and Joint Economic Committees.

The record shows that Mr. Rumsfeld, who was on the Military Operations Subcommittee of Government Operations, was highly critical, in 1966, of Robert McNamara's assessments of the situation in Vietnam. He was an open admirer of Adm. Hyman Rickover. At one point, he was critical of the Defense Department for its purchase of items overseas, often fabricated through the pirating of US patents, and at the expense, he argued, of American jobs and money. He showed interest in the draft problem and tried to get Congress to set up a joint committee to study the idea of voluntary service.

It was in 1969 that President Nixon persuaded him to take a job as White House assistant and Director of the Office of Economic Opportunity. Next, he was Director of the Cost of Living Council. He was a member of the Domestic Council and Chairman of the Property Review Board.

Ambassador Rumsfeld took leave from his NATO post to help in the transition from the Nixon to Ford Administrations, and went back to Brussels with no plans to take a desk in the White House. He was at one, about a month later. Critics called him "Ford's Haldeman," but his friends said he was the kind of administrator the new President needed at this point.

Secretary Rumsfeld was born in 1932 in Chicago. Following his Navy service, he was an administrative assistant to Congressman David Dennison of Ohio and then administrative assistant to Robert P. Griffin, now a Senator, of Michigan. He returned to Chicago in 1960 and worked there as an investment banker until he was elected to Congress.

His wife is the former Joyce Pierson, and they have three children.

Old photos of Mr. Rumsfeld as a Congressman show him with a close-cropped crew haircut, typical of Navy aviators. His locks, like his experience, have lengthened substantially in the past decade.

was recognized in September, when the Air Force Association selected him for its annual H. H. Arnold Award. The citation hailed "his intellectual appreciation of the benefits and limitations of military power." It spoke of "his singularly effective articulation of vital defense needs to the Congress and the American people." It, finally, commended "his steadfast commitment to the pursuit of peace through a flexible but unequivocal deterrent military posture." There was a closing tribute to his "superb leadership as Secretary of Defense."

Possibly the key reactions to the Halloween shakeup, or at least the most meaningful, came from abroad. The Kremlin had reason to be pleased. Our NATO allies were reported to be distressed.

Of particular interest to the Air Force was the selection of Lt. Gen. Brent Scowcroft, who inherited Dr. Kissinger's post as head of the NSC and President Ford's security adviser. The General has been working at what amounts to the same job as a deputy to Dr. Kissinger. This has led to hasty speculation that he is the Secretary's alter ego and that the advice given to Mr. Ford will continue on the same track.

Those who know General Scowcroft are skeptical about this. He is a career Air Force officer with wide experience in staff planning, a competent linguist, and an expert on Russia. Friends credit him with his own intellectual capabilities and independence as well. President Ford, long pledged to the maintenance of an adequate defense program, certainly included General Scowcroft when he emphasized that the new appointees are on his team: "It was my decision. I fitted the pieces together, and they fitted excellently."

It is not possible to ignore the political implications and background of the sudden shift in personnel. The decision of Vice President Rockefeller to retire, the growing evidence that Mr. Ford may face a tough reelection campaign that includes challenges within his own party, and the decline of national security as a potential issue in the hunt for votes all are factors.

USAF Secretary John L. McLucas at his retirement ceremony is flanked by Defense Secretary James R. Schlesinger and Gen. David C. Jones, USAF Chief of Staff. Dr. McLucas moved to a new job as FAA Administrator. At press time no successor had been named to replace him at the Pentagon.

Up on Capitol Hill, the defense budget is facing rough treatment. To recap: as reported here last month, the House voted a defense appropriation of $112 billion. This would provide roughly $90.2 billion for Fiscal 1976 and $21.7 billion for the three-month transition to the start of a new fiscal year, now set for October 1976, instead of July, as in the past. The Pentagon entered an appeal to the Senate to have at least another $2.6 billion added, to offset at least part of the $7.6 billion cut by the House. The Senate Defense Appropriations Subcommittee has voted to grant only $406 million of this, setting the stage for a heated floor fight as AIR FORCE Magazine goes to press. Included in the added money is $140 million to restore at least part of the AWACS program.

The important thing, as the struggle continues under a new Secretary of Defense, can be brought out only by studying the basic integrity of the arguments presented. Strangely, this involves the case offered by two of the men who got the sack this week. They are the Messrs. Schlesinger and Colby.

More than four months ago, the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee held hearings on the "Allocation of Resources in the Soviet Union and China—1975." The chairman of the subcommittee was William Proxmire, Democrat, of Wisconsin. His key witnesses were Mr. Colby of the CIA, and Lt. Gen. Daniel O. Graham, US Army, Director of the Defense Intelligence Agency.

The transcript of their testimony was released, in the customary little green book, by Senator Proxmire, for the morning papers of October 27. Mr. Proxmire told the press what the lead on the story should be. He said the US leads the Soviet Union in advanced military technology and "assertions of a massive Soviet military buildup are nonsense, unsupported by the facts."

It is not surprising that Mr. Proxmire was wrong. Within forty-eight hours, CIA Director Colby dispatched a letter to Chairman John L. McClellan of the Defense Appropriations Subcommittee, which referred to the Proxmire interpretation of the Colby testimony. The Senator's report of a difference between what Dr. Schlesinger and Mr. Colby thought about Soviet defense expenditures and forces was incorrect. "Such a difference does not exist," Mr. Colby wrote, and he enclosed a copy of his testimony to prove the point.

Some major newspapers fell for the Proxmire bait and put headlines on his erroneous information. Crosby Noyes, in the Washington *Star*, accused him of "palpable fraud." One trade publication used the headline: "Proxmire Uses Chicanery to Dampen DoD Warnings."

There may be no connection between Mr. Colby's letter in defense of himself and Dr. Schlesinger, but the two men went down the drain together.

According to tonight's TV news broadcasts, the intelligence probes now occupy the front burner in Washington. In Moscow, according to Walter Cronkite, there is "quiet joy."

As James R. Schlesinger said recently, it will not be long until they ask, "Why weren't we warned?" The answer will be that Schlesinger warned them.

Meanwhile, as the medical staff for national security ailments is replaced, the same old doctors look after our economic complaints. The moaning victims of inflation, including the Defense Department itself, see no hope of relief.

Happy New Year. ■

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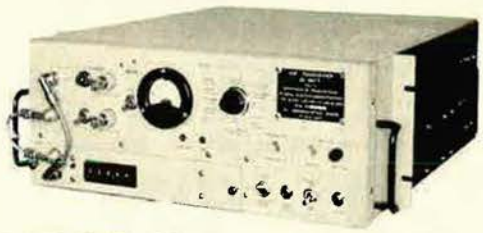

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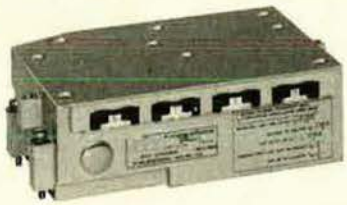

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Fundamental Air Force concerns center on precise assessment of exploitable Soviet weaknesses in case of a NATO war, boosting strategic mobility through self-sufficient general-purpose forces, and adequate space defense capabilities . . .

USAF LEADERS LOOK AT KEY REQUIREMENTS

BY EDGAR ULSAMER
SENIOR EDITOR

THE protracted crisis induced by chronic inflation, Congress' severe budget cuts, and the buildup of Soviet military capabilities dictate comprehensive changes in Air Force and DoD policies and plans. (The USSR is spending about thirty percent more on military capabilities than the US, according to Assistant Secretary of Defense-Comptroller Terence E. McClary, or the equivalent of about $120 billion compared to about $90 billion that Congress is expected to appropriate for US defenses in FY '76. If this disparity continues, the USSR will gain military dominance over this country within ten years.)

Recently DoD and Air Force leaders assessed the changes essential to meet the altered power balance, in meetings held by the American Defense Preparedness Association and the National Security Industries Association in Washington and Los Angeles. Principal changes include a shift from strategic to general-purpose weapons of about $3.5 billion in DoD funding over the next five years, and DoD-wide concentration on command control, surveillance, and target acquisition systems to multiply the effectiveness of strategic and tactical forces. Common to all planning is what Dr. Malcolm R. Currie, DoD's Director of Defense Research and Engineering, termed a "cultural change, a new two-way street between the Defense Department and [aerospace] industry" to reduce "ownership costs" of new weapons by encouraging cost trade-offs in performance, design, material selection, and manufacturing techniques.

USAF's New Net Assessment Task Force

US deterrence capabilities are receiving increased emphasis in the NATO area, especially interoperability of NATO component forces. Air Force Chief of Staff Gen. David C. Jones has set up a Net Assessment Task Force to "make a detailed investigation of Soviet doctrine, planning, tactics, and training and equipment, with a view toward pinpointing exploitable weaknesses." According to Lt. Gen. John W. Pauly, USAF's DCS/Plans and Operations, the Task Force's analyses posit "blitzkrieg" tactics with enormous concentrations of armor, motorized divisions, and supplies in any conventional attack on NATO. Thwarting these thrusts, General Pauly said, "depends critically upon the application of airpower at precisely the right point in both space and time."

These findings underscore the "importance of the emerging revolution in US airpower represented by the F-15, F-16, A-10, and the AWACS, and their successors. . . . This study confirmed our belief that the US would not be able to provide all the forces necessary to counter a . . . conventional attack and at the same time, [the other] NATO forces alone could not withstand a Pact attack without the presence of US forces," according to General Pauly.

The Task Force concluded that a successful defense of NATO will depend largely on the "degree of interoperability and standardization we can effect with our allies in the near term." USAF is working "within NATO for standardization of both procedures and equipment," General Pauly reported. (Dr. Currie also cited economic necessity as leading to "more inter-allied weapon developments," and an end to DoD's "Buy American" policy.)

A principal step in standardizing the use of airpower was promulgation in September of a NATO tactical air doctrine by the NATO Military Agency for Standardization, providing for a common doctrine and for centralized control of air throughout Allied Command Europe (ACE) under a single Air Commander. Completion of the Allied Forces Central Europe (AFCE) Static War Headquarters in Germany and the "expected employment of AWACS aircraft in the system will provide the command control and communications necessary to implement the new doctrine and enable the organization to function effectively," General Pauly predicted.

The Strategic Airlift Challenge

Cornerstone of US military effectiveness in the NATO area is strategic mobility. In a full-scale crisis, the Commander of the Military Airlift Command, Gen. Paul K. Carlton, believes the required capabilities would go "far beyond today's maximum strategic airlift . . . more than half again as much cargo as we could handle" if sea lanes are open, or perhaps "more than 500 percent of today's capability" if they are not.

USAF's airlift enhancement program, if approved by Congress, would double present capacities by providing aerial refueling for the C-5 and C-141 airlifters, stretching the fuselage of the latter by 280 inches, modifying the wide-body jets in the Civil Reserve Air Fleet (CRAF) to carry oversize and outsize cargo, and developing an Advanced Tanker/Cargo Aircraft (ATCA) to bolster refueling and airlift.

General Carlton announced plans to lease a modified Boeing 747 and a McDonnell Douglas DC-10 for a six-

month period to "try them on operational refueling missions," as a test of the ATCA concept. Either aircraft, he said, could offload many times as much fuel as the KC-135.

CRAF enhancement involves modifying 112 wide-body aircraft with heavy flooring and either a nose door or a side cargo door with a vehicle pivot point. The government should pay for modifying existing planes and require "that the door and floor be built into new aircraft," General Carlton recommended. The airlines would have to be compensated for carrying the extra deadweight of the modifications, but this "would buy us a standby cargo capability for one-thirteenth the cost" of additional military transports.

Eventually the US will have to abandon the luxury of developing both commercial and military transports, General Carlton said. A jointly developed aircraft "could help the civilian sector by stimulating the air cargo market [and] benefit the military . . . by assisting in the movement of oversize and outsize cargo under a CRAF-like arrangement."

The Strategic Mission

According to its Chief of Staff, Maj. Gen. Andrew B. Anderson, the Strategic Air Command must furnish both classic deterrence in the form of a total nuclear war capability, and nuclear options for selective, flexible strategic operations.

The USSR, General Anderson said, now has a lead of about 400 strategic delivery systems, or about 2,500 compared to 2,100 for the US. This approximate equilibrium is at risk unless continued parity can be assured by "mutually acceptable agreement . . . termination of Soviet strategic arms deployment, by modernization and increases on our part, or by a combination thereof." (Gen. William J. Evans, Commander of Systems Command, told the same meeting that the Soviets are adding "accuracy, mobility, and other qualitative improvements . . . to the lead they already have in manpower and megatonnage. They are investing heavily in R&D related to defense applications in space. They have developed fourteen new offensive strategic missile systems in the last decade, half of them in the past three years.")

USAF's missile improvement options for the next decade, General Anderson said, involve three paths, or a combination of two or more: first, the Mark 12A reentry vehicle, now in engineering development, to increase the nuclear yield of Minuteman IIIs while still allowing them to deliver the same payload package; second, deploying a larger number of smaller MIRVs, which would reduce flexibility by trading targeting efficiency for numbers of reentry vehicles; third, an increase of the numbers of Minuteman IIIs within SALT limitations.

General Anderson reported that the air-launched cruise missile (ALCM), a crucial issue in current SALT negotiations, "may be the most cost-effective way to destroy certain undefended targets." (Then Defense Secretary James R. Schlesinger, at a recent press conference, refuted reports that the issue had been raised by the Pentagon, but confirmed that developing the cruise missile "is desirable from the standpoint of the military posture of the United States." A major role of the cruise missile, he said, is to augment conventional forces rather than solely the strategic role which has received so much public notice.)

NORAD Requirements

Although North American Air Defense Command's active inventory of interceptors has dropped from 1,500 to 300, "we have the assurance of the Chairman of the Joint Chiefs of Staff and the Air Staff that . . . options to deploy a new interceptor on a timely basis will be kept open," according to Gen. Daniel James, Jr., Commander in Chief of NORAD and Aerospace Defense Command (ADCOM). Among the candidates to replace the F-106 are the F-15, F-16, and "other possibilities."

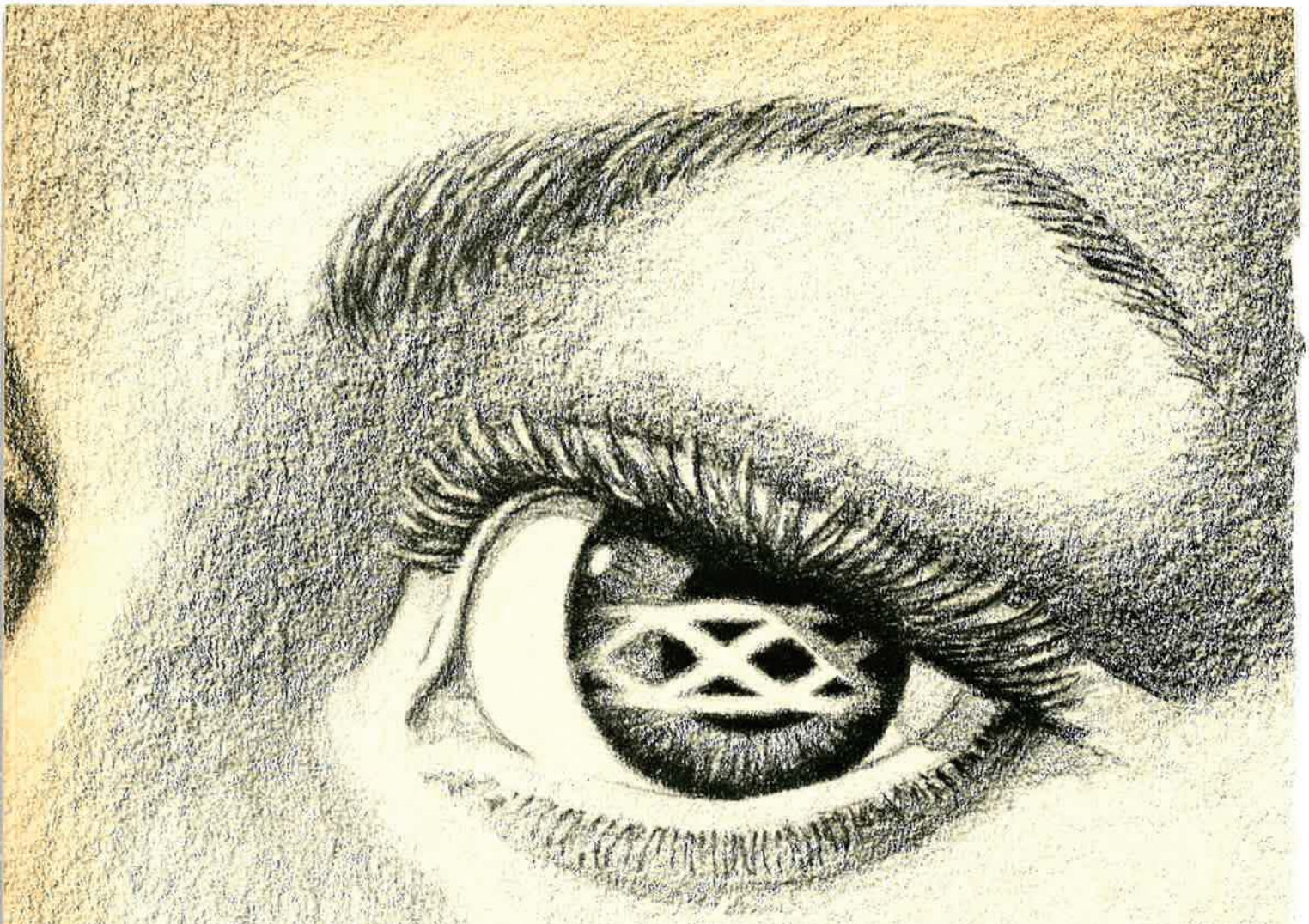
NORAD's near-term requirements to protect US airspace, General James said, are development of the five Joint Surveillance/Region Operations Control Centers (JSS/ROCC) operated by USAF and the FAA, augmented by twenty FAA air route control centers, and by deployment of AWACS.

General James made a strong bid for ADCOM to be the DoD operator of the National Space Transportation System, the so-called Space Shuttle: "The DoD space mission model calls for DoD use of the Space Transportation System beginning in FY '80. . . . Efforts should begin now to inject operational considerations into the planning for this system, and we should look toward assigning operational responsibility to an operational command in the far term."

The principal Shuttle tasks—periodic refueling or refurbishment of orbital military satellites and inserting satellites into orbit—are within the scope of the Command's operations, General James said. Such an arrangement would "benefit from existing data and communications channels connecting ADCOM with the National Command Authorities, Vandenberg, Cape Canaveral, the NASA Goddard Space Flight Center, and the Defense Special Missile and Astronautics Center." He pointed out that the charter of DoD to engage in activities in space necessary to defense of the US is not curtailed by the Space Treaty of 1967 or by SALT I.

The Soviets, according to General James, "see space as a fourth military arena. . . . They are making impressive progress in the use of space vehicles for tactical applications. Therefore . . . we proceed on the assumption that the [ADCOM] mission requires the capability to defend against all enemy hostile acts. . . . We will be prepared to ensure freedom of access and transit in space for all US space projects and to defend against any threat to US interests in space should the need arise." This appears to be the strongest hint to date about reactivation of a US space intercept capability, presumably with conventional warheads or more exotic, but not nuclear, technology.

A key requirement of defensive space operations is deep space surveillance, to be furnished in part by the Ground Electro-Optical Deep Space Surveillance System, which will provide real-time television images of space vehicles to altitudes above 20,000 miles. Similar capabilities will come from Cobra Dane, a phased-array radar at Shemya AFB, Alaska, that will be operational next year. Its primary function is to evaluate Soviet ballistic missile firings and provide early warning and impact assessment. ■



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BELL & HOWELL

Aerospace World

News, Views & Comments

By William P. Schlitz
ASSISTANT MANAGING EDITOR

Women cadets at the Air Force Academy will have a variety of uniforms: at left, the form-fitted jacket, skirt, and beret, to be worn when the women cadets are away from the Academy; top, for warm-weather wear; above, the winter class uniform; and at right, the uniform for formal occasions.

Washington, D. C., Nov. 4

Next June, the Air Force Academy will accept 100 to 150 women cadets for the Class of 1980. On graduation, the women will be granted bachelor of science degrees and commissions as Air Force second lieutenants.

Except where physiological differences dictate, both male and female cadets will participate in a common training program at the Academy, officials said.

The women cadets will be quartered in a separate area of Vandenberg Hall dormitory and during initial years will be directly supervised by women air training officers (ATOs).

On the academic side, the female cadets will find available any of the twenty-one majors offered male cadets and will be eligible for any of the almost seventy cadet extracurricular activities that range from skiing to judo.

Planning for the introduction of women cadets into this heretofore male domain began in 1972 and seems comprehensive even by tough USAF standards.

Health and scholastic entrance requirements will be alike for both men and women, with the physical aptitude test for the latter changed slightly.

The special group of ATOs the Air Force has delegated as supervisors will act as upperclasswomen to the newcomers, in much the way that officers filled that role when the Academy opened initially. The ATOs are to undergo extensive training in military studies, drill and ceremonies, physical conditioning, and other pursuits to qualify.

The Academy has always placed heavy emphasis on physical fitness and participation in sports, and this tradition will carry over to the incoming female cadets. In intercollegiate sports, Academy teams of women will compete initially on the junior college level. Eventually, a full-size program of nationwide competition will evolve—reflecting the current expansion of women's intercollegiate sports in general and the changed nature of the Air Force Academy in particular.

Aerospace World

In October, USAF successfully fired its first Imaging Infrared Maverick missile. The new missile, designated AGM-65D, was launched from an F-4 aircraft at Eglin AFB, Fla., and scored a direct hit on an M-48 tank.

Thus began a series of development test launches of a weapon designed for a full day and night capability.

Infrared Maverick is a joint USAF/Navy project under supervision of the AGM-65 System Program Office, Wright-Patterson AFB, Ohio. And, although the IR guidance technique was developed for the Maverick missile, it can also be used on other Air Force and Navy missiles and guided weapons.

The infrared-equipped AGM-65D picks up heat differences between likely targets and surrounding terrain and displays a TV-type image on a cockpit console. The missile, electronically locked onto its target, needs no guidance once fired. The system was built by Hughes Aircraft Co.

☆

The Soviets landed two instrument packages on Venus in late October, including a camera that returned the first photos ever taken of that forbidding planet's surface.

The instrument packages were parachuted to the surface from an unmanned orbiter, and the camera operated for almost an hour before succumbing to conditions of tremendous heat and pressure, Soviet officials said.

The camera landed among a scattering of large rocks, thereby disproving one theory that the planet is surfaced with smooth sand deserts. (The surface has never before been seen from earth, because Venus is hidden by a permanent carbon-dioxide cloud cover some twenty to forty miles thick.)

Soviet scientists expressed surprise at the relative high quality of the returned photos, considering the presumed poor light conditions prevailing, and noted that they could even distinguish "new" rocks from "old" because of sharp, unworn edges.

With the thick carbon-dioxide cloud acting as a heat trap, scientists estimate that Venus has a surface temperature of 900 degrees Fahrenheit.

☆

USAF recently tested the feasibility of using rocket-powered projectiles to deliver "chaff," an idea developed originally by the US Army Missile Command.

Chaff is a highly reflective material that is usually dispersed from a container mounted on an aircraft to disrupt enemy radar and radio transmissions. It was used to a considerable extent during the bombing campaigns of the Vietnam War to stifle radar-controlled enemy antiaircraft weaponry.

In the tests, at AFSC's Armament Development and Test Center facility at Cape San Blas, Fla., three types of projectiles were demonstrated. Using varying dispensing techniques and powered by 2.75-inch rockets, the projectiles were launched from an Army AH-1G Cobra helicopter gunship against different simulated threats.

According to the Electronics Test Division at ADTC's 3246th Test Wing, which managed the program, the results of the test firings were satisfactory. The Army plans to give the matter further study.

The Army developed two of the projectiles, while the third was produced by Tracor, Inc., of Austin, Tex.

☆

The Air Force in October began a year-long test of the consolidation under a single manager of SAC and TAC base-level aircraft maintenance.

The merger, at Seymour Johnson AFB, N. C., will affect the total maintenance resources of SAC's 68th Bomb Wing, the 8th Tactical Deployment Control Squadron, and TAC's 4th Tactical Fighter Wing.

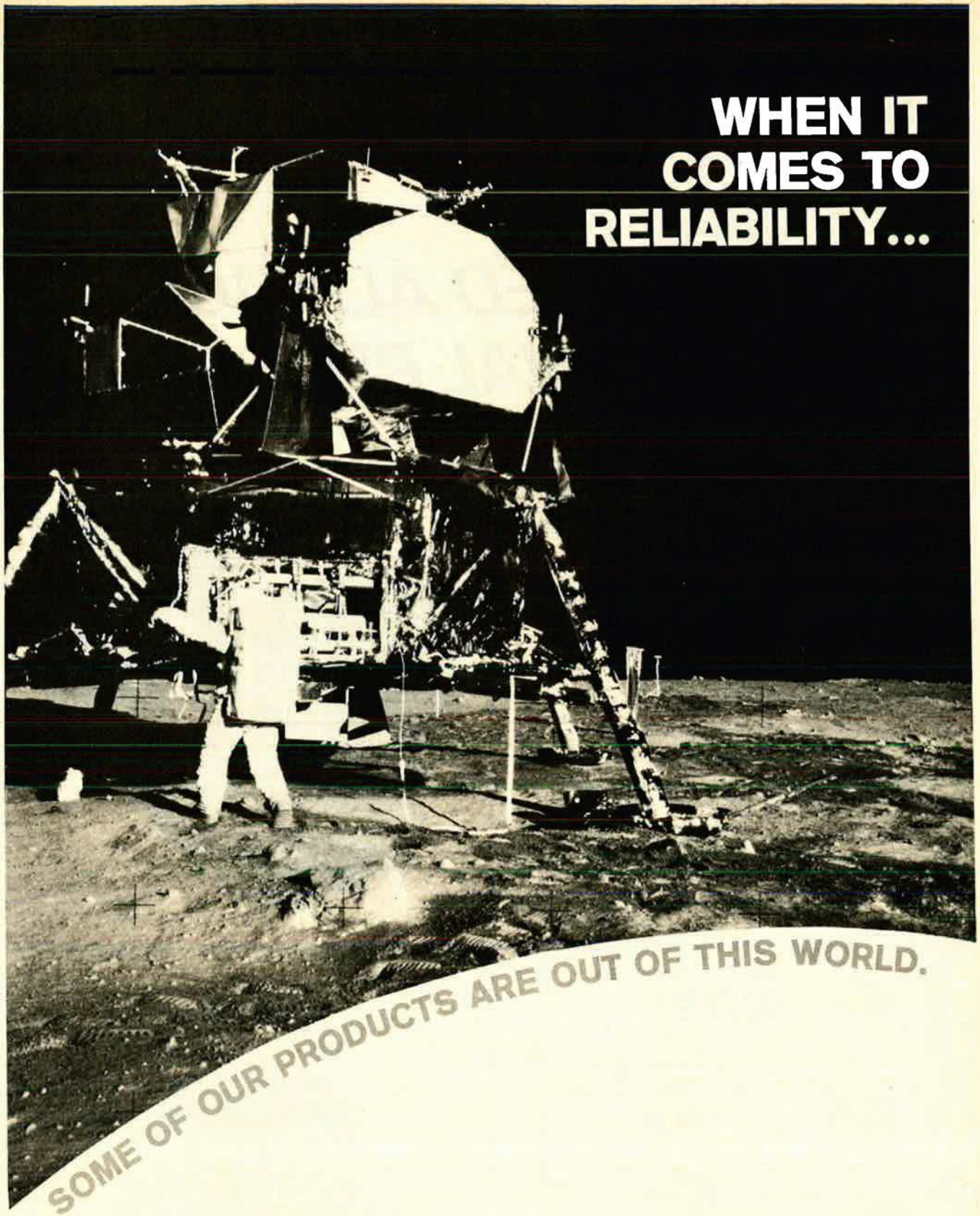
Whereas each previously conducted its own maintenance, all have now been combined under a single Deputy Commander for Maintenance responsible to the Commander of the 4th TFW.

Object of the program is to determine how much more effective and economic such maintenance can be. If feasible, combined maintenance could be extended to other SAC/TAC-shared base complexes.

The Seymour Johnson merger itself is no small potatoes, involving as it does some 2,200 maintenance personnel.

—*Wide World Photos*

President Ford receives a plaque containing the crew patches of the Apollo-Soyuz space flight from the Russian and American crew members during a ceremony in the Rose Garden of the White House on October 13. From left, Soyuz crewmen Valery Kubasov and Alexei Leonov, Apollo crewman Vance Brand, the President, and Brig. Gen. Thomas Stafford, Apollo commander. Behind Kubasov is Vladimir Shatalov and Soviet Ambassador Anatoliy Dobrynin.



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Aerospace World

The first production A-10 close support aircraft made its maiden flight at Farmingdale, N. Y., on October 21. Fairchild Republic test pilot Jim Martinez conducted routine handling and airworthiness checks during the two-hour flight.

The prototype YA-10 first flew on May 10, 1972, and the preproduction plane flew first last February. Six preproduction A-10s are currently being flown at the Flight Test Center, Edwards AFB, Calif.

USAF plans a buy of 733 A-10s, a rugged twin-jet attack aircraft—the first USAF aircraft to be designed solely for close support.

The 355th Tactical Fighter Wing, based at Davis-Monthan AFB, Ariz., is the first TAC unit slated for the A-10, beginning in March 1976.

☆

A TAC unit—the 366th TFW, Mountain Home AFB, Idaho—took top honors in SAC's recent nationwide bombing exercise dubbed "Operation High Noon."

Combined scores from the two 366th F-111 crews ranked the unit first in the competition, which involved all twenty-one US-based SAC bomber units, the three TAC F-111 units, and Vulcan bombers from RAF's Strike Command.

Chosen at random by TAC commanders and from SAC crews on alert the day the exercise began, all aircraft took off and landed at home bases, with the exception of the RAF aircraft.

Purpose of the two-day operational exercise "was to evaluate capabilities of units to plan and execute contingency operations with minimum preparation time," USAF said.

TAC's 27th TFW F-111 crews, Cannon AFB, N. M., placed second in bombing, with SAC's 92d Bomb Wing, Fairchild AFB, Wash., scoring best overall results of any of SAC's participating bomber or tanker units. The Wing also posted the best single B-52 mission and best KC-135 mission.

As for the F/FB-111s, SAC's 380th Bomb Wing, Plattsburgh AFB, N. Y., flew the best individual mission, with the 366th TFW crews second and third. TAC's 474th TFW, Nellis AFB, Nev., was fourth.

Above, the first of twenty Fairchild AU-23A Peacemakers, military version of the STOL Porter, purchased by the Royal Thai AF. It can be armed with side-firing 20-mm cannon or 7.62-mm Miniguns, and quickly converted to a light transport role. Also new (left) is Bell Helicopter's YAH-63 Advanced Attack Helicopter (AAH), shown after liftoff for its first flight, October 1, near Fort Worth, Tex.

US MILITARY STRENGTH OUTSIDE CONUS

Data compiled by the Office of the Assistant Secretary of Defense (Public Affairs) and current as of June 30, 1975. For a full listing of US military strength, see p. 46 of this issue.

US Territories and Possessions (including Afloat)	32,000
Foreign Countries	485,000
TOTAL OUTSIDE THE UNITED STATES	517,000

WESTERN EUROPE AND RELATED AREAS	
Belgium	2,000
Germany	220,000
Greece	4,000
Iceland	3,000
Italy	12,000
Morocco	1,000
Netherlands	2,000
Portugal/Azores	2,000
Spain	9,000
Turkey	7,000
United Kingdom	21,000
Other	1,000
Afloat	30,000
TOTAL	314,000

FEWER THAN 250
Bahamas
Bahrain
Barbados
Brazil
Ethiopia
Johnston Island
Leeward Islands (Antigua)
New Zealand
Norway
Saudi Arabia
South Vietnam

SOUTHEAST ASIA	
Thailand	20,000

WESTERN PACIFIC	
Japan (including Okinawa Prefecture)	48,000
Philippines	15,000
South Korea	42,000
Taiwan	4,000
Afloat	28,000
TOTAL	136,000

OTHER AREAS	
Bermuda	1,000
Canada	2,000
Cuba	3,000
Guam	10,000
Iran	1,000
Panama Canal Zone	10,000
Puerto Rico	5,000
Other	5,000
Afloat	10,000
TOTAL	47,000

FEWER THAN 1,000
Australia
Greenland
Midway Island

ALL OTHER COUNTRIES: Fewer than 100 US military personnel

Aerospace World

Top SAC unit in navigation was the 5th Bomb Wing, Minot AFB, N. D.

☆

NASA has given a formal go-ahead for the follow-on development phase of the Space Shuttle Orbiter.

The supplemental agreement, with Rockwell International, includes the construction of Orbiter 101 and 102, approach and landing tests, and six orbital flight tests. Rockwell is already undertaking design, development, test, and evaluation of the Orbiter, part of the reusable, low-cost space transport system that will replace most US launch vehicles when it goes operational in the 1980s.

The add-on agreement boosts the estimated value of Rockwell's Orbiter contract to more than $2.7 billion.

☆

After consultation with Mrs. Ruth Spaatz, widow of USAF's first Chief of Staff Gen. Carl A. "Tooey" Spaatz, Lt. Gen. Ira C. Eaker, USAF (Ret.), and other aviation pioneers, the Air Force Memorial Board will rename the North Overlook at the Air Force Academy in honor of General Spaatz, who died in 1974.

Plans include landscaping and mounting a plaque to commemorate the accomplishments of General Spaatz. The project—to be financed on a donation basis—is expected to be completed by next spring.

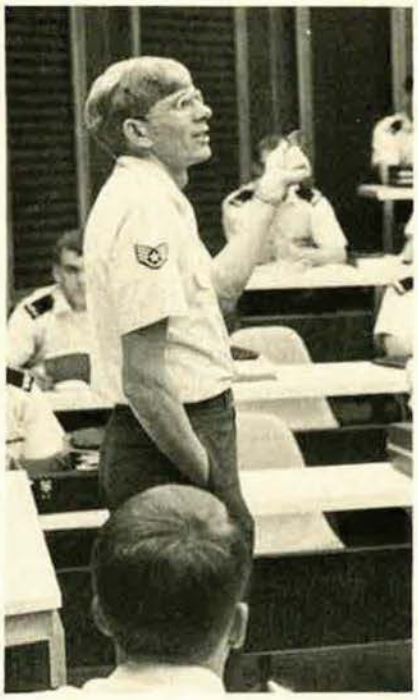
☆

Second Lt. William H. Long, Jr., now of the Air Force Aero Propulsion Lab, Wright-Patterson AFB, Ohio, was recently presented the Air Force System Command's General B. A. Schriever Award, in a ceremony at Kirtland AFB, N. M.

The award, for the outstanding technical achievement by a junior officer, recognized Lieutenant Long's paper on the "dispersion and growth of waves and instabilities in weakly ionized plasmas."

Air Force Association-sponsored plaques were awarded in three other areas of technical accomplishment:

On the second anniversary of his death, Arctic explorer Col. Bernt Balchen is honored in this memorial service at Arlington Cemetery.



At right, Air Force Academy's only enlisted instructor, SSgt. Mark W. Clanton, makes a point during a lecture. He teaches freshman cadets typing and study techniques.

- **Science:** Dr. David A. Depatie, Air Force Weapons Lab, Kirtland AFB, N. M., for "Development of Novel Aerosol Laser Absorption Cell."
- **Engineering:** Daniel J. Kolega, James E. Leger, and Gene A. Petry, Aeronautical Systems Division, Wright-Patterson, for "Air Launch of Strategic Missiles (ALSM)."
- **Studies and Analysis:** Wayne A. Zwart, Foreign Technology Division, Wright-Patterson, for "Combined-Cycle Rocket-Ramjet Propulsion."

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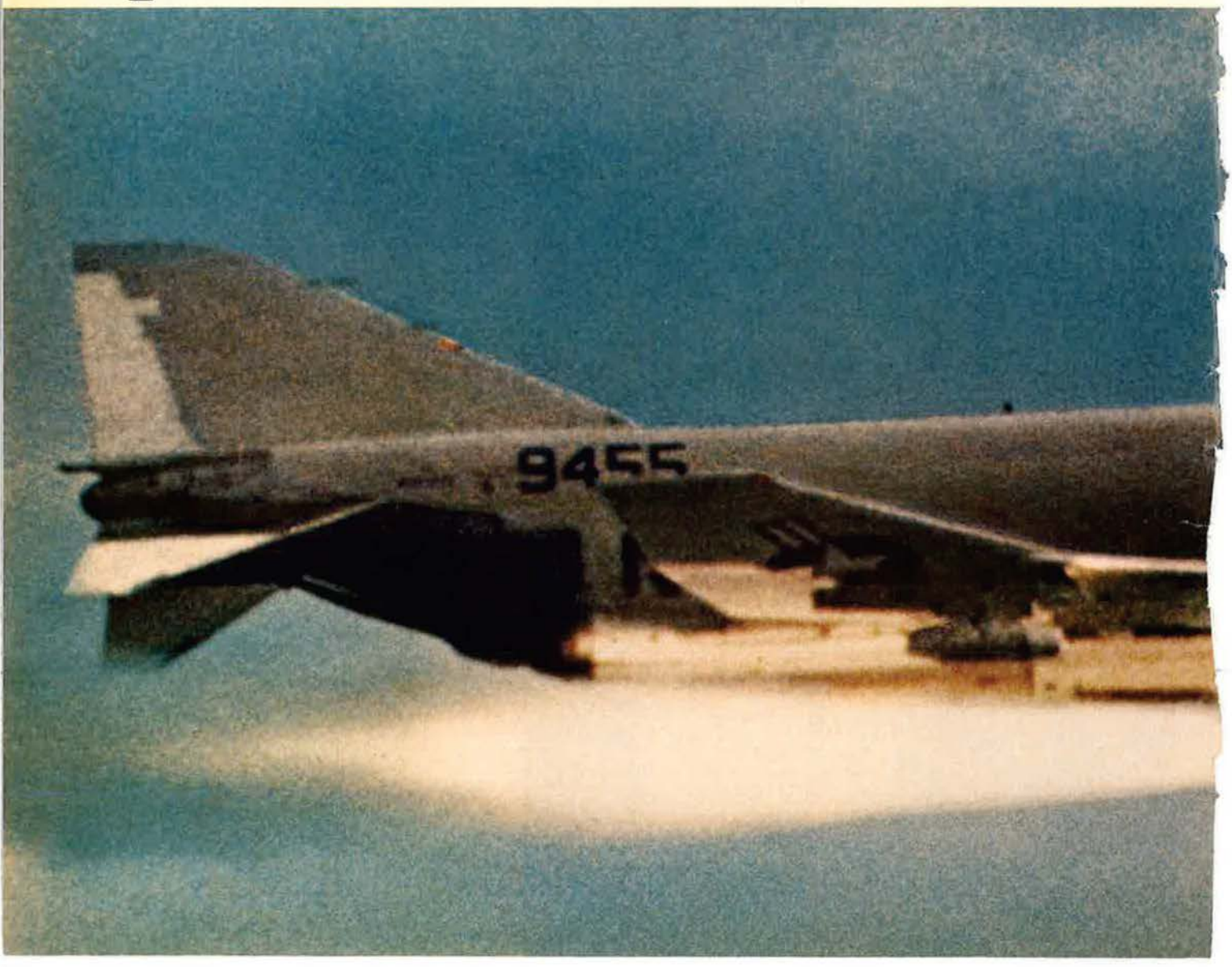

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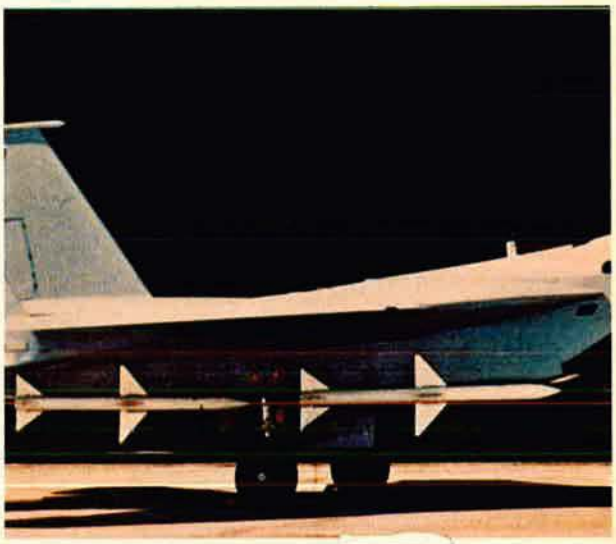

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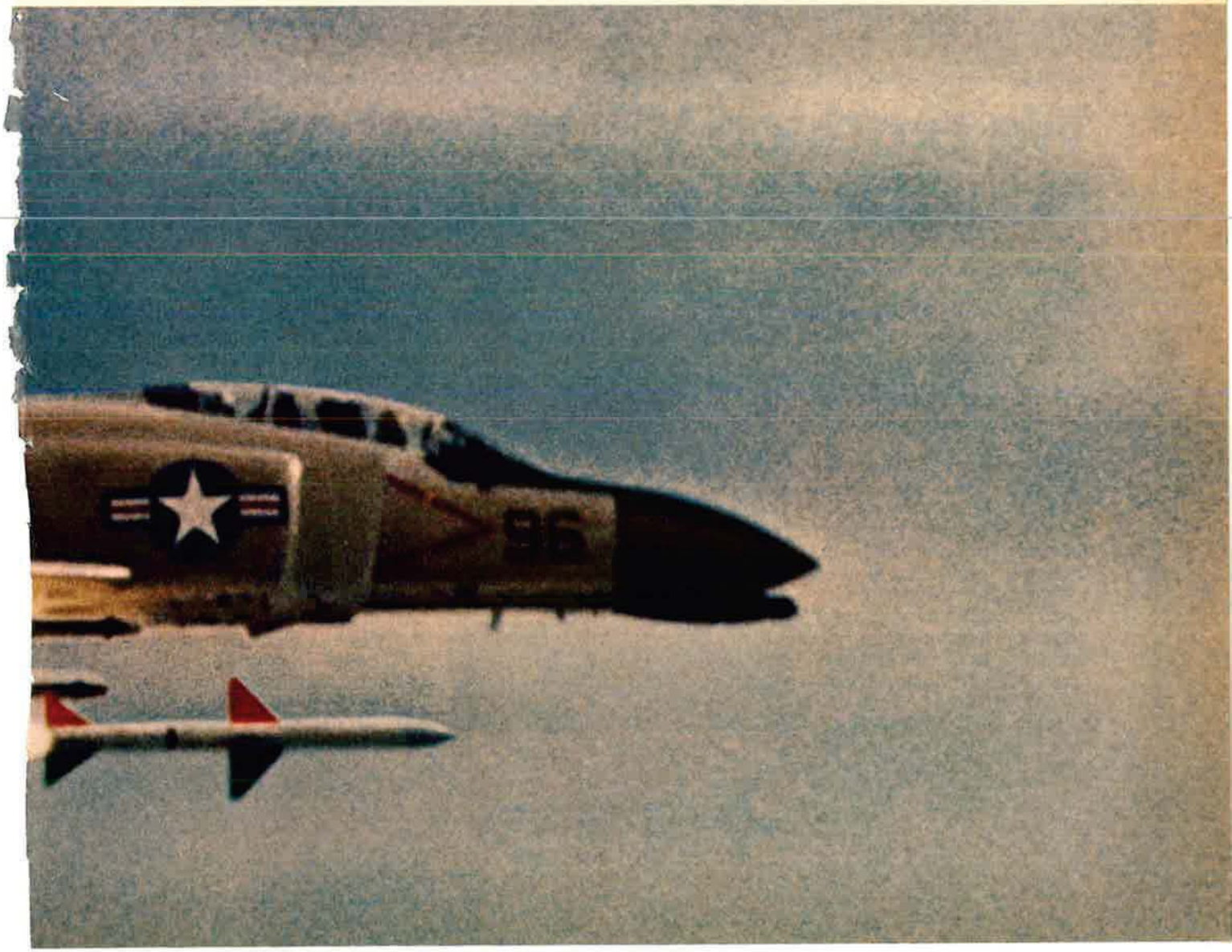

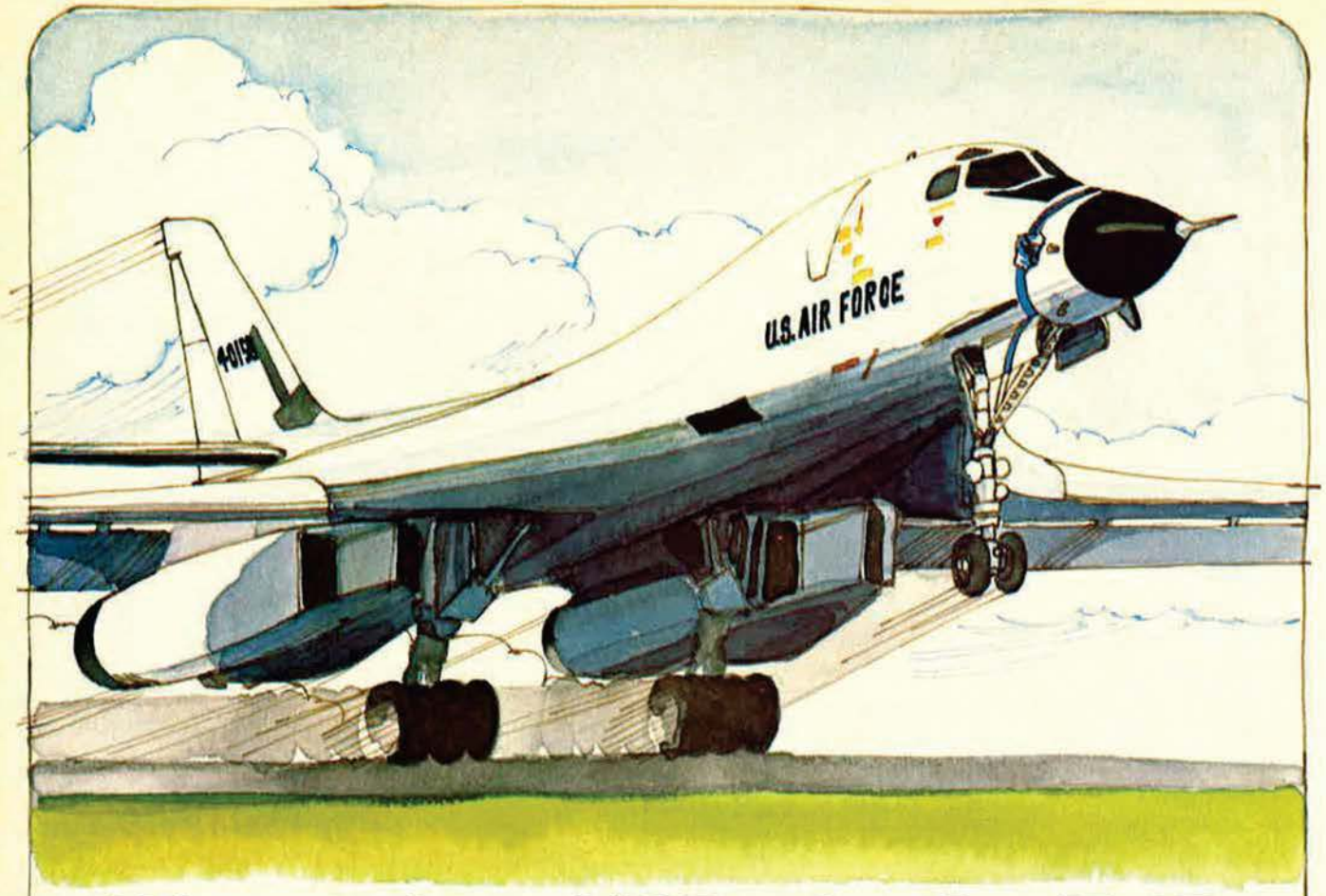

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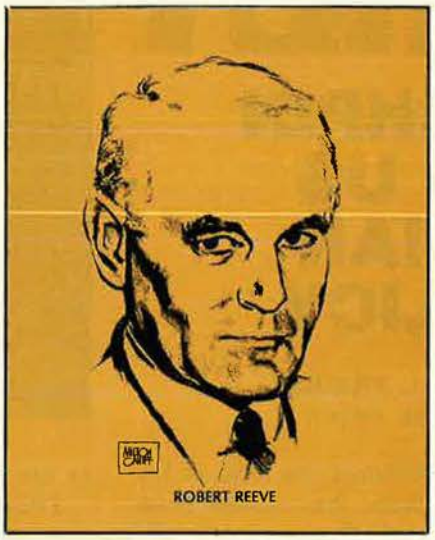
Aerospace World

The Aviation Hall of Fame, Dayton, Ohio, enshrined four more aviation greats during annual ceremonies in November. The total thus far named to the Hall of Fame stands at sixty-two. The latest:

- **Reuben H. Fleet,** who died on October 29 at the age of 88. As Chief of Flying Training during World War I, he oversaw the building of forty flying schools. Later, as Air Mail Pilot No. 1 and a major in the Air Service, he organized the first air mail service between Washington and New York. Upon leaving the service, Mr. Fleet established Consolidated Aircraft Corp., which built primary trainers, seaplanes, and bombers, including the B-24 Liberator.
- **Frank Luke, Jr.,** became known as the "Balloon Buster from Arizona" during his brief but action-packed career in France during World War I. He was credited with destroying eighteen enemy aircraft and balloons in seventeen days. Twenty-one years of age, he took off for Verdun on September 29, 1918, and never returned. *(For an article about Lieutenant Luke, see September '73 issue, p. 78.)* Luke was the first American airman to be awarded the Medal of Honor.
- **Robert C. Reeve,** seventy-seven, is famous for his efforts in bringing aviation to Alaska. As a young man, he was a pioneer in opening up South America to aviation, logging 1,500 hours flying air mail in 1930 alone. Later, after a bout with polio, he headed for Alaska, where there were few communications, navigational aids, or airfields, and became the state's first "Glacier Pilot." A true aerial pioneer, he helped set up air bases from Anchorage to Adak and also founded Reeve Aleutian Airways.
- **Roscoe Turner,** an Honorary Chairman of Aviation Hall of Fame ceremonies who died in 1970, became a legend in his own time as the "Knight Errant of the Air." A racing pilot, he won the famed Thompson Trophy race three times. Mr. Turner broke the transcontinental flight record more times than any other pilot. He helped train instructor pilots during World War II, and for his aviation pioneering was awarded the Distinguished Flying Cross in 1952.


REUBEN FLEET


FRANK LUKE, JR.


ROBERT REEVE


ROSCOE TURNER

The results of a survey indicate that aerospace industry employment will continue to decline—to 903,000—by June 1976. According to the Aerospace Industries Association, this represents the lowest level since 1960, the beginning of rapid industry growth that peaked in 1968.

In the peak year of 1968, aerospace employment stood at 1,500,000. While new military aircraft programs will "represent considerable activity," AIA said, deliveries of those aircraft will be spread over several years and thus not generate the need for a substantial number of new employees.

☆

NEWS NOTES—Air Force Secretary John L. McLucas in October was nominated **to head the FAA.** If confirmed by the Senate, he'll replace **Alexander P. Butterfield,** who resigned in March.

William E. Stoney has been named DoD's Deputy Director of Defense Research and Engineering (Tactical Warfare Programs), succeeding David R. Heebner, who joined private industry.

Regarding weapons acquisition, **Deputy Secretary of Defense William P. Clements, Jr.,** has ordered project managers of fifty-nine major weapon systems to report to him directly the first of each month on the status of their programs in order "to provide an accurate and precise picture" of problem areas.

China exploded a **nuclear device** underground at its nuclear test area near Lop Nor on October 26, the first test since June 1974. Seismic monitoring estimated the yield range at less than **twenty kilotons.** *(For more on China, see p. 77.)*

Died: Claire L. Egtvedt, the aeronautical engineer who developed the **Boeing B-17 Flying Fortress** and headed the company for more than thirty years, at his home in Seattle, Wash. He was eighty-three. Also credited for the B-29 Superfortress, Mr. Egtvedt, during the Depression '30s, staked Boeing's resources on designing a big, long-range bomber. He retired in 1966. ■

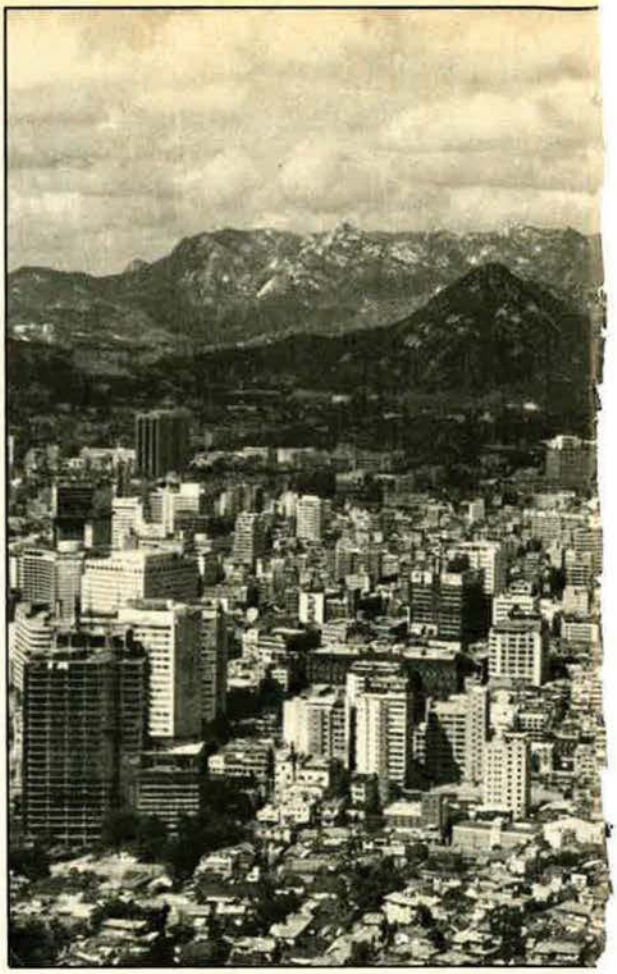
AIR FORCE
DECEMBER 1975 MAGAZINE

US interests in the Republic of Korea are of a different order from those associated with Southeast Asia. Our alliance with the ROK rests on a firm foundation of strategic, economic, political, and military considerations that make . . .

KOREA

LINCHPIN OF US ASIAN POLICY

BY JOHN L. FRISBEE
EXECUTIVE EDITOR



WITH the fall of Vietnam, the focus of US policy in the Orient has shifted from Southeast to Northeast Asia. Our current foreign policy objective in that area appears to be protection of US interests in the Western Pacific and Asia by promoting stability, rather than containment of communism as an end in itself. The difference is subtle but real.

Because of Japan's status as the third ranking industrial nation of the world, preserving its independence and cooperation is a dominant element of US Asian policy. The key to success, however, rests ultimately on the survival of the Republic of Korea (ROK) as an independent, non-Communist nation. For that reason alone, our continued material and moral support of Korea should enjoy a priority second only to support of NATO. The cost to US taxpayers is relatively (and increasingly) low; the benefits disproportionately high.

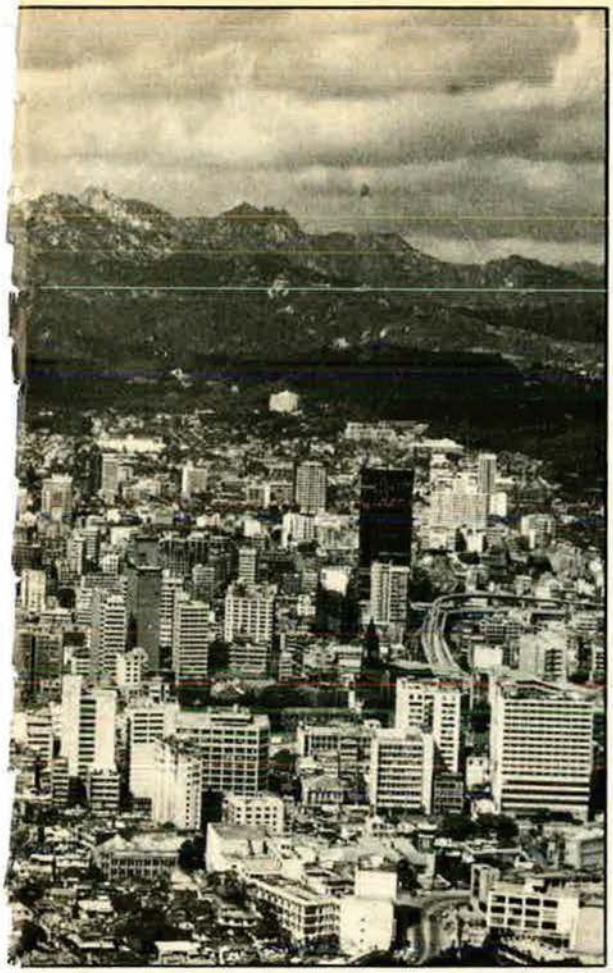
This judgment is not accepted universally by the American public or on Capitol Hill. A recent Harris survey, released on July 31 of this year, revealed that only thirty-nine percent of Americans want to help South Korea militarily if it should be attacked by the North Koreans. A number of influential members of Congress are on record as favoring withdrawal of all or a part of the 42,000 US troops now in Korea. These public and congressional attitudes run counter to US commitments set forth in 1954 in our mutual defense treaty with the ROK.

The reasons for lukewarm support of Korea are not difficult to identify. Principal among them is the disillusionment and war-weariness created by our Vietnam experience. But parallels between Vietnam and Korea are largely illusory. The two situations can be contrasted, but not compared, in terms of strategic importance, political stability, economic capability, military preparedness, and national will to survive.

A second reason is the unquestionably authoritarian character of President Park Chung Hee's regime. Frequently it has been subjected to emotional judgments that ignore the historical and current contexts of Korean affairs. On balance, Park has had a worse press in the US than he deserves.

A third reason is the relative scarcity of media reporting from Korea. The major news organizations do not have bureaus in Seoul. Coverage tends to be sporadic and, with some notable exceptions, either sensational or superficial.

There is no evidence that US abrogation of its ties with South Korea is about to happen, and we are not attempting to set up this prospect as a straw man. However, if the US is to help sustain stability in Northeast Asia and the Western Pacific, commitments to Korea will have to be long-term, if not open-ended. The



Seoul, the capital of the Republic of Korea and now a city of 6,500,000, lies within rocket and heavy artillery range of the DMZ.

more we succeed, the less obvious will be the need for a continuing commitment—at least to those who tend to think emotionally, in terms of abstract human values, rather than strategically, in terms of national interest.

The Strategic Equation

The Korean peninsula is one of the strategically important areas of the world, certainly the most important in Northeast Asia. Bounded on the north by China, on the northeast by the USSR, and lying only thirty miles from the closest Japanese island, Tsushima, and 130 miles from Honshu, it is the one area where the interests of the four great powers—the US, USSR, People's Republic of China (PRC), and Japan—converge.

Since World War II, American forward defenses in the Western Pacific have lain along a chain of island bases from the Aleutians through Japan, Okinawa, Taiwan, and the Philippines, to Australia and New Zealand. This chain is anchored to the Asian mainland in Korea.

The fall of South Korea, either because of US withdrawal or inadequate support of the ROK, would unhinge the delicate balance in that area. It probably would lead to cancellation of US base rights in the Japanese home islands and Okinawa, the Philippines, and Taiwan, forcing us to fall back on a forward defense line centered on Guam and Saipan. As Secretary of State Henry Kissinger has put it:

> If we abandon [our treaty with the Republic of Korea], it would have drastic consequences in Japan and over all Asia because it would be interpreted as our final withdrawal from Asia and our final withdrawal from our whole postwar foreign policy.

Even more serious, Japan would probably feel it necessary in her own perceived self-interest to follow one of two courses of action: first, realigning her external relations toward close association with the USSR or China; second, rearmament, very likely with nuclear weapons since a conventional defense of Japan seems impractical.

The possible consequences of Japanese rearmament range from a preemptive attack on Japan by one of the Asian Communist powers to a revival of Japanese militarism. At the very least, it would create bitter controversy within Japan and weaken the brand of liberal democracy that has taken root there. (US relations with Japan will be examined in more detail in a special report in a forthcoming issue.)

Other possible, though less likely, developments could follow communization of the Korean peninsula. While the USSR is principal provider of military equipment to North Korea, China apparently has more influence with North Korea's President Kim Il Sung. Inevitably, both Communist giants would vie for domination of a unified Korea. Penetration of the peninsula by the USSR would complete Russia's encirclement of China on the north and northeast, and would have to be resisted by the PRC to the limit of its capabilities.

At the moment, neither the USSR nor the PRC is encouraging Kim to invade the South. Each is pursuing its own brand of détente with the US, and neither wants to upset its applecart by direct conflict with US interests in the Far East. The reluctance of either to back Kim in an invasion of the South, coupled with the strength of ROK forces and a US military presence in Korea, makes war unlikely in the near future.

We can have no assurance that either the USSR or China regards détente as more than a tactical maneuver, however.

The Economic Situation

Our recent experience in Southeast Asia has engendered a high degree of public and congressional skepticism about the wisdom of further US involvement in Asian affairs. But, as pointed out earlier, there is little similarity between the strategic importance of South Vietnam and the Republic of Korea, or between the two coun-

tries' economic, political, and military strength.

Both the political stability and military capability of the ROK are heavily dependent on its economic health. During the past decade, South Korea has worked an economic miracle, based on government planning and tight economic control, and on an abundance of cheap, disciplined, and productive labor.

The ROK Air Force is well trained, but has fewer than half as many combat aircraft as North Korea. ROKAF is supplementing its F-5As, shown here, with F-5Es and more F-4s.

Those who have not seen Seoul since Korean War days will find the transformation hard to believe. From its prewar population of 1,500,000, it has become one of the ten largest cities of the world with a population of 6,500,000. The streets are full of cars, trucks, and buses, all made in Korea. A four-lane superhighway (built at one-fifth the cost of comparable US roads) connects Seoul with Pusan. Expanded highway and rail systems have brought any part of the country within four and a half hours of any other—a military as well as an economic plus.

Korea began its economic takeoff in the early 1960s. From 1963 to 1974, the Gross National Product (GNP) increased at about ten percent a year. Skyrocketing oil prices and a worldwide recession brought the growth rate down to 8.6 percent in 1974 and to a probable seven percent in 1975. Even that rate, achieved at a cost of inflation that may reach twenty-five percent in 1975, is remarkable when contrasted to US economic growth, which has stagnated for two years until the third quarter of 1975, or to a one percent GNP growth in Japan.

Korea's goal for 1976, probably attainable if the economies of the US, Japan, and Europe show projected improvement, is an eight percent growth rate with inflation cut to between twelve and fifteen percent.

Korea's relative prosperity rests on exports of light industry products—textiles, electronics, machine tools, plywood, metalworking, and petrochemicals among them—and on shipbuilding. The country now manufactures all its M-16 rifles and could produce tanks, artillery, and even airplanes, but economies of scale possible in US industry probably will continue to make it less expensive for Korea to buy its more sophisticated military equipment in the US.

Low-cost, efficient labor (the recently established minimum wage for industrial workers is $100 a month for a sixty-hour week) has attracted private capital principally from the US and Japan, the latter providing about sixty percent of private foreign investment capital. Late this year, an intergovernment ten-year development aid pact for $3 billion was signed by Japan and Korea.

Korean exports have increased from $50 million in 1962 to an estimated $5 billion for 1975. The ROK's dominant trading partners have been the US and Japan, but now the Middle East and Europe buy about half of Korean manufactures and services.

Despite a wage base that seems pitifully low by Western standards, per capita GNP is the highest of any East Asian country except the offshore states of Japan and Taiwan. Living standards have increased dramatically and are reported to be far higher than in North Korea. Government-supported agricultural development is now paying off with rice production expected to meet domestic demands this year for the first time. Life expectancy has increased from fifty to sixty-five years, ninety-two percent of adults are literate, and South Korea's secondary schools and universities are turning out an

adequate supply of scientists, engineers, and managers.

The Republic probably will have an adverse balance of payments of about $2 billion this year, covered largely by short-term loans, but during the last four months for which figures are available (May–August 1975) there was a $25 million foreign exchange surplus. This is a dramatic improvement from the $920 million deficit recorded in the first four months of the year.

Barring another war, the economic future of the ROK remains a bright spot in the generally dismal economic progress of developing nations.

The Political Situation

There are both positive and negative sides to South Korea's domestic political situation. On the positive side, the population is homogeneous and shares a hatred of communism that is almost a religion. During the Korean War, about eighty percent of the country was occupied at least briefly by North Korean troops, who left behind no legacy of good will. More than 1,600,000 South Koreans died in that war. There is no underground Communist movement in South Korea—no equivalent of the Viet Cong. And there is no doubt among South Koreans that Kim Il Sung's objective is unification of the Korean peninsula under Communist control.

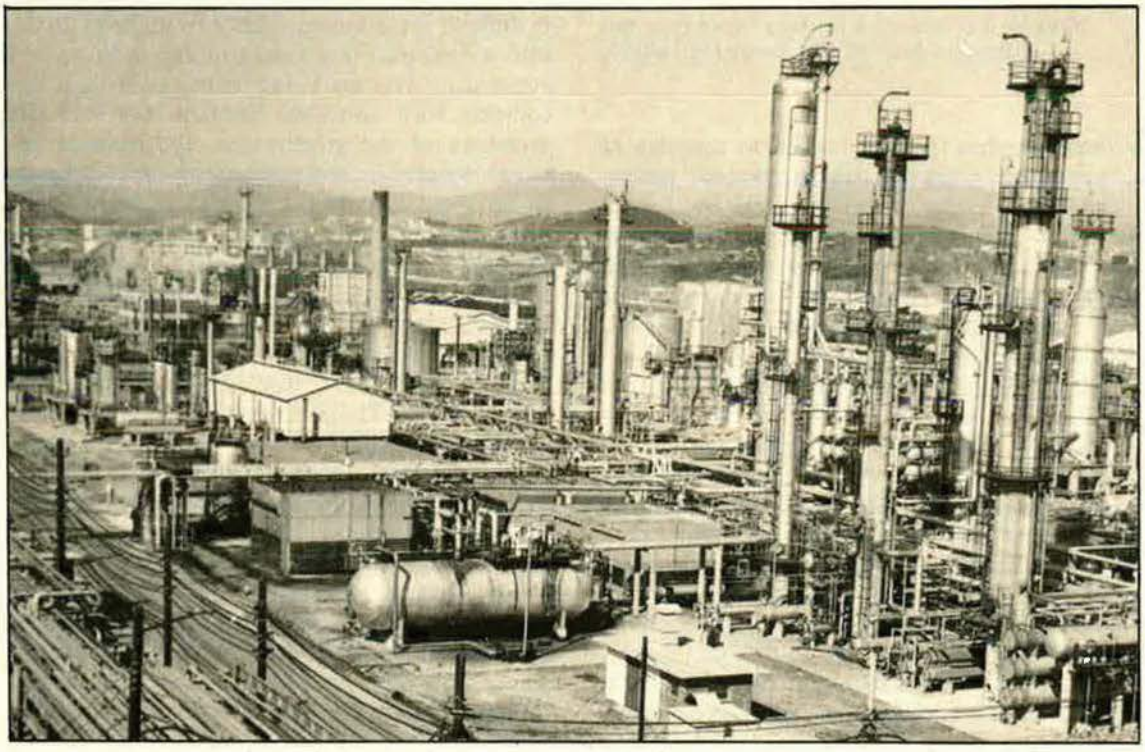
Second, an overwhelming majority of South Koreans support President Park's economic policies, which have brought unprecedented prosperity, and his foreign policy, which is based on close ties with the US and economic cooperation with Japan.

Third, there is strong support for the ROK military, based on a conviction that, within the Communist definition of war—which includes subversion, infiltration, and propaganda—a continuing state of war has existed between North and South since the armistice was signed in 1953.

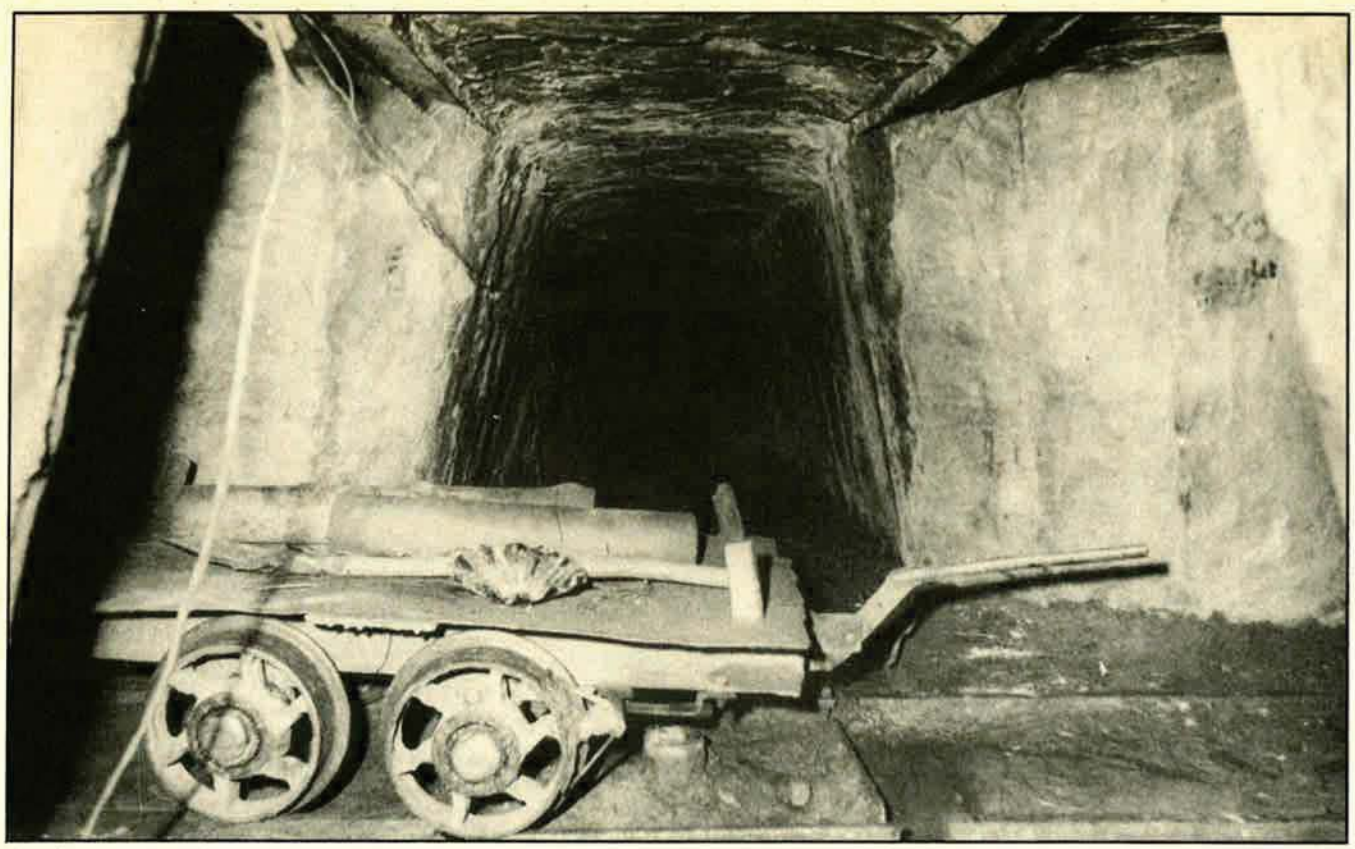
On the negative side is the authoritarian character of the Park Administration, enshrined in the 1972 Constitution which gives Park virtually unlimited power and tenure in office. Taken in the context of Korean history and of recent attempts to assassinate Park, to infiltrate the country from the North, and to create confusion through widespread student demonstrations, this is less an aberration than would be a comparable move by a Western democratic leader.

Throughout most of its 4,000-year history, Korea has had indigenous authoritarian government. From the late years of the nineteenth century until the close of World War II, the country either was dominated by Japan or ruled by thoroughly repressive Japanese viceroys. Following that war came the regime of Korean President Syngman Rhee—no model of liberal democracy. While there is an aspiration for liberalism, at least among South Korean intellectuals, there is no liberal tradition. Granted, that in itself is no reason for stifling the development of a more liberal brand of democracy.

In evaluating President Park's justification for the May 1975 decree that makes illegal any opposition to government policy, one could do worse than to consider the failure of our President and Congress to agree on an energy policy that is vital to national prosperity and defense.



South Korea's economic and industrial development during the past decade has been little short of phenomenal. Per capita GNP has increased fivefold and is now one of the highest in Asia.



In March 1975, this North Korean infiltration tunnel under the DMZ was discovered by UN Command Forces. It is about 3.5 km long (more than two miles) and lies 150 feet below the surface.

It then stretches the imagination to conceive of a new and relatively inexperienced nation, handicapped by the executive-legislative stresses that often exist in liberal democracies, managing its economic problems, compounded by high energy costs and worldwide recession, while facing what last May appeared to be an imminent military threat to its survival.

The immediate threat has receded, but not vanished. It remains visible, no more than thirty miles from Seoul and under the control of an aggressive, impatient, and somewhat mercurial Kim Il Sung. The threat should not be dismissed out of hand as the last refuge of a dictator struggling to retain power, as it often is by US critics of Park. The perspective from Seoul is not quite the same as from Washington or New York. Mr. Lee Yong Hee, Special Assistant for Political Affairs to President Park, put it thus in a conversation with this reporter:

> Suppose the northern third of your country were occupied by a Communist government sworn to unite the whole country under its rule. Suppose their forces were dug in around Baltimore, within artillery range of Washington. Would your government then tolerate divisive criticism and demonstrations?

How repressive is the Park government? It is difficult for a foreign visitor to make an accurate judgment. From conversations with several Americans who are living there and from a few contacts with educated Koreans who are not members of the government, the balance between repression and personal freedom appears to be about like this: Koreans can move freely around the country, change occupations, own property including businesses, accumulate wealth, and travel abroad for educational or business purposes but not for pleasure—a restriction enforced to save hard currency. They cannot criticize the government or change it in free elections. Despite these serious limitations on the democratic process, their lives are vastly more free than those of their North Korean neighbors. There are said to be fewer political prisoners in South Korean jails than in any other developing nation of the Far East.

The Park government is repressive, yes, but not to the degree it has been represented to be by some journalists, academicians, and politicians, who seem more concerned with human rights in the abstract than with the alternative the South Koreans would face under Kim Il Sung. Or with balancing of our own national interests against the advancement elsewhere of human rights that we espouse but do not always achieve here at home.

All that said, it would appear that President Park would gain more in the way of support from the American people (on which the independence of South Korea ultimately is depen-

dent) than he would lose domestically by relaxing some of his present, undemocratic restrictions. All indications are that a large majority of South Koreans are behind him, for economic reasons if for no other.

The Military Situation

For those who may question the ability and willingness of ROK forces to fight, based on recollections of South Korea's poor showing in the early days of the Korean War, let us examine the comparative strength of North and South Korean forces on June 25, 1950.

Immediately after V-J Day, the USSR began developing and equipping North Korean forces under the command of Kim Il Sung, who had served as an officer in the Soviet Army during World War II. The US, on the other hand, was willing to help South Korea develop constabulary-type forces only.

By June 1950, the North Korean army had been built up to more than 100,000 troops, including battle-experienced divisions of Korean émigrés who had served in China and the USSR. They had at least 250 tanks, and artillery up to 120 mm, supported by an air force of 130 Il-10, Yak-3, and Yak-7B fighters.

The South Korean army, slightly smaller in troop strength, was only partially trained, had no tanks, no artillery heavier than some obsolete 105-mm howitzers, and no air force. Its air arm consisted of thirteen unarmed liaison planes and a few T-6 trainers that had been purchased from Canada. If the South Korean forces had turned back the invasion, it would have been a military feat unequaled since Samson slew 1,000 Philistines with the jawbone of an ass.

The US has not repeated its error of the late 1940s. Since the outbreak of the Korean War, we have provided South Korea about $3.7 billion in military assistance—slightly less than our total of military assistance to Israel and about ten percent of the MAP program for all countries from 1950 through mid-1975. In recent years, the ROK has depended less on military aid and more on military sales. Since FY '74, US sales to the ROK have equaled or exceeded grant aid. The Korean government has never defaulted on a payment due this country.

The results of our assistance and sales to the ROK (and of Soviet assistance to North Korea) are shown in "The Military Balance," which appears in this issue (*see p. 43*). Since these data were compiled by The International Institute for Strategic Studies, the ROK Air Force has bought eighteen more F-4Ds and an undisclosed number of TOW antitank missiles. The ROK Army now is the fifth largest in the world, though compared to the military capabilities of North Korea there are deficiencies that need to be corrected if the ROK is to reach, or approach, President Park's goal of military self-sufficiency vis-à-vis North Korea by 1980.

Basic training in the ROK military services is extremely rigorous. The ROK Army, fifth largest in the world, is rated as one of the world's best.

The mission of ROK forces is strictly one of deterring attack by North Korea. A major worry of both ROK and US planners is that the North could launch a surprise attack spearheaded by armor, in which it is superior to the ROK Army, and supported by heavy artillery in order to seize Seoul, then stop and offer to negotiate. The loss of Seoul—the seat of government and center of communications and finance, with a fifth of the country's population and a large part of its industry—would undoubtedly mean defeat.

Since Seoul is in range of North Korean FROG missiles and some of its heavy artillery,

KOREA REMEMBERS

The Korean War began twenty-five years ago, on June 25, 1950. As a gesture of gratitude to the nations that contributed military forces to the United Nations Command, the Republic of Korea invited several hundred veterans from those countries to visit Korea in October, under a program called "Korea Remembers." Among those included were commanders of UN Forces contingents, winners of their countries' highest decorations for valor, former POWs, and Gold Star Mothers. The Air Force Association was represented by Martin Ostrow, former National President and former Chairman of the Board of AFA, and by John Frisbee, Executive Editor of this magazine, who took that opportunity to talk with Korean and US officials in and near Seoul. The accompanying article is based in part on those conversations.

the concept of defense is based on extreme forward deployment concentrated along the western end of the DMZ, massive firepower astride the invasion routes that would have to be followed by North Korean armor, and a short war. It is generally accepted that the US would not support another long war in Asia. ROK units are solidly dug in along the DMZ and have sworn not to retreat.

The ROK Army and Air Force do not now have enough firepower to defeat an invasion without the help of the US Second Infantry Division which, together with thirteen ROK infantry divisions and supporting armor and artillery, makes up I Corps/Group under the command of US Lt. Gen. James Hollingsworth, who directed the defense of An Loc during the North Vietnam offensive of 1972. The ROK also would need support from the two USAF tactical fighter wings based in Korea, from other wings that could be deployed rapidly to existing bases in the South, and probably from Guam-based B-52s.

US Army and Air Force people who work daily with ROK forces have no doubts about the quality, morale, and determination of the South Koreans. Many ROK Army officers and NCOs have had recent battle experience in Vietnam, where ROK troops earned a reputation for ruthless combat efficiency. One of the US Army's most combat experienced generals rates the ROK Army as the best professional force in the world. USAF officers who fly with the ROKAF are high in praise of its abilities.

In the case of all ROK services, maintenance is said to be superb and supply management excellent. The ROKAF's operational readiness rate for its fighters is astoundingly high. The ROK Army keeps operational an equally impressive percentage of its old M-47 tanks that the US Army could no longer maintain economically. Units of all services that this reporter saw in the gigantic October 1 Armed Forces Day parade at Seoul gave every evidence of outstanding training, discipline, and morale.

US Defense Department officials are encouraging the ROK to orient its force improvement planning toward antiarmor capabilities at the lowest possible cost. This means more tanks (perhaps reengined and regunned M-48s rather than the more expensive M-60s), probably more heavy artillery (too large a percentage of ROK artillery is 105-mm howitzers), and relatively inexpensive tactical fighters. The ROK wants more F-4s and F-5s and, down the line, perhaps A-10s. A letter of offer to sell them fifty-four F-5Es and six F-5Fs went to Congress for approval in mid-October.

The US has not entered into any detailed plan to provide the ROK specific types or numbers of equipment for force improvement. Certainly the numerical balance of equipment between North and South, particularly in tanks and aircraft, must be redressed, but there is no intention of matching the North plane for plane, ship for ship, tank for tank, and gun for gun. The objective is to achieve a balance—a sort of essential equivalence—that will deter an attack by North Korea.

Carrying out ROK force improvement planning is likely to cost about $3 billion over the next five to six years. These costs are to be financed by Seoul, in part with surtaxes and a 2.5 percent tax on imports. The ROK defense budget, which absorbed 4.4 percent of GNP in 1974, rose to 5.2 percent this year and is projected to reach six percent in 1976. (North Korea allocates from fifteen to twenty percent of its much smaller GNP to its military forces.)

It appears likely that the ROK government will be able to buy the greater part of its new defense equipment. There will be an undisclosed—probably at this point, unknown—requirement for some continuing US military grant aid. And there will be a continuing need for a US military presence in South Korea as a deterrent to intervention by the PRC or the USSR.

* * *

There have been futile attempts by representatives of the North and South Korean Red Cross to set the stage for peaceful reunification of the Korean peninsula. It is abundantly clear that, in the foreseeable future, reunion could take place only on Communist terms that are totally unacceptable to South Korea.

The Republic of Korea's national objective, then, is to deter a North Korean attack by building superior economic strength and armed forces that ultimately will enable the country to defend itself without outside help.

What does South Korea need from the United States? Mr. Jwah Kyum Kim, former ROK Ambassador to Indonesia and now a government official in Seoul, singled out three areas in a conversation with this reporter:

- Moral support, especially in view of increasingly heavy verbal attacks on South Korea, in the United Nations and elsewhere, by Third World nations that are influenced by the Communist powers;
- US presence in Korea as a deterrent to Chinese or Soviet intervention;
- Assistance in reaching the probably optimistic goal of military self-sufficiency vis-à-vis North Korea by 1980.

One can have unqualified admiration for what the Republic of Korea has accomplished in the past ten years without giving unqualified endorsement to the manner in which it has been achieved. But the test of whether we should lend the ROK moral support, US presence, and military assistance rests in the final analysis on one question:

Is it in the US national interest to do so? The answer is, "Yes, it is." ■

FOREWORD

AIR FORCE Magazine is privileged again this year to present "The Military Balance," an exclusive feature of each December issue since 1971.

"The Military Balance," an annual assessment of the military forces and defense expenditures of the major nations, is compiled by The International Institute for Strategic Studies, London, England. The Institute, an independent center for research and discussion in defense-related areas, is universally recognized as the leading authority in its field.

The national entries that follow are grouped geographically, with special reference to the principal defense pacts and alignments. The section on the US and USSR includes an assessment of the changing strategic balance between the two superpowers. There is a separate section analyzing the European theater balance between NATO and the Warsaw Pact and summarizing the forces and weapons in Europe that are involved in mutual force reduction negotiations.

This year, tables comparing military manpower of the principal nations and their expenditures for defense have been greatly expanded. A short essay on comparative costs of volunteer and conscript forces appears for the first time. As in past years, space limitations make it necessary to exclude some tabular material on naval construction programs, arms agreements that have been negotiated since the last issue of "The Balance," and force structures of smaller countries that maintain only minimal defense forces.

In preparing "The Military Balance 1975/76" for our use, we have retained the Institute's system of abbreviating military weapons and units as well as British spelling and usage. A list of the abbreviations found in the text appears on the following page.

"The Military Balance" examines the facts of military power as they existed in July 1975. No projections of force levels or weapons beyond that date have been provided, except where

explicitly stated. The study should not be regarded as a comprehensive guide to the balance of military power, since it does not reflect the facts of geography, vulnerability, or efficiency, except where these are touched on in the essays on balances.

Figures for defense expenditures are the latest available. Those for the USSR and the People's Republic of China are estimates. Wherever possible, the United Nations System of National Accounts has been used. Because estimates of defense expenditure and GNP have been amended in the case of certain countries, figures in Table IV on page 95 will not in all cases be directly comparable with those in previous editions of "The Balance." Where a $ sign appears, it refers to US dollars unless otherwise stated.

In order to make comparison easier, national currency figures were converted by the Institute into US dollars at the rate prevailing on July 1, 1975, generally as reported to the International Monetary Fund (IMF). An exception is the Soviet Union, where the official exchange rate is unsuitable for converting rouble estimates to GNP. Further exceptions are certain East European countries that are not members of the IMF and Romania (which is), for which conversion rates used are taken from US Arms Control and Disarmament Agency publication ACDA/E-207, December 1971. The conversion rates used in the country entries may not always be applicable to commercial transactions.

The manpower figures given are, unless otherwise stated, those of regular forces. An indication of the size of militia,

ABBREVIATIONS

AA	Anti-aircraft
AAM	Air-to-air missile(s)
AB	Airborne
ABM	Anti-ballistic missile
Ac	Aircraft
AD	Air Defence
AEW	Airborne early warning
AFV	Armoured fighting vehicle(s)
APC	Armoured personnel carrier(s)
Armd	Armoured
Arty	Artillery
ASM	Air-to-surface missile(s)
ASW	Anti-submarine warfare
ATGW	Anti-tank guided weapon(s)
ATk	Anti-tank
AWX	All-weather fighter
Bbr	Bomber
Bde	Brigade
Bn	Battalion or billion
Bty	Battery
Cav	Cavalry
Cdo	Commando
CENTO	Central Treaty Organization
COIN	Counter-insurgency
Comms	Communications
Coy	Company
Det	Detachment
Div	Division
ECM	Electronic counter-measures
Engr	Engineer
Eqpt	Equipment
FB	Fighter-bomber
FGA	Fighter, ground attack
FPB	Fast patrol boat(s)
GDP	Gross Domestic Product
GNP	Gross National Product
GP	General purpose
Gp	Group
GW	Guided weapons(s)
Hel	Helicopter(s)
How	Howitzer(s)
HQ	Headquarters
Hy	Heavy
ICBM	Inter-continental ballistic missile(s)
Incl	Including
Indep	Independent
Inf	Infantry
IRBM	Intermediate-range ballistic missile(s)
KT	Kiloton (1,000 tons TNT equivalent)
LCT	Landing craft, tank
Log	Logistic
LPH	Landing platform, helicopter
LRCM	Long-range cruise missile(s)
LST	Landing ship, tank
Lt	Light
M	Million
MARV	Manoeuvrable re-entry vehicle(s)
MCM	Mine counter-measures
Mech	Mechanized
Med	Medium
MGB	Motor gunboat
MIRV	Multiple independently-targetable re-entry vehicle(s)
Misc	Miscellaneous
Mk	Mark
Mob	Mobile
Mor	Mortar(s)
Mot	Motorized
MR	Maritime reconnaissance
MRBM	Medium-range ballistic missile(s)
MRV	Multiple re-entry vehicle(s)
Msl	Missile
MT	Megaton (1 million tons TNT equivalent)
MTB	Motor torpedo boat(s)
n.a.	Not available
NATO	North Atlantic Treaty Organization
Para	Parachute
Pdr	Pounder
RCL	Recoilless rifle(s)
Recce	Reconnaissance
Regt	Regiment
Rkt	Rocket
RL	Rocket launcher(s)
RV	Re-entry vehicle(s)
SACEUR	Supreme Allied Commander, Europe
SAM	Surface-to-air missile(s)
SAR	Search and rescue
SEATO	South-East Asia Treaty Organization
SHAPE	Supreme Headquarters, Allied Powers in Europe
Sig	Signal
SLBM	Submarine-launched ballistic missile(s)
SLCM	Sea-launched cruise missile(s)
SP	Self-propelled
Sqn	Squadron
SRAM	Short-range attack missile(s)
SRBM	Short-range ballistic missile(s)
SSBN	Ballistic missile submarine(s), nuclear
SSM	Surface-to-surface missile(s)
SSN	Submarine(s), nuclear
S/VTOL	Short/vertical take-off or landing
Tac	Tactical
Tk	Tank
Tp	Troop
Tpt	Transport
Trg	Training
UN	United Nations
UNDOF	United Nations Disengagement Observation Force
UNEF	United Nations Emergency Force
UNFICYP	United Nations Force in Cyprus

INDEX TO COUNTRIES AND PRINCIPAL PACTS

reserve, and paramilitary forces is also included in the country entry where appropriate and in Table III, page 94. Paramilitary forces are here taken to be forces whose equipment and training go beyond that required for civil police duties and whose constitution and control suggest that they may be usable in support of, or in lieu of, regular forces.

Equipment figures in the country entries cover total holdings, with the exception of combat aircraft, where front-line squadron strengths are normally shown. Except where the contrary is made clear, naval vessels of less than 100 tons of structural displacement have been excluded. The term "combat aircraft" used in the country entries comprises only bomber, fighter-bomber, strike, interceptor, reconnaissance, counter-insurgency, and armed trainer aircraft (*i.e.*, aircraft normally equipped and configured to deliver ordnance or to perform military reconnaissance). It does not include helicopters.

Where the term "mile" is used when indicating the range or radius of weapon systems, it means a statute mile.

The Institute assumes full responsibility for the facts and judgments contained in the study. The cooperation of the governments that are covered was sought and, in many cases, received. Not all countries were equally cooperative, and some figures were necessarily estimated.

Photographs and captions have been added by AIR FORCE Magazine, and we assume full responsibility for them.

—THE EDITORS

THE MILITARY BALANCE 1975/76

The United States And the Soviet Union

STRATEGIC WEAPONS

At a summit meeting at Vladivostok in November 1974, the United States and the Soviet Union agreed on guidelines for a new accord limiting offensive strategic forces until 31 December 1985. These would place ceilings of 2,400 on launchers (including heavy bombers) and 1,320 on MIRV-equipped launchers, and would carry over certain provisions of the 1972 Interim Agreement. The 1972 ABM Treaty, as amended by the July 1974 Protocol, was not affected. Pending a formal agreement, each side appears to be planning forces within these guidelines and improvements in the effectiveness of these systems are under way.

The United States completed the programmed deployment of 550 *Minuteman* 3 ICBM, each with 3 MIRV, her remaining ICBM consisting of 450 single-warhead *Minuteman* 2 and 54 single-warhead *Titan* 2. Fifty additional *Minuteman* 3 have however been procured, for flight testing and to give an option of a larger ICBM MIRV force. Programmes for the strengthening of silos are almost completed, and programmes for rapid retargeting are in train. Research and development is being carried out on an improved guidance system and a new warhead, the Mk 12A, with 3 MIRV of roughly twice the present yield. (The test programme for this warhead is to be completed by March 1976, when the Threshold Test Ban Treaty could come in force.) A terminally-guided manoeuvrable re-entry vehicle (MARV) is under development for a new larger-payload ICBM, the MX, itself at an early development stage, designed for the mid-1980s.

At sea, *Poseidon* SLBM, each with 10–14 MIRV, have been deployed in 25 submarines; conversion of another 6 *Polaris* boats is to be complete in 1977. Development of the 4,600-mile-range *Trident* 1 SLBM continues, with deployment planned for mid-1978. The *Trident* 1 SLBM is to be fitted in 10 *Poseidon* boats and the proposed new 24-tube *Trident* submarine, the first of which is also to be operational by mid-1978. (Construction of the 10 *Trident* boats has been slowed from a 2-a-year to a 1-2-1 schedule.) The follow-on missile to the *Trident* 1, the 7,000-mile-range *Trident* 2, can only be fitted in the *Trident* submarine and will not be in service until the mid-1980s.

Procurement of the short-range attack missile (SRAM) was completed. The first flight tests of the swing-wing, supersonic B-1 bomber were conducted in late 1974, and the decision whether to procure 241 aircraft is to be taken next fiscal year. Development of a 1,750-mile-range, air-launched cruise missile was initiated, together with a version capable of being launched from surface vessels and submarines.

The *Safeguard* ABM site at Grand Forks, North Dakota, is to be fully operational by October 1975. The numbers of strategic defensive SAM and interceptor aircraft were cut. Two prototype Over-the-Horizon Backscatter radars for aircraft surveillance and early warning are under construction, and two new SLBM phased-array early warning radars are at an early stage of development.

The Soviet Union deployed the first of a new family of more accurate, large-payload ICBM early in 1975. The ICBM force now numbers some 1,618 (at least 40 more than last year), including the SS-18 (a missile of comparable volume to the SS-9), tested in both a single warhead and a MIRV mode, and the SS-17 and SS-19 (follow-ons to the SS-11), which have been tested with MIRV only. Tests were carried out of the SS-X-16 (which may be deployed in a land-mobile version).

Soviet SLBM increased to 784 in 75 submarines (724 of these count against the SALT ceilings). The thirty-fourth Y-class submarine, carrying 16 SS-N-6 SLBM, was launched. Two new modes of the SS-N-6 were tested, one with MRV, and a longer-range single-warhead missile. Production of the D-class SSBN, which carries 12 SS-N-8 SLBM, continued, and construction started on a longer version to carry 16 5,000-mile-range SLBM.

Deployment began during the year of the supersonic *Backfire*, a swing-wing aircraft of medium range (but one version is capable of in-flight refuelling). A new air-to-surface missile with a range of 800km is reportedly under development for *Backfire*.

The Soviet Union maintained her 64 ABM launchers around Moscow (100 are permitted by the 1974 ABM Protocol). Improved ABM interceptors are being developed, and air defences are being modernized, with increasing numbers of high- and low-altitude SAM and *Flagon* E and *Foxbat* interceptors.

GENERAL-PURPOSE FORCES

Once again the numbers in the American armed forces have fallen, by some 44,000, while those of the Soviet Union have increased, by 50,000. Both

super-powers are improving conventional capabilities. The US Army is being restructured to raise the number of divisions from 13½ to 16 by end-1976 and add 2 brigades to the forces in Europe (without increasing manpower). Prototype construction of a new battle tank, XM-1, has begun, and the design of a mechanized infantry combat vehicle has continued. Large numbers of *TOW* and *Dragon* ATGW reached combat units, and development proceeded on a laser-guided, cannon-launched projectile. The SAM-D tactical air defence missile began demonstration tests, and plans were made to procure the Franco–German *Roland* II as an all-weather, low-altitude SAM. Development of the new attack and transport helicopters continued.

The Soviet Union continued production of a new tank, the M-1970, and new armoured infantry vehicles were procured in large numbers. New self-propelled field guns were deployed, to replace towed artillery, as were SA-8 and SA-9 SAM.

The United States Navy halted the recent decline in numbers of major surface combat vessels. The carrier force remained at 15. A priority study was being made of a nuclear-powered strike cruiser for sea control tasks, and construction continued on the CGN-38-class nuclear-powered frigates (now designated cruisers), the DD-963 guided-missile destroyers, and guided-missile patrol frigates. The 70-mile-range *Harpoon* anti-ship missile was flight-tested during the year and is to be deployed in larger surface combatants, patrol vessels, and attack submarines. The acquisition of 26 688-class nuclear-powered attack submarines was approved, and 5 are to be built every 2 years, the lead ship entering service in 1976.

The Soviet Union continued construction and trials of two *Kiev*-class S/VTOL aircraft carriers, the first of which is expected to join the fleet in 1976. In addition to deliveries of *Kara*-class cruisers and *Krivak*-class destroyers, the Soviet Navy also introduced new classes of support, oiling, and landing vessels.

The United States began deployment of Air Force F-15 air superiority fighter and the naval F-14 fleet air defence interceptor. The F-16 air combat fighter was adopted as a future complement to the F-15, while the Navy initiated studies of the YF-17 [now designated YF-18] light-weight fighter as a possible complement to the F-14. Tests continued on the A-10 close-support aircraft (scheduled to enter operation in 1976), and deliveries of several types of air-launched precision-guided munitions (PGM) began.

Although no new Soviet fighter prototypes were observed, late-model MiG-23 *Flogger* and MiG-25 *Foxbat* aircraft replaced older interceptors, and deployment also began of the Su-19 *Fencer* A, thought to be the first Soviet fighter designed for ground attack.

THE UNITED STATES

Population: 215,810,000.
Military service: voluntary.
Total armed forces: 2,130,000 (82,700 women).
Estimated GNP 1974: $1,397.4 bn.
Defence expenditure 1975–76: $92,800 m* (1 July–30 September 1976: $25,400 m). (Note: In 1976, the US is changing the beginning of her Fiscal Year from 1 July to 1 October. The expected outlay covers the transitional period.)

Strategic Nuclear Forces:

Offensive:
(A) *Navy:* 656 SLBM in 41 submarines.
25 SSBN, each with 16 *Poseidon* C3.
16 SSBN, each with 16 *Polaris* A3.
(B) *Strategic Air Command:*
ICBM: 1,054.
450 *Minuteman* 2.
550 *Minuteman* 3.
54 *Titan* 2.
Aircraft:
Bombers: 463.
66 FB-111A in 4 sqns } with
165 B-52G in 11 sqns } 1,140
90 B-52H in 6 sqns } SRAM.
120 B-52D in 8 sqns.
22 B-52F in 1 sqn (training).
Tankers: 615 KC-135 in 38 sqns.
Active storage or reserve: 35 B-52D/F.
Strategic Reconnaissance: 18 SR-71A in 1 sqn; 28 RC/EC-135; U-2C/K.

Defensive:
North American Air Defense Command (NORAD), HQ at Colorado Springs, is a joint American-Canadian organization. US forces under NORAD are Aerospace Defense Command (ADCOM).
ABM: Safeguard system with 30 *Spartan* and 70 *Sprint* ABM in 1 site (to be fully operational by October 1975).
Aircraft (excluding Canadian):
Interceptors: 374.
(i) Regular: 6 sqns with 143 F-106A.
(ii) Air National Guard: 6 sqns with 85 F-101B (being phased out), 2 sqns with 56 F-102, and 6 sqns with 90 F-106A.
AEW aircraft: 3 sqns with EC-121 (being reduced).
Warning Systems:
(The 440L Over-the-Horizon (OTH) Forward Scatter radar system has been phased out. An OTH Backscatter aircraft early warning system is under development.)
(i) *Satellite-based early warning system:* 3 *647* early warning satellites, 1 on station over the Eastern Hemisphere, 2 over the Western; surveillance and warning system to detect launchings from SLBM, ICBM, and Fractional Orbital Bombardment Systems (FOBS).
(ii) *Space Detection and Tracking System* (SPADATS): USAF *Spacetrack* (7 sites), USN *SPASUR*, and civilian agencies; Space Defense Center at NORAD HQ; satellite tracking, identification, and cataloguing control.
(iii) *Ballistic Missile Early Warning System* (BMEWS): 3 stations, in Alaska, Greenland, and England. Detection and tracking radars with an ICBM and IRBM capability. The Alaska site is to be replaced by a *Cobra Dane* phased-array radar.
(iv) *Distant Early Warning* (DEW) *Line:* 31 stations, roughly along the 70° N parallel.
(v) *Pinetree Line:* 25 stations in central Canada.
(vi) *474N:* SLBM detection and warning net of 3 stations on the East, 1 on the Gulf, and 3 on the West coast of the United States (being replaced with 2 *Pave Paw* phased-array radars: 1 on the East and 1 on the West coast).
(vii) *Back-Up Interceptor Control* (BUIC): system for air defence command and control (all stations except 1 now semi-active).
(viii) *Semi-Automatic Ground Environment* (SAGE): system for co-ordinating all surveillance and tracking of objects in North American airspace. 6 locations; combined with BUIC (to be replaced by 4 Region Operations Control Centers).
(ix) *Ground radar stations:* some 55 stations manned by Air National Guard, augmented by the Federal Aviation Administration stations. 28 joint-use stations now in service.

Army: 785,000 (42,000 women).
4 armoured divisions.
4 mechanized infantry divisions (5 by late 1976).
4 infantry divisions (5 by late 1976).
1 airmobile division.
1 airborne division.
3 armoured cavalry regiments.
1 brigade in Berlin.
2 special mission brigades in Alaska and Panama.
10 *Honest John, Pershing,* and 6 *Lance* SSM battalions (*Lance* is replacing *Honest John*).
Some 8,500 M-48, M-60A1, and A2 (with *Shillelagh* ATGW) med tks; some 1,600 M-551 *Sheridan* lt tks with *Shillelagh;* about 16,000 M-557, M-114, M-113 APC; some 2,700 175mm SP guns and 105mm, 155mm, and 203mm SP how; about 2,200 towed 105mm and 155mm guns/how; some 5,700 81mm and 107mm mor; about 6,000 90mm and 106mm RCL; *Honest John, Pershing,* and *Lance* SSM; 2,400 *TOW* and *Dragon* ATGW; about 600 20mm, 40mm towed and SP AA guns; some 20,000 *Redeye* and *Chaparral/Vulcan* 20mm AA msl/gun systems; about 900 *Nike Hercules* and *HAWK* SAM; about 800 fixed wing ac and 8,000 hel.

Deployment:
Continental United States:
Strategic Reserve: (i) 1 armd div; 2 inf divs; 1 airmobile div; 1 AB div. (ii) To reinforce 7th Army in Europe: 1 armd div; 1 mech div (less 1 bde); 1 mech div; 1 armd cav regt. (The armoured division and the mechanized division have heavy equipment stockpiled in

* Expected Outlay in Fiscal Year 1976. New Obligational Authority $106,340 m; Total Obligational Authority $104,680 m.

West Germany; the mechanized division less 1 brigade has 2 dual-based brigades with heavy equipment stored in West Germany.)

Europe: 198,000.

(i) Germany: 180,000. 7th Army: 2 corps, incl 2 armd divs, 2 mech inf divs, 1 mech inf bde plus 2 armd cav regts (to be increased by 1 armd and 1 mech inf bdes); 2,100 med tks. (This figure includes those stockpiled for the dual-based and strategic reserve divisions.)

(ii) West Berlin: 4,400. HQ elements and 1 inf bde.

(iii) Greece: 800.

(iv) Italy: 3,000.

(v) Turkey: 1,200.

Pacific:

(i) South Korea: 30,000. 1 inf div.

(ii) Hawaii: 1 inf div less 1 bde.

Reserves: Authorized 612,000, actual 630,000.

(i) Army National Guard: authorized 400,000, actual 405,000; capable some time after mobilization of manning 2 armd, 1 mech, and 5 inf divs, 16 independent bdes (3 armd, 7 mech, and 6 inf) and 3 armd car regts, plus reinforcements and support units to fill regular formations.

(ii) Army Reserves: authorized 212,000, actual 225,000; in 12 trg divs and 3 indep trg bdes; 49,000 a year undergo short active-duty tours.

Marine Corps: 197,000 (3,000 women).

3 divs (each of 18,000 men).

2 SAM bns with *HAWK*.

430 M-48 med tks; 950 LVT-7 APC; 175mm SP guns; 105mm and 155mm how; 105mm SP how; 35 *HAWK* SAM.

3 Air Wings: 372 combat aircraft.

- 12 fighter sqns of 144 F-4B/J with *Sparrow* and *Sidewinder* AAM. (1 AD sqn of F-14 to be operational late 1975, replacing F-4B.)
- 10 FGA sqns: 5 with 60 A-4E/F/M and 5 with 60 A-6A.
- 3 FGA sqns with 36 AV-8A *Harrier.*
- 2 recce sqns with 13 RF-4B and 23 EA-6A.
- 3 observation sqns with 36 OV-10A.
- 3 assault tpt/tanker sqns with 36 KC-130F.
- Tac support sqns with C-117, C-118, and CT-39.
- 3 close-support hel sqns with 36 AH-1J.
- 6 heavy hel sqns with CH-53D.
- 8 med assault hel sqns with CH-46A.

Deployment:

(i) *Continental United States:* 2 divs, 2 air wings.

(ii) *Pacific:* 1 div, 1 air wing.

Reserves: Authorized and actual strength 33,000.

- 1 div and 1 air wing: 2 fighter sqns with F-4B; 5 attack sqns with A-4C/E/L; 1 observation sqn with OV-10A; 1 tpt sqn with KC-130; 5 hel sqns (1 attack with AH-1G, 1 hy with CH-53, 2 med with CH-46, 1 lt with UH-1E); 1 SAM bn with *HAWK.*

Navy: 536,000 (22,000 women); 179 major combat surface ships, 75 attack submarines.

Submarines, attack: 64 nuclear, 11 diesel.

Aircraft carriers: 15 (to be 13 in 1976).

- 2 nuclear-powered (*Nimitz*, 95,000 tons, *Enterprise*, 90,000 tons).
- 8 *Forrestal/Kitty Hawk*-class (78,000/87,000 tons).
- 3 *Midway*-class (64,000 tons).
- 2 *Hancock*-class (44,700 tons; 1 training).

These normally carry 1 air wing (85–95 ac in the larger ships, 75 in the smaller) of 2 fighter sqns with F-14 or F-4 (F-8 *Hancock*), 2 attack sqns with A-4 (*Hancock*), A-6, or A-7; RF-8, RA-5C recce; 1 sqn each of S-2E and SH-3A/D/G/H hel (ASW); EKA-3B tankers and other specialist ac.

Other surface ships:

(There has been a reclassification of US ships which has placed most of the frigates in the cruiser class; smaller frigates have become destroyers, smaller escorts will be called frigates.)

- 25 guided missile cruisers (4 nuclear) with SAM and *ASROC.*
- 2 guided missile cruisers with SAM.
- 38 guided missile destroyers with SAM and *ASROC.*
- 35 gun/ASW destroyers, most with SAM or *ASROC.*
- 6 guided missile frigates with SAM and *ASROC.*
- 58 gun frigates.
- 6 patrol gunboats, 4 with SAM.
- 64 amphibious warfare ships, incl 8 helicopter carriers.
- 3 MCM ships.
- 126 logistics and operations support ships.
- Missiles incl *Standard* SSM/SAM, *Tartar, Talos, Terrier, Sea Sparrow* SAM, *ASROC,* and *SUBROC* ASW.

Ships in reserve:

- 2 submarines, 6 aircraft carriers, 4 battleships, 10 cruisers, 55 amphibious warfare ships, 9 MCM ships, 68 logistics support ships. (Many older vessels are to be scrapped and the Reserve Fleet reduced substantially during 1975.)
- Some 239 cargo ships and 162 tankers could be used for auxiliary sea-lift duty.

Aircraft: about 1,900 combat aircraft.

- 28 fighter sqns: 6 with F-14A, 18 with F-4, 4 with F-8 (to be withdrawn in 1976).
- 41 attack sqns: 3 with A-4E (to be withdrawn in 1976), 11 with A-6, 27 with A-7.
- 10 recce sqns with RA-5C, RF-8.
- 24 maritime patrol sqns with 240 P-3A/B/C.
- 19 ASW sqns: 5 with S-3, 4 with S-2E, 10 with 80 SH-3A/D/G/H hel (3 more sqns with S-3 to be in service 1976–77).

US tanks like the M-60A are generally superior in quality, but vastly inferior in numbers to the USSR's huge tank inventory. The USAF AWACS (above) will play a major role in defense of NATO by providing tactical warning and control of Allied air operations. By 1977, thirty-one Polaris submarines will have been converted to carry Poseidon SLBMs.

5 hel sqns with UH-1/2, AH-1J, 21 RH-53D.
Other sqns with 20 C-1, 12 C-2, 8 C-9B, 7 C-130, 12 CT-39, 30 C-118, 35 EA-6B, and 48 E-2B/C.

Deployment (average strengths of major combat ships; some ships in the Mediterranean and Western Pacific are selectively based overseas, the remainder are rotated from the US):
Second Fleet (Atlantic): 4 carriers, 62 surface combatants.
Third Fleet (Eastern Pacific): 6 carriers, 51 surface combatants.
Sixth Fleet (Mediterranean): 2 carriers, 14 surface combatants, 1 Marine Amphibious Unit.
(Marine Amphibious Units (MAU) are 5–7 amphibious ships with a Marine battalion embarked. Only 1 in the Mediterranean and 1 in the Pacific are regularly constituted. 1 Battalion Landing Team (MAU, less hels) is also deployed in the Pacific; 1 is occasionally formed for the Caribbean.)
Seventh Fleet (Western Pacific): 3 carriers (to be 2 in 1975–76), 28 surface combatants, 1 Marine Amphibious Unit, 1 Marine Battalion Landing Team.
Middle East Force (Persian Gulf): 1 command ship, 2 surface combatants.

Reserves: Authorized strength 113,000, actual 115,000; 3,000 a year undergo short active-duty tours. Ships in commission with the Reserve include 34 destroyers, 8 patrol gunboats, and 31 MCM ships.
Aircraft:
2 carrier attack wings: 3 A-7, 3 A-4E/L attack sqns; 2 F-4B, 2 F-8J fighter sqns, 2 RF-8G recce sqns; 2 KA-3 tanker sqns; 2 E-1B AEW sqns.
2 ASW sqns with S-2 (being phased out); 3 hel sqns with SH-3.
12 MR sqns: 8 with P-3A, 4 with SP-2H.
4 tpt sqns with C-118.

Air Force: 612,000 (30,200 women); about 5,000 combat aircraft.
69 fighter/attack sqns with F-4, F-105 (to be replaced by F-15), F-111, A-7D (to be replaced by A-10).
13 tactical recce sqns with RF-4C, EB-66.
4 electronic counter-measures sqns: 2 with F-105, 2 with F-4C (to be replaced by 4 sqns with 116 F-4E and 2 sqns of 42 EF-111A).
4 special operations sqns with O-2, OV-10, C-130, AC-130, UH-1, CH-3, CH-53, and T-38.
1 tactical drone sqn with DC-130.
17 tactical airlift sqns with 272 C-130.
17 hy tpt sqns: 4 with 70 C-5A, 13 with 234 C-141.
3 sqns: medical tpt with 12 C-9, weather recce with 19 WC-130, SAR with 33 CHH-53/HH-3 hel.

Deployment:
Continental United States (incl Alaska and Iceland):
(i) Tactical Air Command: 82,000; 37 fighter sqns. 9th and 12th Air Forces.
(ii) Military Airlift Command (MAC): 64,500. 21st and 22nd Air Forces.
Europe, US Air Force, Europe (USAFE): 70,000. 3rd Air Force (Britain), 16th Air Force (Spain), 17th Air Force (West Germany), and sqns/units in Greece, Italy, Netherlands, and Turkey.
21 fighter sqns (plus 5 in the US on call) with 408 F-4C/D/E and 72 F-111E; 5 tactical recce sqns (plus 4 in the US on call) with 90 RF-4C; 2 tactical airlift sqns (plus 4 in the US on call) with 32 C-130.
Pacific, Pacific Air Forces (PACAF): 50,000; 11 fighter sqns. 5th Air Force (Japan, Korea, Okinawa), 7th Air Force (Thailand, being reduced), 13th Air Force (Philippines, Taiwan).

Reserves:
(i) Air National Guard: Authorized and actual strength 96,000; about 650 combat aircraft.
14 interceptor sqns (under ADCOM, see above); 29 fighter sqns (17 with F-100C/D, 3 with F-105B/D, 1 with F-104, 1 with F-4C, 5 with A-7, 2 with A-37B); 7 recce sqns (4 with RF-101, 3 with RF-4C); 15 tactical tpt sqns (13 with C-130A/B/E, 1 with C-123J, 1 with C-7); 4 tanker sqns with 32 KC-135 forming, to become 16 sqns (128 ac) by 1979; 3 electronic warfare sqns with EC-121 (ADCOM) and EB-57; 3 special operations sqns with C-119/U-10 and 7 tactical air support gps with O-2A.
(ii) Air Force Reserve: Authorized and actual strength 52,000; about 420 combat aircraft.
3 fighter sqns with F-105D; 4 attack sqns with A-37; 23 tactical tpt sqns (18 with C-130A/B/E, 3 with C-123K, 2 with C-7); 1 electronic warfare sqn with EC-121; 1 special operations sqn with CH-3; 4 SAR sqns (2 with HC-130, 2 with HH-1H/HH-3). 17 Reserve Associate C-5A and C-141 sqns (personnel only).
(iii) Civil Air Reserve Fleet: 246 commercial long-range ac (72 cargo, 84 convertible, 90 passenger).

THE SOVIET UNION

Population: 253,300,000.
Military service: Army and Air Force 2 years; Navy and Border Guards 2–3 years.
Total armed forces: 3,575,000.
Estimated GNP 1974: 469 bn roubles (see Foreword).
Estimated defence expenditure 1975: 26.2 bn roubles (approx. $103.8 bn), see p. 51.

Strategic Nuclear Forces:

Offensive:
(A) *Navy:* 784 SLBM in 75 submarines.
13 D-class SSBN, each with 12 SS-N-8 missiles.
34 Y-class SSBN, each with 16 SS-N-6 *Sawfly.*
8 H-class SSBN, each with 3 SS-N-5 *Serb.*
11 G-II-class diesel, each with 3 SS-N-5 (not considered strategic missiles under the terms of the Strategic Arms Limitation (Interim) Agreement).
9 G-I-class diesel, each with 3 SS-N-4 *Sark* (not considered strategic missiles under the terms of the Strategic Arms Limitation (Interim) Agreement).

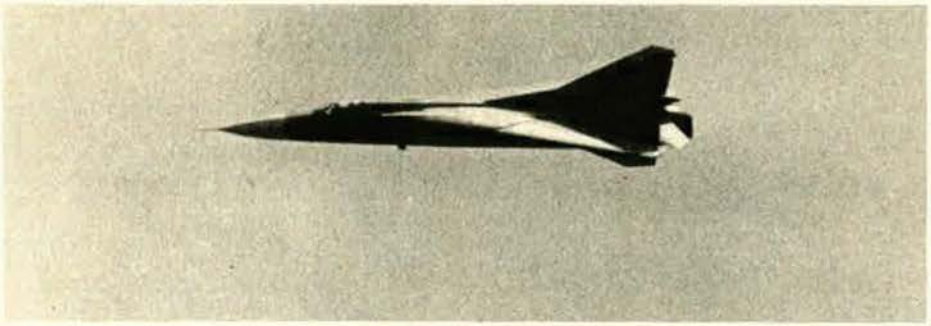
(B) *Strategic Rocket Forces* (SRF): 350,000. (The SRF, a separate service, has its own manpower.)
ICBM: 1,618.
190 SS-7 *Saddler* and 19 SS-8 *Sasin.*
288 SS-9 *Scarp* (being replaced by SS-18).
991 SS-11 *Sego* (incl about 100 IRBM/MRBM; being replaced by SS-19).
60 SS-13 *Savage.*
10 SS-17.
10 SS-18.
50 SS-19.
IRBM and *MRBM:* about 600 deployed (most near the Soviet western border, the rest east of the Urals); perhaps 1,000 in all.
100 SS-5 *Skean* IRBM.
500 SS-4 *Sandal* MRBM.

(C) *Long-Range Air Force* (LRAF): 805 combat aircraft. (About 75 per cent based in the European USSR, most of the remainder in the Far East; there are also staging and dispersal points in the Arctic.)
Long-range bombers: 135.
100 Tu-95 *Bear,* 35 Mya-4 *Bison.*
Medium-range bombers: 670. 475 Tu-16 *Badger,* 170 Tu-22 *Blinder,* and 25 Tu-*Backfire* B.
Tankers: 50 Mya-4 *Bison.*

The Soviet Air Defense Force has about 1,800 interceptors, including 750 of these Su-9s, compared to USAF's 300 regular and Air National Guard interceptors.

Defensive:
Air Defence Force (PVO-Strany): 500,000: early warning and control systems, with 5,000 surveillance radars; fighter-interceptor squadrons and SAM units. (The Air Defence Force is a separate service with its own manpower.)
Aircraft: about 2,550.
Interceptors: include about 500 MiG-17/-19, 750 Su-9, 1,300 Yak-28P *Firebar,* Tu-28P *Fiddler,* Su-11, Su-15 *Flagon* A/E, MiG-25 *Foxbat* (MiG-23 *Flogger*

The Soviet Navy now has nearly 240 major surface combat ships. Above is a Kashin*-class guided missile destroyer. The MiG-23 Flogger, a variable-geometry fighter, is now being deployed in East Germany.*



may be introduced).
Airborne Warning and Control aircraft: 10 modified Tu-114 *Moss.*

ABM: 64 *Galosh,* 4 sites around Moscow, each with *Try Add* engagement radars (another such radar is under construction). Target acquisition and tracking is by a phased-array *Dog House* radar and early warning by phased-array *Hen House* radar on the Soviet borders. The range of *Galosh* is believed to be over 200 miles, and its warheads are nuclear, presumably in the megaton range.

SAM: 12,000 launchers at about 1,650 sites.
SA-1 *Guild:* solid-propellant, HE warhead.
SA-2 *Guideline:* about 4,250; HE warhead, slant range (launcher to target) about 25 miles; effective between 1,000 and 80,000 ft.
SA-3 *Goa:* Low-level, slant range about 15 miles.
SA-4 *Ganef:* Twin-mounted (on tracked carrier), air-transportable, medium-range.
SA-5 *Gammon:* High-level, slant range about 50 miles, limited anti-missile capability.
SA-6 *Gainful:* Triple-mounted (on tracked carrier), low-level, slant range about 17 miles.

Army: 1,825,000, excluding Air Defence Force (*PVO–Strany*).
49 tank divisions.
110 motor rifle divisions.
7 airborne divisions.

SSM (nuclear capable): about 1,000 launchers (units are organic to formations), including:
FROG-1-7, range 10–45 miles.
Scud A, range 50 miles.
Scud B, range 185 miles.
Scaleboard, range 500 miles.

SAM: SA-2, SA-4, SA-6, SA-7 *Grail* (man-portable), SA-8, SA-9, *Gaskin* (multiple, vehicle-mounted).

Tanks: 40,000: JS-2/-3, T-10, T-10M hy, M-1970, T-62, T-54/-55 med, PT-76 amphibious recce lt tks (most tanks are fitted for deep wading).

AFV: 35,000: BTR-40, -50P, -60, -152 ACP; BMP, BRDM scout cars, and BMD AB AFV.

Artillery: 17,000 100mm, 122mm, 130mm, 152mm, and 203mm field and SP guns/how; 8,000 120mm, 160mm, and 240mm mor; 122mm multiple RL; 140mm RL; ASU-57 and ASU-85 SP, and 76mm, 85mm, and 100mm ATk guns; *Snapper, Swatter, Sagger* ATGW.

AA Artillery: 23mm, 57mm towed guns, and ZSU-57-2 57mm twin-barrelled and ZSU-23-4 23mm four-barrelled tracked SP guns; 85mm, 100mm, 130mm guns.

Deployment and Strength:
Central and Eastern Europe: 31 divs: 20 divs (10 tank) in East Germany, 2 tank divs in Poland, 4 divs (2 tank) in Hungary, 5 divs (2 tank) in Czechoslovakia; 9,000 medium tanks.
European USSR (Baltic, Byelorussian, Carpathian, Kiev, Leningrad, Moscow, and Odessa Military Districts (MD)): 63 divs (about 22 tank).
Central USSR (Volga, Ural MD): 6 divs (1 tank).
Southern USSR (North Caucasus, Trans-Caucasus, Turkestan MD): 23 divs (3 tank).
Sino–Soviet border (Central Asian, Siberian, Transbaikal, and Far East MD): 43 divs, incl 2 in Mongolia (about 7 tank).

Soviet divisions have three degrees of combat readiness: Category 1, between three-quarters and full strength, with complete equipment; Category 2, between half and three-quarters strength, with complete fighting vehicles; Category 3, about one-third strength, possibly with complete fighting vehicles (though some may be obsolescent). The 31 divs in Eastern Europe are Category 1, as are about a third of those in the European USSR and the Far East. The remaining divisions in European USSR and the Far East are probably evenly divided between Categories 2 and 3. The divisions in Central USSR are likely to be in Category 3. At full strength, tk divs have 325 med tks; motor rifle divs have between 200 and 266.

Outside the Warsaw Pact area:
Afghanistan 200, Algeria 600, Cuba 1,000, Egypt 250, Iraq 600, Libya 100, Somali Republic 2,500, Syria 3–3,500, Uganda 100, People's Democratic Republic of South Yemen 100, Yemen Arab Republic 100.

Navy: 500,000 (incl 75,000 Naval Air Force, 17,000 Naval Infantry, and 10,000 Coast Artillery and Rocket Troops); 236 major surface combat ships, 265 attack and cruise missile submarines (75 nuclear, 190 diesel).

Submarines:
Attack: 34 nuclear (10 N-, 17 V-, 5 E-I-, 1 U-, 1 A-class), 155 diesel (56 F-, 10 R-, 20 Z-, 66 W-, 3 T-class).
Cruise missile: 41 nuclear (2 P-, 10 C-, 29 E-class), 25 diesel (15 J-, 10 W-class), with SS-N-3 and SS-N-7.
Coastal: 10 diesel (5 B-, 5 Q-class).

Surface ships:
2 *Moskva*-class ASW helicopter cruisers, each with 2 twin SAM and about 20 Ka-25 hel. (A 40,000-ton *Kiev*-class aircraft carrier, apparently designed to operate with perhaps 25 S/VTOL ac or 36 hel, may be in service in 1976. A second is building.)
3 *Kara*-class ASW cruisers with SSM and SAM.
4 *Kresta*-I-class ASW cruisers with SSM and SAM.
7 *Kresta*-II-class ASW cruisers with SSM and SAM.
4 *Kynda*-class cruisers with SSM and SAM.
13 *Sverdlov*-class cruisers (3 with SAM, 2 with hel).
8 *Krivak*-class destroyers with SSM and SAM. (A proportion of the destroyers and smaller vessels may not be fully manned.)
6 *Kanin*-class ASW destroyers with SAM.
2 *Krupny*-class destroyers with SSM.

4 *Kildin*-class destroyers with SSM.
19 *Kashin*-class ASW destroyers with SAM.
8 modified *Kotlin*-class destroyers with SAM.
50 *Kotlin-, Skory-,* and *Tallin*-class destroyers.
106 other ocean-going escorts.
10 *Nanuchka*-class coastal escorts with SSM and SAM.
175 submarine chasers.
125 *Osa-* and *Komar*-class FPB with *Styx* SSM.
200 patrol and torpedo boats.
About 300 minesweepers (120 coastal).
100 amphibious ships.
90 landing craft.
50 fleet tpts/oilers and 50 depot/repair ships.
53 intelligence collection vessels (AGI).

Naval Air Force: about 715 combat aircraft (most shore-based near the North-West and Black Sea coasts, organized generally into 3 regiments each of 3 sqns at each base).
280 Tu-16 *Badger* medium bombers with ASM.
55 Tu-22 *Blinder* strike and reconnaissance ac.
20 Il-28 *Beagle* light bombers.
45 Tu-95 *Bear* D long-range MR ac.
10 Tu-95 *Bear* F MR aircraft.
150 Tu-16 *Badger* reconnaissance and tanker ac.
55 Il-38 *May* MR aircraft.
100 Be-12 *Mail* MR amphibians.
200 miscellaneous transports.
250 Mi-4 *Hound* and Ka-25 *Hormone* ASW hel.

Naval Infantry (Marines):
In regiments assigned to fleets. Equipped with infantry weapons, T-54/-55 med tks, PT-76 lt tks, and BTR-60P/PB APC.

Coastal Artillery and Rocket Troops:
Heavy coastal guns, *Samlet* and SS-N-3 *Shaddock* SSM to protect approaches to naval bases and major ports. Coasts are covered by a radar and visual reporting system.

Deployment (average strengths only):
Northern Fleet: 175 submarines (about 90 nuclear), 60 major surface combat ships.
Baltic Fleet: 35 submarines, 55 major surface combat ships.
Black Sea Fleet (incl Caspian Flotilla and Mediterranean Squadron):
25 submarines, 65 major surface combat ships.
Pacific Fleet: 105 submarines (about 40 nuclear), 60 major surface combat ships.

Air Force: 400,000; about 5,350 combat aircraft, excluding Air Defence Force *(PVO–Strany).*
Long-Range Air Force (see above).
Tactical Air Force: about 4,500 aircraft incl Yak-28, Il-28, 700 MiG-17, 500 Su-7, 400 MiG-23 *Flogger,* more than 1,350 MiG-21; Su-17/-20 *Fitter* C, Su-19 *Fencer* A; Yak-28 *Brewer* E and An-12 *Cub* electronic warfare ac.
Air Transport Force: about 1,500 aircraft: 600 Il-14, An-8, An-24 lt tpts, some 900 An-12 and Il-18 med tpts, and 40 An-22 hy tpts. 2,000 hel, incl 500 Mi-1, Mi-2; Mi-4; 1,000 Mi-6, Mi-8, Mi-10, and Mi-24 *Hind* A.

Deployment:
16 Tactical Air Armies: 4 (1,500 ac) in Eastern Europe and 1 in each of 12 MD in the USSR (900 ac in Soviet Asia). There is a Tu-22 sqn in Iraq.

Reserves (all services):
Soviet conscripts have a Reserve obligation to age 50. Total Reserves could be as high as 25,000,000, of which some 5,700,000 have had service in the last five years.

Para-Military Forces: 430,000.
200,000 KGB border troops, 230,000 MVD security troops. The border troops are equipped with tks, AFV, ac, and ships; MVD have tks and AFV. A part-time military training organization (DOSAAF) takes part in such recreational activities as athletics, shooting, and parachuting, and assists in pre-military training given to those of 15 and over in schools, colleges, and workers' centres. Membership is perhaps 9 million, but the number of effectives is likely to be much smaller than this.

SOVIET DEFENCE EXPENDITURE

The difficulty of estimating Soviet defence expenditure in roubles or in dollar value was explained in the *Military Balance 1973–74.* The problem arises because of the considerable uncertainty about what is covered by the official Soviet defence budget and how adjustments should be made for suspected omissions. Furthermore, Soviet pricing practices are completely different from those of market economies. Soviet planning establishes economic objectives in real terms, with no requirement for money prices to coincide with the relative cost of goods and services. Even if the scope of the defence budget is correctly determined and adjusted, the rouble money value may not reflect the cost of alternative production forgone. When the rouble value of defence is expressed as a percentage of Soviet GNP measured in roubles (itself not easy to determine), it may thus not represent the true burden.

If rouble estimates are converted to dollars so as to facilitate international comparisons, the difficulties are compounded, because the exchange rate chosen should relate the purchasing power of a rouble in the Soviet Union to that of a dollar in the United States. It is generally agreed that the official exchange rate is inadequate for this purpose.

A crude comparison of Soviet and American defence efforts can be derived by estimating Soviet expenditure and GNP at American dollar prices. This method has as many deficiencies as measuring in roubles, but gives a completely different picture. The table below shows the wide range of estimates of the relative burden of defence that the two methods give.

Soviet Defence Expenditure	Billions [a]				As % of GNP [b]		
	1972	1973	1974	1975	1972	1973	1974
Roubles	23.4	23.8	23.8	26.2	5.7	5.4	5.1
Dollars: official exchange rate	28.2	33.1	31.7	36.4	5.7	5.4	5.1
Dollars: estimated conversion rates	84.4	88.9	96.4	103.8	10.8	10.5	10.6

[a] The rouble defence expenditure is derived by adding 75 per cent of the All-Union science budget to the official defence budget. The dollar expenditure using estimated conversion rates is the midpoint of a range arrived at by the method described in *The Military Balance 1973–74,* which calculates the Soviet manpower costs at American military wage levels in dollars and converts their non-manpower budgetary costs at a computed rate of $1=0.5 roubles. The 1975 official exchange rate is $1=0.72 roubles.

[b] The Foreword shows how the rouble value of Soviet GNP is estimated.

The figure for the dollar equivalent of Soviet GNP at estimated rates was converted at $1=0.52 roubles. This was derived by adjusting for inflation a conversion rate of $1=0.59, which was estimated in an American study as a suitable rate for 1970 compared with the then ruling official exchange rate of $1=0.9.

The Warsaw Pact

TREATIES

The Warsaw Pact is a multilateral military alliance formed by the 'Treaty of Friendship, Mutual Assistance, and Co-operation' which was signed in Warsaw on 14 May 1955 by the Governments of the Soviet Union, Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania; Albania left the Pact in September 1968. The Pact is committed to the defence only of the European territories of the member states.

The Soviet Union is also linked by bilateral treaties of friendship and mutual assistance with Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania. Members of the Warsaw Pact have similar bilateral treaties with each other. The essence of East European defence arrangements is not therefore dependent on the Warsaw Treaty as such. The Soviet Union concluded status-of-forces agreements with Poland, East Germany, Romania, and Hungary between December 1956 and May 1957 and with Czechoslovakia in October 1968; all these remain in effect except the one with Romania, which lapsed in June 1958 when Soviet troops left Romania.

ORGANIZATION

The Political Consultative Committee consists, in full session, of the First Secretaries of the Communist Party, Heads of Government, and the Foreign and Defence Ministers of the member countries. The Committee has a Joint Secretariat, headed by a Soviet official and consisting of a representative from each country, and a Permanent Commission, whose task is to make recommendations on general questions of foreign policy for Pact members. Both are located in Moscow.

Since the 1969 reorganization of the Pact the non-Soviet Ministers of Defence are no longer directly subordinate to the Commander-in-Chief of the Pact but, together with the Soviet Minister, form the Council of Defence Ministers, which is the highest military body in the Pact. The second military body, the Joint High Command, is required by the Treaty 'to strengthen the defensive capability of the Warsaw Pact, to prepare military plans in case of war and to decide on the deployment of troops'. The Command consists of a Commander-in-Chief and a Military Council. This Council meets under the chairmanship of the C-in-C and includes the Chief-of-Staff and permanent military representatives from each of the allied armed forces. It seems to be the main channel through which the Pact's orders are transmitted to its forces in peacetime and through which the East European forces are able to put their point of view to the C-in-C. The Pact also has a Military Staff, which includes non-Soviet senior officers. The posts of C-in-C and Chief-of-Staff of the Joint High Command have, however, always been held by Soviet officers, and most of the key positions are still in Soviet hands.

In the event of war, the forces of the other Pact members would be operationally subordinate to the Soviet High Command. The command of the air defence system covering the whole Warsaw Pact area is now centralized in Moscow and directed by the C-in-C of the Soviet Air Defence Forces. Among the Soviet military headquarters in the Warsaw Pact area are the Northern Group of Forces at Legnica in Poland; the Southern Group of Forces at Budapest; the Group of Soviet Forces in Germany at Zossen-Wünsdorf, near Berlin; and the Central Group of Forces at Milovice, north of Prague. Soviet tactical air forces are stationed in Poland, East Germany, Hungary, and Czechoslovakia.

The Soviet Union has deployed short-range surface-to-surface missile (SSM) launchers in Eastern Europe. Most East European countries also have short-range SSM launchers, but there is no evidence that nuclear warheads for these missiles have been supplied to them. Longer-range Soviet missiles are all based in the Soviet Union.

BULGARIA

Population: 8,760,000.
Military service: Army and Air Force 2 years; Navy 3 years.
Total regular forces: 152,000 (97,000 conscripts).
Estimated GNP 1974: $13.0 bn.
Defence expenditure 1975: 548.3 m leva ($392 m). $1 = 1.4 leva.

Army: 120,000 (78,000 conscripts).
(East European Warsaw Pact formations are not all manned at the same level. Category 1 formations are at up to three-quarters of establishment strength; Category 2 are unlikely to be at more than a quarter of establishment strength. This note applies to entries for all divisions, brigades, and regiments of the Warsaw Pact nations.)
8 motorized rifle divisions.
5 tank brigades.
150 T-34, 1,800 T-54/-55, some T-62 med.

250 PT-76 lt tks; 300 BTR-40/BRDM AFV, 2,000 BTR-50/-60/OT-62 APC; 58 100mm, 420 122mm, 54 130mm, 168 152mm guns/how; 300 120mm mor; 144 RL; 32 *FROG*, 18 *Scud* SSM; 500 57mm, 76mm, and 85mm ATk guns; 82mm RCL; 125 *Sagger* and *Snapper* ATGW; 600 23mm SP AA guns and 37mm, 57mm, and 100mm AA guns; SA-7 SAM.

Reserves: 250,000.

Navy: 10,000 (6,000 conscripts).
4 submarines (2 R-, 2 W-class, ex-Soviet).
2 *Riga*-class escorts.
2 *Kronstadt*- and 6 *SOI*-class coastal escorts.
3 *Osa*-class fast patrol boats with *Styx* SSM.
4 *Shershen* and 8 P-4 torpedo boats.
6 MCM ships (2 T-43, 4 *Vanya*-class).
24 PO-2 small patrol/minesweeping boats.
19 landing craft (10 *Vydra*- and 9 MFP-class).
2 Mi-1, 6 Mi-4 helicopters.

Reserves: 15,000.

Army: 155,000 (99,000 conscripts).
5 tank divisions.
5 motorized rifle divisions.
1 airborne regiment.
3,100 T-54/-55, some T-62 med tks; OT-65 scout cars; OT-62/-64, *TOPAS* 2AP APC; 500 85mm, 100mm, 516 120mm, 130mm; 180 152mm guns/how; 120mm mor; 200 RL; 40 *FROG*, 27 *Scud* SSM; 57mm, 85mm, 100mm, 85mm SP ATk guns; *Sagger, Snapper, Swatter* ATGW; 82mm, 107mm RCL; 23mm, 30mm, 57mm, and 85mm AA guns; 30mm, 57mm SP AA guns; SA-7 SAM.

Reserves: 300,000.

Air Force: 45,000 (29,000 conscripts), 458 combat aircraft.
12 FGA sqns with 84 Su-7 and 84 MiG-15/-21.
18 interceptor sqns with 240 MiG-21.
6 recce sqns with 50 MiG-21 and Il-28.
About 30 An-24 and Il-14 transports.
Hel incl 180 Mi-1, Mi-4, and Mi 8.
Trainers incl 300 L-39, L-29, Zlin 226, 326 Yak-11, Il-28, MiG-15.
120 SA-2 at some 20 SAM sites.

Czechoslovakian-made trainers like this Aero L-39 are used by most of the Pact air forces. The Aero L-29 is the trainer most commonly used today, but Pact countries will probably buy the more advanced L-39 in the future.

Air Force: 22,000 (13,000 conscripts); 253 combat aircraft.
6 FB squadrons with 72 MiG-17.
12 interceptor sqns: 4 with 48 MiG-21, 3 with 36 MiG-19/-21, 5 with 60 MiG-17.
3 recce sqns with 12 MiG-21, 10 MiG-15, and 15 Il-28.
2 transport squadrons with 4 Li-2, 6 An-2, 4 Il-18, 10 Il-14.
3 hel sqns with 36 Mi-4.
132 SA-2 at about 22 SAM sites.
1 parachute regiment.

Reserves: 20,000.

Para-Military Forces: 20,000 (incl 15,000 border guards); security police; 12,000 construction troops; 150,000 volunteer People's Militia.

CZECHOSLOVAKIA

Population: 14,570,000.
Military service: 2 years.
Total regular forces: 200,000 (128,000 conscripts).
Estimated GNP 1974: $37.4 bn.
Defence expenditure 1975: 19,280 m koruny ($1,542 m).
$1 = 12.5 koruny.

Reserves: 50,000.

Para-Military Forces: 20,000 border troops (subordinate to the Ministry of the Interior); about 120,000 part-time People's Militia.

GERMAN DEMOCRATIC REPUBLIC

Population: 16,990,000.
Military service: 18 months.
Total regular forces: 143,000 (87,000 conscripts).
Estimated GNP 1974: $40.4 bn.
Defence expenditure 1975: 9,564 m Ostmarks ($2,333 m).
$1 = 4.1 Ostmarks.

Army: 98,000 (60,000 conscripts).
2 tank divisions.
4 motorized rifle divisions.
About 2,000 T-54/-55, T-62 med tks; several hundred T-34 (reserve); about 170 PT-76 lt tks; BRDM scout cars; BMP, BTR-50P/-60P/-152 APC; 76mm, 85mm, 100mm, 300 122mm, 72 130mm, 36 152mm guns/how; 120mm mor; 30 122mm RL; 24 *FROG*-7, 9 *Scud B* SSM; 57mm, 85mm, 100mm ATk guns; 82mm RCL; *Sagger, Snapper, Swatter* ATGW; 14.5mm, 23mm SP, 57mm, and 100mm AA guns; SA-7 SAM.

Reserves: 200,000.

Navy: 17,000 (10,000 conscripts).
2 *Riga*-class escorts.
4 *SOI*- and 14 *Hai*-class submarine chasers.
12 *Osa*-class FPB with *Styx* SSM.
55 MTB (15 *Shershen*-, 40 20-ton *Iltis*-class).
22 patrol craft.
3 ocean and 32 coastal minesweepers.
6 *Robbe*-class and 12 *Labo*-class landing craft.
1 helicopter squadron with 8 Mi-4.

Reserves: 30,000.

Air Force: 28,000 (17,000 conscripts); 330 combat aircraft.
3 FGA sqns with 36 MiG-17.
18 fighter squadrons with 294 MiG-21.
2 tpt sqns with 34 Il-14, Il-18, Tu-124, and Tu-134.
85 Mi-1, Mi-2, Mi-4, Mi-8, and Mi-24 hel.
MiG-15UTI, L-29 Yak-11/-18, Zlin 226 trainers.
5 AD regts; 120 57mm and 100mm AA guns.
144 SA-2 at about 24 SAM sites.
2 parachute battalions.

Reserves: 30,000.

Para-Military Forces: 80,000, incl 46,000 Border Guards, 24,000 security troops; 400,000 Workers' Militia.

HUNGARY

Population: 10,790,000.
Military service: 2 years.
Total regular forces: 105,000 (62,000 conscripts).
Estimated GNP 1974: $19.5 bn.
Defence expenditure 1975: 11,258 forints ($485 m).
$1 = 23.2 forints.

Army: 90,000 (54,000 conscripts).
1 tank division.
5 motorized rifle divisions.
Danube Flotilla (2 MCM units, 1 AA gunboat unit).
About 1,500 T-34, T-54/-55, T-62, med, 125 PT-76 lt tks; about 600 BTR-40, FUG, OT-65, 1,000 PSZH scout cars; 200 BTR-50/-60/-152 APC; 300 76mm, 85mm, 100mm, 250 122mm, 125 152mm guns/how; 500 120mm, 160mm mor; 108 122mm, 140mm RL; 24 *FROG*, 9 *Scud* SSM; 57mm and 85mm ATk guns; 82mm and 107mm RCL; *Sagger, Snapper, Swatter* ATGW; 400 57mm, 85mm, and 100mm AA, 23mm, 57mm SP AA guns; 10 100-ton patrol craft (MCM and AA), 5 landing craft.

Reserves: 150,000.

Air Force: 15,000 (8,000 conscripts); 108 combat aircraft.
9 interceptor sqns with 24 MiG-15/-17/-19 and 84 MiG-21.
Some 10 An-2, 10 Il-14, 10 Li-2 transport ac.
About 25 Mi-1, Mi-4, and Mi-8 helicopters.
MiG-15 UTI, Yak-11/-18, L-29 trainers.
108 SA-2 at about 18 SAM sites.

Reserves: 13,000.

Para-Military Forces: 20,000 border guards; 50,000 Workers' Militia.

POLAND

Population: 33,580,000.
Military service: Army, internal security forces, and Air Force 2 years; Navy and special services 3 years.
Total regular forces: 293,000 (194,000 conscripts).
Estimated GNP 1974: $60.8 bn.
Defence expenditure 1975: 47.3 bn zloty ($2,170 m).
$1=21.8 zloty.

Army: 210,000 (143,000 conscripts).
5 tank divisions.
8 motor rifle divisions.
1 airborne division.
1 amphibious assault division.
Some JS-2/-3 hy, 3,800 T-34, T-54/-55, T-62 med, about 300 PT-76 lt tks; FUG, BRDM, and K-61 scout cars; OT-62/-64, *TOPAS* 2AP, BTR-152 APC; about 450 76mm, 85mm, and 100mm, 700 122mm, 250 152mm guns/how; 85mm, 100mm, 122mm, and 152mm SP guns; 120mm mor; 250 122mm, 140mm RL; 52 *FROG*-7, 27 *Scud* SSM; 76mm, 85mm, 100mm ATk, 57mm and 85mm SP ATk guns; 82mm RCL; *Sagger, Snapper, Swatter* ATGW; 23mm, 57mm, 85mm, and 100mm AA guns; SA-7 SAM.

Deployment: Egypt (UNEF): 878; *Syria* (UNDOF): 81.

Reserves: 450,000.

Navy: 25,000 (15,000 conscripts) incl Marines.
4 W-class submarines.
1 *Kotlin*-class destroyer with 2 SA-N-1.
2 *Skory*-class destroyers.
12 *Osa*-class FPB with *Styx* SSM.
26 large and 20 coastal patrol craft.
18 MTB (9 P-6, 9 *Wisla*-class).
24 *Krogurec* and T-43-class, 20 K-8-class MCM.
23 *Polnocny*-class landing ships.
1 Naval Aviation Regiment:
3 fighter sqns with 36 MiG-17.
1 lt bomber/recce sqn with 10 Il-28.
2 hel sqns with some 32 Mi-1, Mi-2, Mi-4.

Reserves: 40,000.

Air Force: 58,000 (36,000 conscripts); 785 combat aircraft.
1 light bomber squadron with 15 Il-28.
15 FGA sqns: 14 with 176 MiG-15/-17 and Su-7, 1 with 16 Su-20 *Fitter*.
36 interceptor sqns with 120 MiG-17, 36 MiG-19, 350 MiG-21.
6 recce sqns with 48 MiG-21 and 24 Il-28.
Some 50 tpts, incl An-2/-12, 6 An-26, Il-14/-18, Tu-134; lt liaison ac incl Yak-12, PZL-104.
120 hel, incl Mi-1, Mi-2, Mi-4, and Mi-8.
Trainers incl Yak-11/-18, TS-11 *Iskra*.
240 SA-2 at about 40 SAM sites.

Reserves: 60,000.

Para-Military Forces: 80,000 border troops of the Territorial Defence Force (incl some units with tanks); 34 small boats operated by the coastguard; 350,000 Citizens' Militia.

ROMANIA

Population: 21,460,000.
Military service: Army and Air Force 16 months; Navy 2 years.
Total regular forces: 171,000 (104,000 conscripts).
Estimated GNP 1974: $34.6 bn.
Defence expenditure 1975: 9,700 m lei ($647 m).
$1=15.0 lei.

Army: 141,000 (85,000 conscripts).
2 tank divisions.
8 motorized rifle divisions.
2 mountain brigades.
1 airborne regiment.
1,800 T-34, T-54/-55 med, 270 PT-76 lt tks; 250 BTR-40/-50/-60/-152, OT-62/-65/-810, 250 TAB-70 (BTR-60) APC; 76mm, 85mm, 100mm, 540 122mm, 55 130mm, 150 152mm guns/how; 85mm, 100mm SP guns; 150 120mm mor; 125 132mm RL; 30 *FROG*, 18 *Scud* SSM; 57mm, 85mm, 100mm, and 57mm and 85mm SP ATk guns; 120 *Sagger, Snapper, Swatter* ATGW; 300 30mm, 37mm, 57mm, 100mm, and 57mm SP AA guns.

Reserves: 450,000.

Navy: 9,000 (5,500 conscripts).
3 *Poti*- and 3 *Kronstadt*-class coastal escorts.
5 *Osa-class* FPB with *Styx* SSM.
10 P-4-class and 1 *Hu Chwan*-class MTB.
10 *Shanghai*-class MGB.
24 MCM craft (4 coastal, 12 inshore, 8 river).
4 Mi-4 helicopters.

Reserves: 10,000.

Air Force: 21,000 (13,500 conscripts); 254 combat aircraft.
5 FGA sqns with 64 MiG-15/-17.
15 interceptor sqns with 180 MiG-17/-19/-21.
1 reconnaissance squadron with 10 Il-28.
2 transport sqns with some 30 Il-14 and Il-18.
10 Mi-4 helicopters (50 *Alouette* III on order).
Trainers include L-29, MiG-15, and MiG-17.
108 SA-2 *Guideline* at about 18 SAM sites.

Reserves: 25,000.

Para-Military Forces: 45,000 (incl border troops); militia of about 500,000.

T-54 tanks like the ones shown above are standard equipment of the Pact armies, which have more than 14,000 tanks, in addition to about 40,000 in Soviet forces.

The Pact countries use MiG-21s for both interceptor and reconnaissance missions. MiG-15s, -17s, and -19s are also in their inventories.

The North Atlantic Treaty

TREATIES

The North Atlantic Treaty was signed in 1949 by Belgium, Britain, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, and the United States; Greece and Turkey joined in 1952 and West Germany in 1955. The Treaty unites Western Europe and North America in a commitment to consult together if the security of any one member is threatened, and to consider an armed attack against one as an attack against all, to be met by such action as each of them deems necessary, 'including the use of armed force, to restore and maintain the security of the North Atlantic area'.

The Paris Agreements of 1954 added a Protocol to the Treaty aimed at strengthening the structure of NATO and revised the Brussels Treaty of 1948, which now includes Italy and West Germany in addition to its original members (Benelux countries, Britain, and France). The Brussels Treaty signatories are committed to give one another 'all the military and other aid and assistance in their power' if one is the subject of 'armed aggression in Europe'.

Since 1969, members of the Atlantic Alliance can withdraw on one year's notice; the Brussels Treaty was signed for 50 years.

ORGANIZATION

The Organization of the North Atlantic Treaty is known as NATO. The governing body of the Alliance, the North Atlantic Council, which has its headquarters in Brussels, consists of Ministers from the fifteen member countries, who normally meet twice a year, and of ambassadors representing each government, who are in permanent session.

In 1966, France left the integrated military organization, and the 14-nation Defence Planning Committee (DPC) was formed, on which France does not sit. It meets at the same levels as the Council and deals with questions related to NATO integrated military planning and other matters in which France does not participate. Greece has announced her intention of withdrawing from the integrated military organization; she left the DPC in autumn 1974.

Two permanent bodies for nuclear planning were established in 1966. The first, the Nuclear Defence Affairs Committee (NDAC), is open to all NATO members (France, Iceland, and Luxembourg do not take part); it normally meets at Defence Minister level once or twice a year, to associate non-nuclear members in the nuclear affairs of the Alliance. The Secretary-General is Chairman of the NDAC.

The second, the Nuclear Planning Group (NPG), derived from and subordinate to the NDAC, has seven or eight members, and is intended to go further into details of topics raised there. The composition consists, in practice, of Britain, Germany, Italy, and the United States, plus three or four other member countries serving in rotation, each for a term of 18 months. On 1 July 1975, there were three such members: Belgium, Denmark, and Turkey. The Secretary-General also chairs the NPG.

The EUROGROUP, which was set up by West European member states of the Alliance (with the exception of France, Portugal, and Iceland) in 1968, is an informal consultative body acting to co-ordinate and improve the West European military contribution to the Alliance. Its activities have included the European Defence Improvement Programme (1970) and Principles of Co-operation in the Armaments Field (1972).

The Council and its Committees are advised on politico-military, financial, economic, and scientific aspects of defence planning by the Secretary-General and an international staff. The Council's military advisers are the Military Committee, which gives policy direction to the NATO military commands. The Military Committee consists of the Chiefs-of-Staff of all member countries except France, which maintains a liaison staff, and Iceland, which is not represented; in permanent session the Chiefs-of-Staff are represented by Military Representatives, who are located in Brussels together with the Council. The Military Committee has an independent Chairman and is served by an integrated international military staff. The major NATO commanders are responsible to the Committee, although they also have direct access to the Council and heads of Governments.

The principal military commands of NATO are Allied Command Europe (ACE), Allied Command Atlantic (ACLANT), and Allied Command Channel (ACCHAN).

The NATO European and Atlantic Commands participate in the Joint Strategic Planning System at Omaha, Nebraska, but there is no Alliance command specifically covering strategic nuclear forces. The United States has, however, committed a small number of

ballistic-missile submarines (and Britain all hers) to the planning control of SACEUR and a larger number to SACLANT.

The Supreme Allied Commander Europe (SACEUR) and the Supreme Allied Commander Atlantic (SACLANT) have always been American officers; and the Commander-in-Chief Channel (CINCCHAN) and Deputy SACEUR and Deputy SACLANT British. SACEUR is also Commander-in-Chief of the United States Forces in Europe.

(I) ALLIED COMMAND EUROPE (ACE) has its headquarters, known as SHAPE (Supreme Headquarters, Allied Powers in Europe), at Casteau, near Mons, in Belgium. It is responsible for the defence of all NATO territory in Europe except Britain, France, Iceland, and Portugal, and for that of all Turkey. It also has general responsibility for the air defence of Britain.

The European Command has some 7,000 tactical nuclear warheads in its area. The number of delivery vehicles (aircraft, missiles, and howitzers) is over 2,000, spread among all countries, excluding Luxembourg. The nuclear explosives themselves, however, are maintained in American custody, with the exception of certain British weapons. (There are, additionally, French nuclear weapons in France.) Tactical nuclear bombs and missile warheads are all fission. There is a large number of low-yield weapons, but the average yield of the bombs for the use of NATO tactical aircraft is about 100 kilotons, and of the missile warheads, 20 kilotons.

About 66 division equivalents are available to SACEUR in peacetime. The Command has some 2,900 tactical aircraft, based on about 150 standard NATO airfields and backed up by a system of jointly financed storage depots, fuel pipelines, and signal communications. The majority of the land and air forces stationed in the Command are assigned to SACEUR, while the naval forces are normally earmarked.

The 2nd French Corps of two divisions (which is not integrated in NATO forces) is stationed in Germany under a status agreement reached between the French and German Governments. Co-operation with NATO forces and commands has been agreed between the commanders concerned.

The following Commands are subordinate to Allied Command Europe:

(*a*) *Allied Forces Central Europe* (AFCENT) has command of both the land forces and the air forces in the Central European Sector. Its headquarters are at Brunssum in the Netherlands, and its Commander (CINCENT) is a German general.

The forces of the Central European Command include 25 divisions, assigned by Belgium, Britain, Canada, West Germany, the Netherlands, and the United States, and about 1,600 tactical aircraft.

The Command is sub-divided into Northern Army Group (NORTHAG) and Central Army Group (CENTAG). NORTHAG, responsible for the defence of the sector north of the Göttingen–Liège axis, includes the Belgian, British, and Dutch divisions and four German divisions and is supported by 2nd Allied Tactical Air Force (ATAF), composed of Belgian, British, Dutch, and German units. The American forces, seven German divisions, and the Canadian battle group are under CENTAG, supported by the 4th ATAF, which includes American, German, and Canadian units and an American Army Air Defense Command. A new headquarters, Allied Air Force, Central Europe, was set up in 1974 to provide centralized control of air forces in the sector.

(*b*) *Allied Forces Northern Europe* (AFNORTH) has its headquarters at Kolsaas, Norway, and is responsible for the defence of Denmark, Norway, Schleswig-Holstein, and the Baltic Approaches. The commander (CINCNORTH) has always been a British general. Most of the Danish and Norwegian land, sea, and tactical air forces are earmarked for it, and most of their active reserves assigned to it. Germany has assigned one division, two combat air wings, and her Baltic fleet. Apart from exercises and some small units, United States naval forces do not normally operate in this area.

(*c*) *Allied Forces Southern Europe* (AFSOUTH) has its headquarters at Naples, and its commander (CINCSOUTH) has always been an American admiral. It is responsible for the defence of Italy, Greece, and Turkey and for safeguarding communications in the Mediterranean and the Turkish territorial waters of the Black Sea. The formations in the area include 19 divisions from Turkey, 9 from Greece, and 11 from Italy, as well as the tactical air forces of these countries. Other formations have been earmarked for AFSOUTH, as have the United States 6th Fleet and naval forces from Italy, Turkey, and Britain. The ground-defence system is based on two separate commands: Southern, comprising Italy and the approaches to it, under an Italian commander, and South-Eastern, comprising Greece and Turkey, under an American commander. There is, however, an overall air command [AFSOUTH, composed of 5th ATAF in Italy and 6th ATAF in Turkey and Greece], and there is a single naval command (NAVSOUTH), responsible to AFSOUTH, with headquarters in Naples.

A special air surveillance unit, Maritime Air Forces Mediterranean (MARAIRMED), is now operating Italian, British, and American patrol aircraft from bases in Turkey, Sicily, and Italy; French aircraft are participating in these operations. Its commander, an American rear-admiral, is immediately responsible to CINCSOUTH.

The Allied Naval On-Call Force for the Mediterranean (NAVOCFORMED) has consisted of at least three destroyers, contributed by Italy, Britain, and the United States, and three smaller ships provided by other Mediterranean countries, depending upon the area of operation.

(*d*) *United Kingdom Air Defence Region* has its headquarters at High Wycombe, England.

(*e*) *ACE Mobile Force* (AMF), with headquarters at Seckenheim, Germany, has been formed with particular reference to the northern and south-eastern flanks. Formed by seven countries, it comprises seven infantry battalion groups, an armoured reconnaissance squadron, six artillery batteries, helicopter detachments, and ground-support fighter squadrons, but has no air transport of its own.

(II) ALLIED COMMAND ATLANTIC (ACLANT) has its headquarters at Norfolk, Virginia, and is responsible for the North Atlantic area from the North Pole to the Tropic of Cancer, including Portuguese coastal waters. The commander is an American admiral.

In the event of war, its duties are to participate in the strategic strike and to protect sea communications. There are no forces assigned to the command in peacetime except Standing Naval Force Atlantic (STANAVFORLANT), which normally consists, at any one time, of four destroyer-type ships. However, for training purposes and in the event of war, forces which are

predominantly naval are earmarked for assignment by Britain, Canada, Denmark, Germany, the Netherlands, Portugal, and the United States. There are arrangements for co-operation between French naval forces and those of SACLANT. There are six subordinate commands; Western Atlantic, Eastern Atlantic, Iberian Atlantic, Striking Fleet Atlantic, Submarine Command, and STANAVFORLANT. The nucleus of the Striking Fleet Atlantic has been provided by the United States 2nd Fleet with some four attack carriers; carrier-based aircraft share the nuclear strike role with missile-firing submarines.

(III) ALLIED COMMAND CHANNEL (ACCHAN) has its headquarters at Northwood, near London. The commander (CINCCHAN) is a British admiral. The wartime role of Channel Command is to exercise control of the English Channel and the southern North Sea. Many of the smaller warships of Belgium, Britain, and the Netherlands are earmarked for this Command, as are some maritime aircraft. There are arrangements for co-operation with French naval forces. A Standing Naval Force, Channel (STANAVFORCHAN) was formed in 1973 to consist of mine counter-measures ships from Belgium, Germany, the Netherlands, and Britain; other interested nations might participate on a temporary basis. Its operational command is vested in CINCCHAN.

POLICY

Political guide-lines agreed between NATO members in 1967 include the concept of political warning time in a crisis and the possibility of distinguishing between an enemy's military capabilities and his political intentions. The strategic doctrine defined by DPC in December 1967 envisaged attacks on NATO territory being met with appropriate levels of force, including nuclear weapons.

BELGIUM

Population: 9,860,000.
Military service: 10 or 12 months. (Conscripts serve 10 months if posted to Germany, 12 months if serving in Belgium.)
Total armed forces: 87,000 (34,100 conscripts).
Estimated GNP 1974: $54.3 bn.
Defence expenditure 1975: 64,465 m francs ($1,821 m).
$1 = 35.4 francs (1975), 38.1 francs (1974).

Army: 62,700, incl Medical Service (27,900 conscripts).
1 armoured brigade.
3 mechanized infantry brigades.
3 reconnaissance battalions.
3 motorized infantry battalions.
1 para-commando regiment.
3 artillery battalions.
5 engineer bns (3 field, 1 bridge, 1 equipment).
2 SSM battalions with 8 *Honest John.*
2 SAM battalions with 24 *HAWK.*
4 air sqns with 75 *Alouette* II hel and 11 Do-27.
334 *Leopard,* 124 M-47 med, 133 *Scorpion,* 62 M-41 lt tks; 1,300 M-75, *Spartan,* and AMX APC; 29 105mm, 15 203mm how; 95 M-108 105mm, 26 M-44; 41 M-109 155mm, and 11 M-110 203mm SP how; 130mm, 57mm, and 92 *Scimitar* SP AA guns; *Honest John* SSM (being replaced by *Lance*); *HAWK* SAM (19 *Scimitar,* 80 JPZ 4–5 SP ATk guns, 35 *Gepard* SP AA guns, 105 *Striker* (SP ATGW) on order).

Deployment: Germany: 32,000; 1 corps HQ, 1 div HQ, 1 armd, 2 mech inf bdes.

Reserves: 30,000 trained: 1 mech, 1 mot inf bde.

Navy: 4,200 (1,300 conscripts).
7 ocean minesweepers/minehunters.
9 coastal minesweepers/minehunters.
14 inshore minesweepers.
2 support ships (1 with 1 lt hel).
2 HHS-1 and 3 *Alouette* III helicopters.
(4 ASW escorts on order.)

Reserves: 7,600.

Air Force: 20,100 (4,900 conscripts); 144 combat aircraft.
2 fighter-bomber squadrons with 36 F-104G.
3 fighter-bomber squadrons with 54 *Mirage* VBA.
2 AWX squadrons with 36 F-104G.
1 reconnaissance squadron with 18 *Mirage* VBR.
3 tpt sqns with 12 C-130H, 2 DC-3, 9 *Pembroke,* 2 *Falcon* 20, and 4 DC-6A/B.
1 SAR sqn with 5 HSS-1 and 5 S-58 hel.
7 SAM squadrons with 14 *Nike Hercules.*
(116 F-16, 5 *Sea King,* and 3 HS-748 on order.)

Para-Military Forces: 15,000 Gendarmerie with 62 FN armd cars, 5 *Alouette* II, 5 *Puma* hel.

BRITAIN

Population: 56,460,000.
Military service: voluntary.
Total armed forces: 345,100 (incl 14,600 women and 8,900 enlisted outside Britain).
Estimated GNP 1974: $188.2 bn.
Defence expenditure 1975–76: £4,548 m ($9,974 m). $1 = £0.456 (1975), £0.419 (1974).

Strategic Forces:
SLBM: 4 SSBN, each with 16 *Polaris* A-3 missiles.
Ballistic Missile Early Warning System (BMEWS) station at Fylingdales.

Army: 174,900 (incl 5,800 women and 7,700 enlisted outside Britain).
14 armoured regiments.
5 armoured reconnaissance regiments.
47 infantry battalions.
3 parachute battalions.
5 Gurkha battalions.
1 special air service (SAS) regiment.
2 regts with *Honest John* SSM and 203mm SP how.
23 other artillery regiments.
1 SAM regiment with 12 *Thunderbird.*
13 engineer regiments.
6 army aviation regiments.
900 *Chieftain* med, 180 FV-101 *Scorpion* lt tks; *Saladin* armd cars; *Ferret, Shorland* scout cars; FV-432, *Saracen* APC *(Scimitar, Spartan, Fox,* and *Striker* AFV entering service); 105mm *Abbot* and M-107 175mm SP guns; M-109 155mm SP how; 12 M-110 203mm SP how; 105mm pack how (being replaced by 105mm lt gun); 84mm *Carl Gustav,* 120mm RCL; *Vigilant* and *Swingfire* ATGW: 40mm L-40/70 AA guns; *Honest John* SSM (36 *Lance* on order); *Blowpipe, Rapier, Thunderbird* SAM.
20 *Beaver* lt ac; 120 *Scout,* 9 *Alouette* II, 175 *Sioux,* 40 *Gazelle* hel *(Lynx* and 100 *Gazelle* hel on order).

Deployment and Organization:
United Kingdom: United Kingdom Land Forces (UKLF): United Kingdom Mobile

British Army forces deployed to Germany with the British Army of the Rhine include in their equipment these 175-mm self-propelled guns.

Force (UKMF): 1 div of 3 bdes; Joint Airborne Task Force (JATFOR): 1 para bde or 2 bns; ACE Mobile Force (Land): 1 bn gp and support arms; 1 SAS regt, 1 Gurkha inf bn. HQ Northern Ireland with 3 inf bdes, 1 armd recce regt, 4 inf bns, 13 units in inf role (incl 1 Marine cdo), 2 military police regts, 1 engr sqn.

Germany: British Army of the Rhine (BAOR): 55,500: 1 corps HQ, 3 div HQ, 5 armd bdes, 1 mech bde, 2 arty bdes (incl *Thunderbird* SAM regt), 2 armd recce regts. Berlin: 3,000: 1 inf bde. Some units from BAOR and from UKLF are serving on tours of up to 6 months in Northern Ireland. Numbers involved average 4,000. The army organization in BAOR and UKLF is to be changed substantially, eliminating the brigade as a level of command. Subject to trials, BAOR is to have 4 armd divs each of 5 battle groups (formed from 2 armd regts and 3 inf bns) and 1 inf force of 3 inf bns; the 2 arty bdes become 1 arty div. In UKLF, the div, JATFOR, and the para bde will be phased out, and regular and reserve units grouped into formations on the lines of BAOR.

Singapore: 1 bde HQ, 1 inf bn group, log support (all being withdrawn).

Brunei: 1 Gurkha bn (being withdrawn).

Hong Kong: 9,300; 1 armd recce sqn, 2 bdes with 2 British and 3 Gurkha inf bns, 1 arty regt, SP units (garrison being reduced).

Cyprus: 1 inf bn gp, 1 armd recce regt (less 1 sqn) with UN force (UNFICYP); 2 inf bns, 1 armd recce sqn in garrison at Sovereign Base Areas.

Oman: Training team and arty and engr dets.

Gibraltar: 1 inf bn.

Belize: 1 inf bn (less 1 coy).

Reserves: 108,500 Regular reserves; 53,300 Territorial Army and Volunteer Reserve; 7,700 Ulster Defence Regiment.

Navy: 76,100 (incl Fleet Air Arm, Royal Marines, 3,700 women, and 800 enlisted outside Britain); 77 major surface combat vessels.

Submarines attack:
8 nuclear, 20 diesel.

Surface ships:
1 aircraft carrier (30 ac, 6 hel).
2 commando carriers (1 with *Seacat* SAM, each with 20 hel).
2 assault ships with *Seacat* SAM.
2 cruisers with 4 *Sea King* hel, *Seacat* SAM.
10 destroyers (6 with *Seaslug* and *Seacat* SAM, 2 with *Sea Dart* SAM and 2 with *Seacat*; 3 also have *Exocet* SSM and *Ikara* ASW), each with 1 ASW hel.
60 frigates: 38 GP (37 with 1 hel, 35 with *Seacat*, and 3 with *Ikara);* 15 ASW (9 with *Seacat* and 1 hel); 3 AA; 4 aircraft direction.
37 coastal minesweepers/minehunters.
6 inshore minesweepers.
12 patrol/seaward defense craft.
6 landing ships, 42 landing craft.
2 hovercraft (SRN-6, BH-N7).
Included above are 3 nuclear and 4 diesel submarines, 10 frigates, and 3 minesweepers, in reserve or undergoing refit. (3 SSN, 1 ASW cruiser, 5 destroyers, 5 frigates, and 3 patrol craft are under construction.)

The Fleet Air Arm:
1 strike sqn with 14 *Buccaneer* S2 *(Martel* ASM).
1 air defence squadron with 12 *Phantom* FG1.
1 AEW squadron with 4 *Gannet.*
10 ASW hel sqns: 5 with 30 *Sea King,* 2 with 48 *Wasp,* 3 with 10 *Gazelle, Wessex, Wasp,* and *Sea King.*
2 SAR sqns and 4 flights of *Whirlwind,* 1 flight of *Wessex* hel.
4 utility hel sqns with *Wessex.*
(13 *Sea King,* 20 *Gazelle,* and 35 *Lynx* hel on order.)

The Royal Marines: 7,800.
1 commando bde with 4 commandos; 120mm RCL; *Blowpipe* SAM; SRN-6 Mk 5 hovercraft.

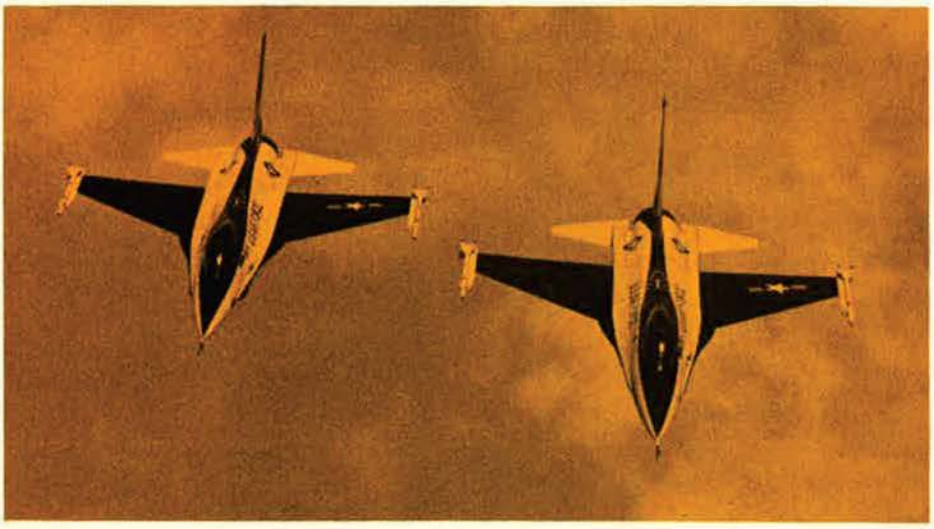
Deployment:
Malta: 1 commando (to be withdrawn between 1 April 1977 and 31 March 1979).
Falkland Islands: 1 detachment.

Reserves (naval and Marines): 28,000 regular and 8,300 volunteers.

Air Force: 94,100 (incl 5,100 women and 400 enlisted outside Britain); about 500 combat aircraft.
6 strike squadrons with 50 *Vulcan* B2.
3 strike sqns with *Buccaneer* (1 more forming).
2 FGA sqns with *Phantom* FGR2.
4 close support squadrons with 48 *Harrier.*
3 close support squadrons with 60 *Jaguar.*
9 interceptor sqns: 6 with *Lightning,* 3 with *Phantom* FG1/FGR2.
5 recce sqns: 1 with 10 *Vulcan* SR2; 2 with *Phantom* FGR2; 2 with *Canberra* PR7/9.
1 AEW squadron with 12 *Shackleton.*
5 MR squadrons with 35 *Nimrod* (8 more on order).
(Combat squadrons have 6–18 aircraft.)
4 tanker squadrons with 24 *Victor* K1A/K2.
4 strategic tpt sqns: 1 with 13 VC-10, 1 with 10 *Belfast,* 2 with 15 *Britannia.* (The transport fleet is to be cut by early 1976 from 110 to 57 aircraft, *Britannia* and *Andover* squadrons being disbanded and the VC-10 and *Hercules* aircraft in operation reduced by 26.)
7 tac tpt sqns: 6 with 66 C-130, 1 with *Andover.*
5 lt comms sqns with HS-125, *Andover, Devon, Pembroke; Whirlwind* hel.
9 hel sqns: 2 tac tpt with 26 *Puma* HC-1, 4 with 60 *Wessex* HC-2, 3 SAR with *Whirlwind* HAR-10.
2 *Bloodhound* SAM sqns.
(*Jaguar* FGA, *Hawk, Bulldog* trg ac, *Commando* hel on order.)
There are 12 field and AD sqns of the Royal Air Force Regiment, 1 with *Tigercat,* 3 with *Rapier* SAM (1 more is forming), and 2 with L40/70 AA guns.

Deployment:
The Royal Air Force includes an operational home command (Strike Command) responsible for the UK Air Defense Region, and 2 overseas commands: RAF Germany (8,600), and Near East Air Force.
Germany: 3 *Phantom* FGR2, 2 *Buccaneer,* 2 *Lightning,* 1 *Jaguar,* 3 *Harrier,* 1 *Wessex* sqns; 3 *Rapier* SAM sqns, 2 field sqns RAF Regt.
Gibraltar: Hunter detachment.
Near East: Cyprus: detachments of *Vulcan, Lightning,* and *Hercules;* 1 *Whirlwind* sqn; 1 sqn RAF Regt. Malta: 1 *Nimrod,* 1 *Canberra* sqns.
Far East: Hong Kong and Singapore: 2 *Wessex* hel sqns, 1 RAF Regt detachment.
Belize: RAF Regt detachment.

Reserves: 31,600 regular; about 300 volunteer.



The F-16 has been selected by Belgium, Denmark, Norway, and the Netherlands as a replacement for the F-104. Deployment will start late in this decade.

CANADA

Population: 22,920,000.
Military service: voluntary.
Total armed forces: 77,000 (approx).
Estimated GNP 1974: $US 143.5 bn.
Defence expenditure 1975–76: $Can 2,798 m ($US 2,665 m).
$US 1=$Can 1.05 (1975), $Can 0.972 (1974).

Army (Land): 28,000. (The Canadian Armed Forces were unified in 1968; the strengths shown here for Army, Navy, and Air Force are only approximate.)
Mobile Command (about 18,800 all elements).
1 airborne regiment.
3 combat groups each comprising:
3 infantry battalions.
1 reconnaissance regiment.
1 light artillery regiment of 2 batteries.
Support units.
330 *Centurion* med tks; 820 M-113 APC; 120 Ferret armd cars; 60 105mm pack, 50 105mm, 50 M-109 SP how; 800 *Carl Gustav,* 138 106mm RCL; SS-11, *ENTAC,* 150 *TOW* ATGW; CL-89 drone; 40mm

AA guns; 100 *Blowpipe* SAM.

Deployment:
One group is intended for operations in Europe, part (an air transportable bn gp) with the AMF. The other groups contribute to North American ground defence and UN commitments.
Europe: One mech battle group of 2,800, with 32 *Centurion* med tks, 375 M-113 APC/recce, 18 M-109 155mm SP how, and 14 CH-136 *Kiowa* hel.
Cyprus (UNFICYP): 520.
Egypt (UNEF): 990.
Syria (UNDOF): 160.

Reserves: about 15,000.

Navy (Maritime): 14,000 (approx).
3 submarines (ex-British *Oberon*-class).
4 ASW hel destroyers with 2 CHSS-2 *Sea King* hel and 2 *Sea Sparrow* SAM.
16 ASW frigates, 8 with 1 hel, 4 with *ASROC*.
6 coastal escorts.
3 support ships with 3 CHSS-2 hel, 2 with *Sea Sparrow* SAM.
1 depot ship (ex-escort).
4 armed ASW craft.

Maritime Air:
4 MR sqns with 32 CL-28 *Argus* (to be 26).
2 sqns with 14 CS-2F-3 *Tracker*.
2 ASW sqns with 24 *Sea King* hel.
4 utility sqns with 6 T-33, and CH-135 *Twin Huey*.
Trainers incl 5 *Argus*, 2 *Tracker*, 7 *Sea King*.

Deployment:
Atlantic: 3 submarines, 15 surface combatants.
Pacific: 10 surface combatants.

Reserves: about 2,700.

Air Force (Air): 35,000 (approx); 112 combat aircraft.
Mobile Command:
2 tac fighter sqns (for AMF) with 20 CF-5.
6 hel sqns with CH-135 *Twin Huey*, CH-113A *Labrador*, 8 CH-118 *Iroquois*, CH-136 *Kiowa*.
Air Defence Command (Canadian component of NORAD): 8,200.
3 interceptor squadrons with 44 CF-101B/C.
1 electronic warfare trg sqn with 30 CF-100 and T-33.
4 main, 18 auxiliary sites of Distant Early Warning (DEW) Line.
25 long-range radar sites (*Pine Tree Line*).
1 SAGE control centre.
Air Transport Command: 6,200.
1 sqn with 5 Boeing 707-320C transport/tankers.
2 sqns with 24 C-130E/H *Hercules*.
4 tpt/SAR sqns with 14 CC-115 *Buffalo*, 8 CC-138 *Twin Otter*, and 9 CH-113 *Labrador* hel.
1 lt tpt sqn with 7 CC-109 *Cosmopolitan* and 7 *Falcon* 20.
(2 C-130H tpts and 8 CH-47C *Chinook* hel on order.)

Deployment:
Europe: 2,300; 3 FGA sqns with 48 CF-104D.

Reserves: about 700; 7 sqns, 35 *Otter* lt tpt.

DENMARK

Population: 4,680,000.
Military service: voluntary; 9 months' conscription for Augmentation Force.
Total armed forces: 34,400.
Estimated GNP 1974: $31.4 bn.
Defence expenditure 1975–76: kr 5,200 m ($951 m).
$1 = 5.47 kroner (1975), 5.99 kroner (1974).

Army: 21,500.
3 mech inf bdes, each with 1 tk bn, 2 mech bns, 1 arty bn, 1 recce sqn, 1 engr coy, and support units.
2 mech inf bdes, each with 1 tk bn, 2 mech bns, 1 arty bn, 1 engr coy, and support units.
1 independent reconnaissance battalion.
Some independent motorized infantry battalions.
200 *Centurion* med, 48 M-41 lt tks; 650 M-113 APC; 24 155mm guns; 144 105mm, 96 155mm, 12 203mm how (dual-capable, but there are no nuclear warheads on Danish soil); 72 M-109 155mm SP how; 106mm RCL; *TOW* ATGW; *Honest John* SSM; *Redeye* (*Hamlet*) SAM; 12 Hughes OH-6A hel, 22 C-18C; 12 KZ VII lt ac (110 *Leopard* med tks, 58 *TOW* ATGW on order).

Deployment: Cyprus (UNFICYP): 432.

Reserves: Augmentation Force 4,500, subject to immediate recall: Field Army Reserve 41,000; Regional Defence Force 24,000, with 21 inf bns, 7 arty bns, ATk sqns, support units; Army Home Guard 52,000.

Navy: 5,800.
6 coastal submarines (2 German U-4 class).
2 frigates (with *Sea Sparrow* SAM).
4 fishery protection vessels, each with 1 hel.
3 coastal escorts (corvettes).
10 motor torpedo boats.
5 coastal minelayers (2 more on order).
8 minesweepers.
31 patrol craft.
8 *Alouette* III helicopters.
(3 corvettes, 10 FPB on order.)

Reserves: 4,500. Navy Home Guard 4,600.

Air Force: 7,100; 123 combat aircraft.
1 FB squadron with 20 F-35XD *Draken*.
2 FB squadrons with 40 F-100D/F.
2 interceptor sqns with 25 F-104G and 15 CF-104G.
1 recce squadron with 23 RF-35XD *Draken*.
1 tpt squadron with 8 C-47, 5 C-54 (being replaced by 3 C-130H).
1 SAR squadron with 8 S-61 hel.
4 SAM squadrons with *Nike Hercules*.
4 SAM squadrons with *HAWK*.
(48 F-16, 5 TF-35 *Draken*, and 32 Saab MFI-17 on order.)

Reserves: 8,000; Air Force Home Guard 11,500.

FRANCE

Population: 52,470,000.
Military service: 12 months.
Total armed forces: 502,500 (271,300 conscripts).
Estimated GNP 1974: $270.8 bn.
Defence budget 1975: fr 43,786 m ($10,838 m).
$1 = 4.04 francs (1975), 4.83 francs (1974).

Strategic Forces:
SLBM: 3 SSBN each with 16 MSBS M-1/-2 msls (a fourth to become operational in 1976; 1 more SSBN under construction; the building of a sixth is being studied).
IRBM: 2 sqns, each with 9 SSBS S-2 missiles.
Aircraft:
9 squadrons with 36 *Mirage* IVA bombers.
3 squadrons with 11 KC-135F tankers.
16 *Mirage* IVA bombers in reserve.

Army: 331,500, incl Army Aviation (216,000 conscripts).
5 mechanized divisions.
1 airborne division of 2 brigades.
1 airportable motorized brigade.
2 alpine brigades.
14 armoured car regiments.
2 motorized infantry regiments.
2 parachute battalions.
20 infantry battalions.
4 SSM regts, 2 with 12 *Pluton*, 2 with 8 *Honest John*, converting to *Pluton* by end-1975. (The nuclear warheads held under double-key arrangement with the United States were withdrawn in 1966.)
4 SAM regiments; 3 with 60 *HAWK*, 1 with *Roland*.
950 AMX-30 med, 1,120 AMX-13 lt tks; some 950 AFV, incl 620 Panhard EBR hy and AML lt; VP-90, 150 AMX-10 APC; 75mm, 105mm, Model 56 105mm pack how; CGT 155mm SP guns; AMX 105mm and 155mm SP how; 120mm mor; 57mm, 75mm, 105/6mm RCL; 20mm SP, 30mm twin SP, 40mm AA guns; *STRIM, Milan*, SS-11/-12, *HOT, Harpon* ATGW; *Pluton, Honest John* SSM; *Roland* and *HAWK* SAM.

Army Aviation (ALAT): 3,700.
2 groups, 6 divisions, and 7 regional commands.
85 Bell, 197 *Alouette* II, 77 *Alouette* III, 131 SA-330 *Puma*, 60 SA-341 *Gazelle* hel (40 *Gazelle*, 10 *Puma* on order).
207 light fixed-wing aircraft.

Deployment (incl Navy and Air Force):
Manoeuvre Forces (*Forces de Manoeuvre*):
First Army: 58,000, 2 mech divs, 1 SSM bn in Germany; 3 mech divs in support in France; Berlin: 2,000.
Territorial Defence Forces (*Défense Operationnelle du Territoire*—DOT): about 52,000 incl 2 alpine bdes, 21 inf bns, 3 armd car regt, 1 arty regt. Mobilization would bring the force up to 90 bns.
Foreign Service Forces:
Strategic Reserve (Force d'Intervention): 1 AB div. (2 bdes); 1 airportable motorized bde.
Forces stationed abroad:
Territory of the Afars and Issas: 2,000 infantry, 3 frigates.
Reunion: 4,000, 1 inf bn, 1 destroyer, 3 minesweepers, landing craft.
Elsewhere in Africa: about 4,000.
Pacific Territories: 2 battalions.
Caribbean: 1 battalion.

Reserves: about 400,000.

Navy: 69,000 (16,500 conscripts) (incl Naval Air Force); 47 major surface combat vessels.
19 submarines (4 more under construction).
2 aircraft carriers (each with 40 ac).
2 cruisers (1 with *Exocet SSM* and *Masurca* SAM; 1 with 8 hy ASW hel).
19 destroyers (2 with *Masurca* SAM and *Malafon* ASW missiles, 2 with *Exocet* SAM, 7 ASW with *Malafon*, 4 with *Tartar* SAM, 4 GP); (2 more in service 1975).
24 frigates (3 more in service 1975).
27 patrol craft (1 with SS-11 SSM).
8 ocean, 33 coastal minesweepers.
5 minehunters.
7 landing ships and 15 landing craft.

Naval Air Force: 13,000.
2 FB sqns with 24 *Etendard* IVM.
2 interceptor sqns with 24 F-8E (FN) *Crusader*.
2 ASW sqns with 24 *Alizé*.

5 MR sqns with 26 *Atlantic* and 10 P-2.
1 reconnaissance sqn with 12 *Etendard* IV-P.
2 ASW hel sqns with 15 *Super Frelon,* 16 HSS-1, and 9 *Alouette* III.
2 SAR sqns with *Alouette* II/III.
3 hel sqns with 17 *Alouette* II, 25 *Alouette* III.
9 comms sqns with DC-4, C-47 ac, HSS-1, *Alouette* II/III, *Super Frelon* hel, and 3 trg sqns.

Marines: 1 battalion.

Reserves: about 50,000.

Air Force: 102,000 (38,800 conscripts); 461 combat aircraft.
Air Defence Command (CAFDA): 9,000.
9 interceptor sqns, 3 with 45 *Mirage* IIIC, 3 with 45 *Mirage* F1, and 3 with 45 *Super Mystère* B-2.
Automatic *STRIDA II* air defence system. (110 *Crotale* SAM on order.)
Tactical Air Force (FATAC—divided into 1st and 2nd CATAC): 13,500.
18 FB squadrons, 8 with 120 *Mirage* IIIE, 2 with 30 *Mirage* VF, 4 with 56 F-100D, and 4 with 60 *Jaguar.*
1 lt bbr sqn with 15 *Vautour* (being withdrawn).
3 recce sqns with 45 *Mirage* IIR/RD.
Air Transport Command (COTAM): 7,400.
8 tactical tpt sqns: 3 with 50 Transall C-160 and 4 with 120 Nord 2501 *Noratlas.*
2 heavy tpt sqns with 4 DC-6B, 3 DC-8.
1 tpt sqn with 93 H-34 and *Alouette* II/III.

Para-Military Forces: 73,000 Gendarmerie.

FEDERAL REPUBLIC OF GERMANY

Population: 62,600,000 (including population of West Berlin).
Military service: 15 months.
Total armed forces: 495,000 (227,000 conscripts).
Estimated GNP 1974: $388.8 bn.
Defence expenditure 1975: DM 29,900 m ($12,669 m).
$1=DM 2.36 (1975), DM 2.56 (1974).

Army: 345,000 (177,000 conscripts).
16 armoured brigades.
12 armoured infantry brigades.
3 motorized infantry brigades.
2 mountain brigades.
3 airborne brigades.
(Organized in 3 corps and 12 divisions: 4 armd, 4 armd inf, 2 *Jäger,* 1 mountain, 1 AB).
11 SSM battalions with *Honest John.*
4 SSM battalions with *Sergeant.*
3 army aviation commands, each with 1 lt, 1 med tpt regt.
Territorial Army: (peacetime strength 63,000) (30,000 conscripts) mobilization strength 504,000): 3 Territorial Commands of 5 Military Districts. 5 Home Defence brigade-sized units are being formed. In support are 4 service support commands, 1 signal bde and 2 regts, 2 engineer regts. The Territorial Army provides defensive, communications, police, and service units on mobilization. 1,400 M-48A2, 2,300 *Leopard* med tks; 660 MS-30, 2,100 *Marder,* 1,600 Hotchkiss PZ-4–5, and 3,350 M-113 APC, 770 SP ATk AFV with 90mm gun and 350 with SS-11 ATGW; 280 105mm, 80 155mm how; 600 155mm, 80 203mm SP how; 150 175mm SP guns; 210 *LARS* 110mm multiple RL; 1,000 20mm, 310 40mm, 500 30mm SP AA guns; 1,000 *Redeye* SAM; *Cobra, Milan, TOW* ATGW; 70 *Honest John,* 20 *Sergeant* SSM; 200 UH-1D and 240 *Alouette* II hel, CL-89 drones. (400 M-113, *Gepard* SP AA, 26 *Lance* on order.)

Reserves: 1,056,000: 615,000 field army, 441,000 Territorial army.

Navy: 39,000, incl Naval Air Arm (11,000 conscripts).
24 coastal submarines (5 more on order for 1976).
11 destroyers (3 with *Tartar* SAM).
6 fast frigates.
5 ASW frigates/patrol vessels.
10 fast combat support ships.
57 MCM ships (incl 16 coastal, 21 fast, 18 inshore).
38 patrol vessels (16 with *Exocet* SSM).
19 landing craft.

Naval Air Arm: 6,000.
3 FB sqns with 96 F-104G.
1 recce sqn with 25 RF-104G.
2 MR sqns with 20 Br-1150 *Atlantic.*
1 SAR hel sqn with 21 *Sea King* Mk 41.
2 utility sqns with 20 Do-28 and 15 H-34G.

Reserves: 27,000.

Air Force: 111,000 (39,000 conscripts); 444 combat aircraft.
17 FGA sqns: 4 with 60 F-4F, 8 with 144 F-104G; 5 with 102 G-91 (to be replaced with *Alpha Jet*).
4 AWX sqns with 60 F-4F.
1 interceptor sqn with 18 F-104G.
4 recce sqns with 60 RF-4F.
5 tpt sqns with 76 Transall C-160.
4 hel sqns with 105 UH-1D.
8 SSM sqns with 72 *Pershing.*
24 SAM batteries with 216 *Nike Hercules.*
36 SAM batteries with 216 *HAWK.*
4 aircraft control and warning regts.

Reserves: 100,000.

Para-Military Forces: 20,000 Border Police.

GREECE

Population: 9,020,000.
Military service: 24 months.
Total armed forces: 161,200 (112,000 conscripts).
Estimated GNP 1974: $18.6 bn.
Defence expenditure 1975: 31,678 m drachmas
($1,035 m).
$1=30.6 drachmas (1975), 29.9 drachmas (1974).

Army: 121,000 (85,000 conscripts).
1 armoured division.
11 infantry divisions (8 at cadre strength).
13 indep inf brigades (8 at cadre strength).
1 para-commando brigade.
2 SSM battalions with 8 *Honest John.*
1 SAM battalion with 12 *HAWK.*
4 army aviation sqns.
300 M-47, 500 M-48, 60 AMX-30 med tks; 200 M-24, M-41 lt tks; M-8, M-20 armd cars; M-59 and M-113 APC; 175mm SP guns; 600 25-pdr, 105mm, 200 155mm (some SP), and some 203mm how; 57mm, 75mm, and 106mm RCL; *TOW* ATGW; 40mm, 75mm, 90mm AA guns; *Honest John* SSM; *HAWK* SAM; 2 Aero *Commander,* 50 *Cessna* U-17, 20 L-21, 5 Bell 47B hel (130 AMX-30 and *Milan* ATGW on order).

Reserves: about 230,000.

Navy: 17,500 (11,000 conscripts).
7 submarines.
11 destroyers.
4 destroyer escorts.
3 coastal patrol vessels.
4 FPB with *Exocet* SSM (4 more on order).
12 fast torpedo boats (less than 100 tons).
5 motor gunboats.
2 coastal minelayers.
15 coastal minesweepers.
14 landing ships (8 LST, 5 med, 1 dock).
8 landing craft.

Reserves: about 20,000.

Air Force: 22,700 (16,000 conscripts); 250 combat aircraft.
10 FGA sqns; 2 with 36 F-4E, 4 with 62 F-84F, 2 with 20 F-104G, 2 with 36 F-5A.
3 fighter sqns; 2 with 36 F-5A, 1 with 16 F-102A.
2 recce squadrons with 18 RF-84F, 14 RF-5A.
1 MR squadron of 12 HU-16B *Albatross.*
3 tpt squadrons of 35 C-47 and 12 *Noratlas.*
3 hel sqns with 14 UH-1H, 10 Bell 47G, 2 UH-19B, 6 AB-206, 6 AB-205.
Trainers incl 35 T-33, 22 T-41, 20 T-6, 18 T-37, 8 F-5B.
1 SAM battalion with *Nike Hercules.*
(60 A-7D, 40 *Mirage* F1, and 18 C-130H on order.)

Reserves: about 25,000.

Para-Military Forces: 30,000 Gendarmerie, 69,000 National Guard.

ITALY

Population: 55,500,000.
Military service: Army and Air Force 12 months, Navy 18 months.
Total armed forces: 421,000 (299,000 conscripts).
Estimated GNP 1974: $150.5 bn.
Defence expenditure 1975: 2,451.3 bn lire ($3,891 m).
$1=630 lire (1975), 646 lire (1974).

Army: 306,500 (254,000 conscripts).
2 armd divisions, each with 2 armd bdes and 1 mech bde.
5 inf divs each with 2 inf bdes, 1 mech bde.
1 independent armoured cavalry brigade.
4 independent infantry brigades.
5 alpine brigades.
1 airborne brigade.
1 amphibious regiment.
1 msl brigade with 1 bn of *Honest John* and 1 coy of *Lance* SSM; 4 coys of *HAWK* SAM.
700 M-47, 300 M-60, 300 *Leopard* med tks; 3,300 M-113 AMX APC; 105mm (incl Model 56 pack), 155mm, 203mm guns/how; M-7 105mm, M-44 155mm, 36 M-107 175mm, M-55 203mm SP guns/how; 76mm, 80mm, 104mm RL; 120mm mor; 57mm, 75mm, 106mm RCL; 30mm, 40mm, M-42 40mm SP AA guns; *Mosquito, Cobra,* SS-11, *TOW* ATGW; *Honest John, Lance* SSM, *HAWK* SAM. (*Leopard* med tks, *Lance* SSM, *TOW* ATGW, 50 Fiat 6616, some LVT-7 APC, *Indigo* SAM, CL-89 drones on order.)

Army Aviation: 21 units with 40 Piper L-19E/-21B, 40 SM-1019 lt ac; over 280 hel, incl 120 AB-47G/J, 50 AB-204B, 30 AB-205A, 60 AB-206A/B-1 (60 SM-1019, 20 AM-3C lt ac, 26 CH-47C, 12 AZ-101G, AB-206 hel on order).

Reserves: 550,000.

Navy: 44,500 (18,600 conscripts) (incl air arm and 1,700 Marines).
10 submarines (2 more under construction).
3 cruisers (2 with *Terrier* SAM and 4 ASW

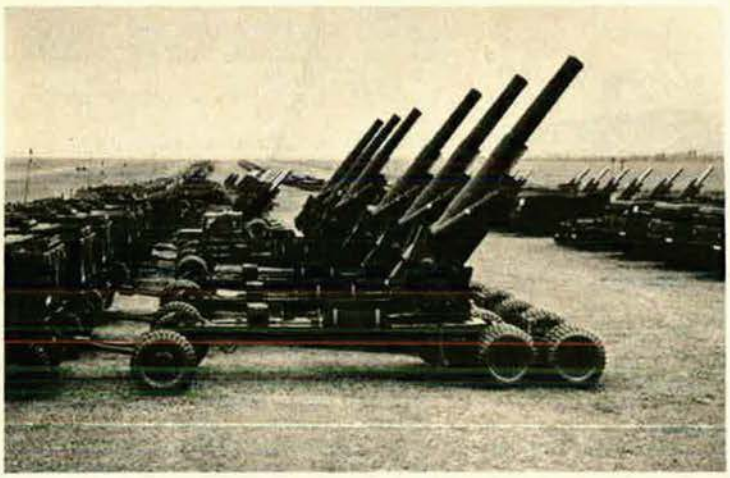
hel; 1 with 9 AB-204B ASW hel and 1 *Terrier/ASROC*).
9 destroyers (4 with ASW hel, *Standard, Tartar* SAM).
18 frigates (6 with ASW hel, 1 fishery protection).
4 ocean, 31 coastal, and 20 inshore minesweepers.
10 FPB (2 with *Seakiller* SSM) and 2 hydrofoils with *Otomat* SSM.
2 landing ships and 64 landing craft.
2 Marine infantry battalions. LVT-4 APC.

Naval Air Arm:
3 tpt sqns: 2 with 32 C-119 (to be replaced by G-222 on order), 1 with 14 C-130H *Hercules*.
5 comms sqns with 5 Convair 440, 2 DC-6B, 10 C-47, 50 P-166M, 40 SIAI-208M, 30 P-148, 9 PD-808, and 2 DC-9.
2 SAR sqns with 11 HU-16 ac and 15 AB-204 hel.
Hels incl 50 AB-204B, 90 AB-205, 50 AB-206A, some 90 AB-47G/J.
10 trg sqns with 75 G-91T, 100 MB-326, 20 P-148, T-33 aircraft, AB-47G/J, AB-204 hel.
12 SAM groups with 96 *Nike Hercules*.
1 light infantry battalion.
1 independent company.
106mm RCL and 81mm mortars; *TOW* ATGW.

Para-Military Forces: 350 Gendarmerie.

NETHERLANDS

Population: 13,660,000.
Military service: Army 16–18 months, Navy and Air Force 18–21 months.



An impressive display of Greek Army artillery. Their army also has some 850 tanks.

The UK, Germany, and Italy expect to buy this MRCA sweptwing fighter.

Of the European NATO nations, Italy has one of the larger navies.

Total armed forces: 112,500 (52,900 conscripts).
Estimated GNP 1974: $70.1 bn.
Defence expenditure 1975: 7,164 m guilders ($2,936 m).
$1=2.44 guilders (1975), 2.67 guilders (1974).

Army: 75,000 (incl 44,500 conscripts, 7,000 reservists).
2 armoured brigades.
4 mechanized infantry brigades.
2 SSM battalions with *Honest John*.
3 army aviation sqns (Air Force crews).
340 *Centurion*, 460 *Leopard* med, AMX-13 lt tks; 2,000 AMX-VCI, YP-408, and M-113 APC; M-59 155mm guns; 105mm, 155mm, 203mm how; 24 M-107 175mm SP guns; AMX 105mm, M-109 155mm, and M-110 203mm SP how; 107mm, 120mm mor; M-72 *LAW*, *Carl Gustav*, and 106mm RCL; *TOW* ATGW; 40mm L70 AA guns; *Honest John* SSM. 12 DHC-2 *Beaver*, 24 L-18/21, 60 *Alouette* III hel. (60 *Gepard* SP AA guns, *Lance* SSM, 850 M-113 APC, Bo-105 hel on order.)

Deployment: Germany: 1 armd bde, 1 recce bn.

Reserves: 145,000; 1 inf div and corps troops, incl 1 indep inf bde, would be completed by call-up of reservists. A number of inf bdes could be mobilized

5 hel sqns with 24 SH-3D, 32 AB-204B, and 12 AB-212 (16 AB-212 ASW hel on order).

Reserves: 65,000.

Air Force: 70,000 (26,400 conscripts); 372 combat aircraft.
5 FGA sqns: 2 with 36 F-104G, 1 with 18 F-104S, and 2 with 36 G-91Y.
3 light attack recce sqns with 35 G-91R.
7 AWX squadrons with 164 F-104S.
3 recce squadrons with 30 RF-104G.
3 MR sqns: 2 with 18 *Atlantic*, 2 with 20 S-2 *Tracker*.
1 electronic recce sqn with 15 PD-808 *Vespa Jet*.

Reserves: 30,000.

Para-Military Forces: 80,000 *Carabinieri*.

LUXEMBOURG

Population: 360,000.
Military Service: voluntary.
Total armed forces: 550.
Estimated GNP 1974: $2.0 bn.
Defence expenditure 1975: 687 m francs ($19 m).
$1=35.4 francs (1975), 38.1 francs (1974).

Army: 550.

for territorial defence.

Navy: 18,500 (incl 3,000 Marines, 1,900 naval air arm, 3,000 conscripts).
6 submarines.
1 cruiser with *Terrier* SAM.
1 frigate with *Tartar/Sea Sparrow* SAM (1 on order).
6 frigates with *Seacat* SAM and 1 lt ASW hel.
10 destroyers.
11 coastal escorts.
43 MCM ships, incl 5 support, 22 coastal, and 16 inshore.
2 fast combat support ships.

Marines:
2 amphibious combat groups.
1 mountain/arctic warfare company.

Naval Air Arm: 1,900.
2 MR sqns with 8 *Atlantic,* 15 P-2 *Neptune.*
2 ASW hel sqns with 6 AB-204B and 12 *Wasp.*

Deployment: Netherlands Antilles: 1 destroyer, 1 amphibious combat det, 1 MR det (3 ac).

Reserves: about 20,000; 9,000 on immediate recall.

Air Force: 19,000 (incl 5,400 conscripts, 2,000 reservists); 162 combat aircraft.
2 FB squadrons with 36 F-104G.
4 FB squadrons with 72 NF-5A/B.
2 interceptor squadrons with 36 F-104G.
1 reconnaissance squadron with 18 RF-104G.
1 transport squadron with 12 F-27.
20 NF-5B trainers.
4 SAM squadrons with *Nike Hercules.*
8 SAM squadrons with 48 *HAWK.*
(84 F-16 on order.)

Reserves: about 18,300.

Para-Military Forces: 3,700 Gendarmerie; 4,000 Home Guard.

NORWAY

Population: 4,030,000.
Military service: Army 12 months, Navy and Air Force 15 months.
Total armed forces: 35,000 (24,000 conscripts).
Estimated GNP 1974: $23.5 bn.
Defence expenditure 1975: 4,301 m kroner ($871 m).
$1=4.94 kroner (1975), 5.45 kroner (1974).

Army: 18,000 (15,000 conscripts).
1 brigade group of 3 inf bns in North Norway.
Indep armd sqns, inf bns, and arty regts.
78 *Leopard* and 38 M-48 med tks; 54 NM-116 lt tks (M-24/90 being converted); M-113 APC; 80 105mm, 30 155mm (incl SP) how; 75mm, 107mm mor; 75mm, 84mm *Carl Gustav,* and 106mm RCL; *ENTAC and TOW* ATGW; Bofors 40mm L-60 AA guns; L-18 and L-19 lt ac. (300 Rh-202 20mm AA guns on order.)

Reserves: 130,000. 11 Regimental Combat Teams (brigades) of about 5,000 men each, supporting units, and territorial forces; Home Guard (all services) 80,000.

Navy: 8,000, incl 1,600 coastal artillery (5,000 conscripts).
15 coastal submarines.
5 frigates/escorts with *Sea Sparrow* SAM and *Penguin* SSM and 2 coastal escorts.
46 fast patrol/torpedo boats with *Penguin* SSM.
10 coastal minesweepers and 4 minelayers.
1 support ship.
7 landing craft.
36 coastal artillery batteries.

Reserves: 22,000.

Air Force: 9,000 (4,000 conscripts); 131 combat aircraft.
3 FGA squadrons with 75 F-5A.
1 FGA squadron with 22 CF-104G.
1 AWX squadron with 16 F-104G.
1 reconnaissance squadron with 13 RF-5A.
1 MR squadron with 5 P-3B.
2 tpt sqns, 1 with 6 C-130H, 1 with 4 *Twin Otter.*
1 SAR sqn with 10 *Sea King* hel.
2 hel sqns with 30 UH-1B.
20 Saab *Safir* trainers; 2 *Falcon* ECM ac.
4 lt AA bns with 40mm L/70 guns.
4 SAM batteries with *Nike Hercules.*
(72 F-16, *Lynx hel, Roland* II SAM on order.)

Reserves: 18,000. 7 lt AA bns for airfield defence with 40mm L/60 guns.

PORTUGAL

Population: 9,260,000.
Military service: Army 24 months, Air Force 36 months, Navy 48 months.
Total armed forces: 217,000 (158,000 conscripts).
Estimated GNP 1974: $12.2 bn.
Defence expenditure 1975: 17,106 m escudos ($701 m).
$1=24.4 escudos (1975), 25.1 escudos (1974).

Army: 179,000 (143,000 conscripts).
2 tank regiments.
4 cavalry regiments.
1 cavalry bn and 5 indep sqns.
17 infantry regiments.
7 lt inf bns, 13 inf bns, and 13 inf coys.
7 artillery regts (2 med, 5 lt), 6 artillery bns, and 5 artillery btys.
1 coastal artillery regiment.
1 AA arty regt, 2 AA bns, 3 AA/coastal btys.
3 engineer battalions.
3 signals battalions.
(Some of the above units form 2 infantry divisions, at or below half-strength.)
100 M-47 and M-4 med, 60 M-24 lt tks; 45 Humber Mk IV and EBR-75 armd cars; 40 FV-1609 and M-16 half-track APC; 200 25-pdr, 30 5.5-in. guns, 72 105mm, 140mm how; 25-pdr SP; 106mm RCL; coast and AA arty.

Deployment: Angola: 24,000; *Timor:* 3,000.

Reserves: 550,000.

Navy: 19,500 (including 3,400 Marines); (7,800 conscripts).
4 submarines *(Daphne*-class).
16 frigates.
17 submarine chasers/corvettes.
36 patrol vessels.
9 coastal minesweepers.
40 landing craft (25 less than 100 tons).

Reserves: 12,000.

Air Force: 18,500 (7,500 conscripts); 130 combat aircraft.
2 lt bbr sqns with 5 B-26 *Invader* and 8 PV-2S.
2 FGA squadrons with 32 G-91.
1 interceptor squadron with 25 F-86F.
6 COIN flights with 50 armed T-6K.
1 MR squadron with 10 P-2V5.
2 Boeing 707, 20 *Noratlas,* 16 C-47, 10 DC-6, 15 C-45, 40 Do-27 tpts.
70 *Auster* lt ac, 13 T-33, 25 T-37, 40 T-6, 40 *Chipmunk,* 10 L-21 trainers.
2 *Alouette* II, 80 *Alouette* III, 6 SA-330 *Puma* hel.
(CASA 212 *Aviocar* tpts, *Puma* and *Alouette* hel on order.)
1 parachute regiment of 3,300.

Para-Military Forces: 9,700 National Republican Guard.

TURKEY

Population: 39,910,000.
Military service: 20 months.
Total armed forces: 453,000 (261,000 conscripts).
Estimated GNP 1974: $31.9 bn.
Defence expenditure 1975–76: 32,830 m liras ($2,174 m).
$1=15.1 liras (1975), 13.5 liras (1974).

Army: 365,000 (200,000 conscripts).
1 armoured division.
2 mechanized infantry divisions.
12 infantry divisions.
4 armoured brigades.
3 mechanized infantry brigades.
5 infantry brigades.
1 parachute brigade.
2 armoured cavalry regiments.
3 SSM battalions with *Honest John.*
1,500 M-47 and M-48 med tks; M-8 armd cars; 1,000 M-59 and M-113 APC; 200 105mm and 155mm SP guns; 1,200 75mm, 105mm, 155mm, and 203mm how; 4.2-in. mor; 57mm, 75mm, 106mm RCL; SS-11 and *Cobra* ATGW; 20mm, 40mm, 75mm, 90mm AA guns; 12 *Honest John* SSM; 18 U-17, 50 L-18, Do-27, 6 Do-28D-1 *Sky Servant,* 50 AB-204B/-205/-206, 20 Bell 47 hel; 10 U-1 *Beaver* lt ac.
(*TOW* ATGW on order.)

Deployment: Cyprus: 2 divisions.

Reserves: 750,000.

Navy: 40,000 (32,000 conscripts).
16 submarines (1 under construction).
13 destroyers (4 can take 1 hel).
5 escort vessels.
70 patrol boats (8 over 200 tons; 9 180-ton MTB, 31 150–170 tons, 13 under 100 tons).
16 coastal and 4 inshore minesweepers.
9 minelayers (coastal).
Some 50 landing craft.
1 MR sqn with 14 S-2E *Tracker* (2 trainers).
3 AB-205A ASW helicopters.
(4 FPB with SSM on order.)

Reserves: 25,000.

Air Force: 48,000 (29,000 conscripts); 292 combat aircraft.
13 FGA sqns: 1 with 20 F-4E, 2 with 33 F-104G, 4 with 45 F-100D, 2 with 32 F-5A, 2 with 18 F-104S, and 2 with 32 F-84F.
1 interceptor squadron with 16 F-5A.
2 AWX squadrons with 36 F-102A.
3 recce squadrons with 20 RF-84F and 40 RF-5A.
3 tpt sqns with 20 C-47, 10 C-130E, and 20 Transall C-160, 3 C-54, 6 C-75, 3 *Viscount,* 2 *Islander.*
20 Bell UH-1D, 10 UH-19D, some AB-204B hel.
6 SAM squadrons with 20 *Nike Ajax/Hercules.*
40 T-6, 30 T-33, 20 T-34, 20 T-37, 5 T-42 trainers.
(F-4, 22 F-104S, 15 MBB-223, 16 Transall on order.)

Para-Military Forces: 750,000 Gendarmerie (including 3 mobile brigades).

Other European Countries

ALBANIA

Population: 2,490,000.
Military service: Army 2 years, Air Force, Navy, and special units 3 years.
Total armed forces: 38,000 (21,000 conscripts).
Estimated GNP 1974: $1.1 bn.
Defence expenditure 1975: 635 m leks ($127 m). $1 = 5 leks.

Army: 30,000 (18,500 conscripts).
1 tank brigade } (under strength).
8 infantry brigades }
3 light coastal artillery battalions.
70 T-34, 15 T-54, and T-59 med, 40 T-62 lt tks; 20 BA-64, BTR-40/-152 APC; SU-76 SP guns; 76mm, 85mm, 122mm, and 152mm guns/how; 120mm and 160mm mor; 76mm and 85mm ATk guns; 37mm, 57mm, and 85mm AA guns.

Navy: 3,000 (1,000 conscripts).
4 submarines (Soviet W-class; 1 training).
4 coastal escorts (Soviet *Kronstadt*-class).
42 MTB (12 Soviet P-4, 30 Chinese *Hu Chwan*-class hydrofoils).
4 *Shanghai*-class MGB.
8 MCM ships (2 Soviet T-43, 6 T-301 class).
10 patrol boats (Soviet PO-2).

Air Force: 5,000 (1,500 conscripts); 96 combat aircraft.
2 FGA sqns with 24 MiG-17.
2 fighter squadrons with 24 MiG-15.
2 interceptor sqns with 36 MiG-19/F-6 and 12 MiG-21/F-8 (Chinese).
1 transport squadron with 3 An-2, 3 Il-14.
2 helicopter squadrons with 20 Mi-1 and Mi-4.
Trainers include Yak-18 and MiG-15UTI.
SA-2 SAM.

Reserves (all services): 100,000.

Para-Military Forces: 13,000: Internal security police 4,000; frontier guard 9,000.

AUSTRIA

Population: 7,590,000.
Military service: 6 months, followed by 60 days' reservist training.
Total armed forces: 17,000 regular, 21,000 conscript (total mobilizable strength 150,000).
Estimated GNP 1974: $33.5 bn.
Defence expenditure 1975: 6,803 m schilling ($410 m).
$1 = 16.6 schilling (1975), 18.2 schilling (1974).

Army: 14,700 regulars, 19,000 conscripts.
3 mech bdes, each with 1 tk, 2 mech inf bns.
4 infantry brigades, each with 3 inf, 1 arty bns.
1 reconnaissance battalion.
3 artillery battalions.
5 engineer and 5 signals battalions.
320 M-47, M-60 med tks; 120 *Kuerassier* SP ATk; 470 Saurer 4K4F APC; 130 M-2 105mm and M-1 155mm how; 38 M-109 155mm SP how; 18 130mm Praga V2S multiple RL; 300 80mm, 102 M-2 107mm, and 82 M-30 120mm mor; 158 M-18 57mm, 47 M-20 75mm, and 397 M-40 106mm RCL; 240 M-52, M-55 85mm ATk guns.

Deployment: Cyprus (UNFICYP): 1 bn and 1 medical unit (322 men); *Syria* (UNDOF): 1 bn (523); other Middle East UN: 14.

Reserves: 128,000; 3 reserve brigades (each of 3 inf, 1 arty bns), 16 regiments and 4 battalions of *Landwehr* distributed among 8 regional military commands. 700,000 have a reserve commitment.

Air Force: 2,300 regulars, 2,000 conscripts; 38 combat aircraft. (Austrian air units, an integral part of the Army, are listed separately for purposes of comparison.)
3 fighter-bomber squadrons with 38 Saab 1050E.
1 tpt sqn with 3 *Beaver* L-20A, 1 Short *Skyvan*.
6 hel sqns with 23 AB-204B, 13 AB-206A, 25 *Alouette* II/III, 5 OH-13H, 2 S-650E.
Other ac incl 23 Cessna L-19, 20 Saab *Safir*.
4 independent air defence battalions.
297 20mm Oerlikon, 72 35mm Z/65 *Super Bat*, 61 40mm Types 55 and 57 Bofors AA guns. (*Skyguard* AD system, 12 *Turbo Porter* on order.)

Reserves: 5,000.

Para-Military Forces: 11,250 Gendarmerie.

EIRE

Population: 3,070,000.
Military service: Voluntary.
Total armed forces: 12,060.
Estimated GNP 1974: $7.0 bn.
Defence expenditure 1975: £48.9 m ($107 m).
$1 = £0.456 (1975), £0.419 (1974).

Army: 11,000.
9 infantry battalions.
1 armoured car squadron.
4 reconnaissance squadrons.
3 field artillery batteries.
8 engineer companies.
1 AA battery.
4 AML H90, 16 AML H60 AFV; 30 Panhard VTT/M3, 17 *Unimog*, some *Landsverk* APC; 48 25-pdr gun/how; 72 m/41C 120mm mor; 447 *Carl Gustav* and 96 90mm III0 RCL; 26 40mm Bofors AA guns.

Reserves: 17,220. Regular Reserve 690, Territorial Army 16,530.

Navy: 450.
1 fishery protection vessel (1 more on order).
3 coastal minesweepers (ex-British *Ton*-class).

Air Force: 610; 9 combat aircraft.
6 *Super Magister*, 3 BAC *Provost*, 7 *Chipmunk*, 8 Cessna FR-172H; 2 *Dove* lt tpts; 8 *Alouette* III hel.

FINLAND

Population: 4,660,000.
Military service: 8–11 months.
Total armed forces: 36,300 (28,000 conscripts).
Estimated GNP 1974: $21.7 bn.
Defence expenditure 1975: 1,206 m markka, $342 m).
$1 = 3.53 markka (1975), 3.62 markka (1974).

Army: 30,300.
1 armoured brigade (about half strength).
6 infantry brigades (about 35 per cent strength).
8 independent infantry battalions.
3 field artillery regiments.
5 independent field artillery battalions.
2 coast artillery regiments.
3 independent coast artillery battalions.
1 AA regiment.
4 independent AA battalions.
T-54, T-55, and *Charioteer* med, PT-76 lt tks; BTR-50P APC; 105mm, 122mm, 130mm, 150mm, and 152mm guns/how;

81mm, 120mm mor; 55mm and 95mm RCL; *Vigilant* and SS-11 ATGW; ZSU-23-2 and ZSU-57-2 SP, 30mm and 40mm AA guns.
Deployment: Cyprus (UNFICYP): 574; *Egypt* (UNEF): 506.

Navy: 3,000.
3 frigates (1 training).
2 corvettes.
4 FPB with SSM.
15 MGB.
6 patrol craft.
1 coastal minelayer.
6 small landing craft/transports.

Air Force: 3,000; 47 combat aircraft.
3 fighter sqns with 35 MiG-21F, 12 Saab J-35BS *Draken*, and *Magister*.
Tpts incl 8 DC-3, 1 DHC-2 *Beaver*, 1 *Islander*.
Trainers incl *Magister*, 20 *Safir*, 3 MiG-15, 6 MiG-21.
Hels incl 3 Mi-4, Mi-8, 1 *Alouette* II, 1 AB-206A, and Hughes 500A.

Reserves: 664,000 (29,000 a year do training).

Para-Military Forces: 4,000 frontier guards.

SPAIN

Population: 32,610,000.
Military service: 18 months.
Total armed forces: 302,300 (213,400 conscripts).
Estimated GNP 1974: $64.7 bn.
Defence expenditure 1974: 78.6 bn pesetas ($1,372 m).
$1=57.3 pesetas (1974).

Army: 220,000 (170,000 conscripts).
1 armoured division
1 mechanized infantry division
1 motorized infantry division
2 mountain divisions
1 armoured cavalry brigade
10 independent infantry brigades
(about 70 per cent strength).
1 mountain brigade.
1 airportable brigade.
1 parachute brigade.
2 artillery brigades.
5 coast artillery regiments.
1 SAM group with *Nike Hercules* and *HAWK*.
20 AMX-30, 350 M-47/-48 med, 160 M-41 lt tks; 40 AML-60/-90 and 80 M-3 scout cars; 400 M-113 APC; 900 105mm, 155mm, and 203mm guns/how; 50 105mm, 155mm, and 175mm SP guns/how; 108mm, 216mm, and 300mm multiple RL; 105mm and 120mm mor; 89mm, 106mm RCL; 90mm SP and 75mm ATk guns; 450 20mm, 40mm, 90mm AA guns; 88mm, 6-in., and 15-in. coast artillery guns; *Nike* and *HAWK* SAM; 6 Bell 47G, 12 UH-1B, 16 UH-1H, 16 AB-206A, 6 CH-47C hel. (180 AMX-30 on order.)

Deployment: 41,000: 3 mechanized and infantry Foreign Legion divisions:
Balearic Islands: 6,000.
Canary Islands: 8,000.
Ceuta: 8,000.
Melilla: 9,000.
Spanish Sahara: 10,000.

Navy: 46,600 (incl 8,000 Marines; 35,000 conscripts).
10 submarines (4 *Daphne*-class, 4 US, 2 midget).
1 helicopter carrier (capacity 20 helicopters).
1 cruiser.
13 destroyers.
10 frigates (2 with *Standard* SAM and *ASROC*, 2 training, 1 more on order).
4 corvettes.
2 motor torpedo boats.
18 minesweepers.
18 patrol craft (13 coastal).
8 large landing ships, 8 utility landing craft.
7 helicopter squadrons with 12 SH-3D, 8 AB-204B, 12 Bell 47, 11 Hughes 369HM, 6 AH-1G, 5 Sikorsky H-19D.
5 Marine light infantry regiments.
(8 AV-8A *Harrier* and 12 *Sea King* on order.)

Air Force: 35,700 (8,400 conscripts); 191 combat aircraft.
4 fighter sqns with 36 F-4C(S), 24 *Mirage* IIIE, 6 IIIDE.
1 FB sqn with 18 F-5A, 2 F-5B.
2 COIN sqns with 71 HA-200D and HA-220 *Saeta*.
1 recce sqn with 18 RF-5A, 2F-5B.
1 MR sqn with 11 HU-16B *Albatross* and 3 P-3.
9 tpt/liaison sqns: 1 with 18 C-54, 2 with C-47, 1 with KC-97L, 1 with 20 CASA 207A/C, 1 with 12 DHC-4 *Caribou*, 1 with T-6B, 1 with 10 O-1E, some Do-27.
Other ac incl 10 Canadair CL-215, 5 Convair C-440, 1 *Falcon* 20.
Trainers incl: 25 F-5B, 50 T-33, 25 T-34, 25 Bü 131, 12 AISA I-115, 20 T-6G, 30 HA-200A.
Hel incl AB-205, AB-206, and Bell 47.
(15 *Mirage* F-1C, 7 C/KC-130H, 34 CASA T-12, 12 AH-1G hel, and *HAWK* SAM on order.)

Para-Military Forces: 65,000 *Guardia Civil*.

SWEDEN

Population: 8,300,000.
Military service: 18,100 regulars, 13,900 reservists, and 51,700 conscripts, plus 113,400 conscripts on annual refresher training. (Total mobilizable strength 750,000.)
Estimated GNP 1974: $56.2 bn.
Defence expenditure 1975–76: Kr 9,752 m ($2,475 m).
$1=3.94 kronor (1975), 4.40 kronor (1974).

Army: 8,700 regulars, 9,000 reservists, and 38,000 conscripts, plus 102,000 conscripts on 18–40 days' annual refresher training.
6 armoured brigades.
20 infantry brigades.
4 *Norrland* brigades.
50 independent infantry, artillery, and anti-aircraft battalions.
23 Local Defence Districts with 100 independent battalions and 400–500 independent companies.
49 non-operational armoured, infantry, and artillery training units for basic conscript training.
350 Strv 101, 102 (*Centurion*), and 300 103B (S-tank) med, Strv 74 lt tks (Ikv 91 on order); Pbv 302A and SKPF APC; Ikv 102 and Ikv 103 105mm, and Bk 1A (L/50) 155mm SP guns; 105mm, 150mm, 155mm how; 90mm ATk guns; SS-11, *Bantam* ATGW; *Carl Gustav* and *Miniman* RCL; 20mm, 40mm, and 57mm AA guns; *Redeye* and *HAWK* SAM; 20 Sk-61 (*Bulldog*); 18 Hkp-3 (AB-204B) and 21 Hkp-6 (*JetRanger*) hel.

Deployment: Cyprus (UNFICYP): 540; *Egypt* (UNEF): 520.

Navy: 4,400 regulars, 2,900 reservists, and 7,700 conscripts, plus 6,800 conscripts on annual refresher training.
22 submarines (5 more building).
8 destroyers (2 with Rb-08 SSM, 4 with *Seacat* SAM).
5 ASW destroyers (2 with lt hel).
1 FPB with *Penguin* SSM (16 more on order).
39 large torpedo boats.
19 motor torpedo boats (less than 100 tons).
1 large patrol boat.
22 patrol launches (less than 100 tons).
3 minelayers (1 command ship).
9 coastal minelayers.
18 coastal minesweepers.
18 inshore minesweepers (8 less than 100 tons).
69 landing craft (9 medium, 60 utility—less than 100 tons).
20 mobile and 45 static coastal artillery batteries with 75mm, 105mm, 120mm, 152mm, and 210mm guns and Rb-08 and Rb-52 (SS-11) SSM.
7 Hkp-2 (*Alouette* II), 3 Hkp-4B (Vertol 107), 7 Hkp-4C (KV-107/II), and 10 Hkp-(*JetRanger*) hel.

Air Force: 5,000 regulars, 2,000 reservists, and 6,000 conscripts, plus 4,600 conscripts on annual refresher training; 600 combat aircraft.
10 FGA sqns: 4 with A-32A *Lansen* (with Rb-O4E ASM), 5 with AJ-37 *Viggen*, 1 with Saab Sk-60B.
19 AWX sqns: 13 with J-35F, 6 with J-35A/D *Draken*.
2 recce/fighter sqns with S-32C *Lansen*.
3 recce/fighter sqns with S-35E *Draken*.
(A combat squadron has up to 18 aircraft.)
2 tpt sqns with 3 C-130E, 2 *Caravelle*, 5 C-47.
5 comm sqns with 110 Sk-60A/B (Saab 1105) and 58 Sk-61 (*Bulldog*).
5 hel groups (2–4 ac each) with 1 Hkp-2, 6 Hkp-3, and 10 Hkp-4B.
2 SAM sqns with *Bloodhound* II.
There is a fully computerized, fully automatic control and air surveillance system, *Stril 60*, co-ordinating all air defence components.

Reserves (all services): voluntary defence organizations 552,900.

SWITZERLAND

Population: 6,660,000.
Military service: 4 months' initial training, refresher training of 3 weeks a year for 8 years, 2 weeks for 3 years, and 1 week for 2 years.
Total armed forces: 6,500 regulars and 36,000 conscripts. (Total mobilizable strength 625,000; militia can be mobilized within 48 hours.)
Estimated GNP 1974: $46.3 bn.
Defence expenditure 1975: 2,603 m francs ($1,041 m).
$1=2.50 francs (1975), 3.01 francs (1974).

Army: 3,500 regulars, 30,000 conscripts, 536,500 militia (reservists).
3 corps each of 1 mechanized, 1 infantry, and 1 frontier division.
1 mountain corps of 3 mountain infantry divs.
23 indep bdes (11 frontier, 6 territorial, 3 fortress, 3 redoubt).
1 independent armoured car battalion, 3 independent heavy artillery regiments, 2 independent engineer regiments, 2 independent signals regiments.
300 *Centurion*, 150 Pz-61, and 170 Pz-68 med, 200 AMX-13 lt tks; 1,250 M-113 APC; 105mm guns; 105mm, 155mm, and 150 M-109U 155mm SP how; 80mm multiple RL; 120mm mor; 83mm, 106mm RCL; 75mm, 90mm, and 105mm ATk guns.
10 patrol boats.

Air Force: Aviation Brigade, part of the Army: 3,000 regular, 6,000 conscripts, 46,000 militia (maintenance is by civilians); 291 combat aircraft.
7 FGA sqns with 120 *Hunter* F-58.
9 FGA sqns with 120 *Venom* FB-50.
2 interceptor sqns with 36 *Mirage* IIIS.
1 recce sqn with 15 *Mirage* IIIRS.
1 tpt sqn with 3 Ju-52/3m.
5 light aircraft sqns with 6 Do-27, 12 Pilatus PC-6 *Porter.*
2 hel sqns with 30 *Alouette* II.
Other ac incl 50 Pilatus P-2, 70 Pilatus P-3, 23 C-3605.
70 *Alouette* III hel.
1 parachute company.
3 air base regiments.
1 air defence brigade with 1 SAM regt of 2 bns, each with 32 *Bloodhound,* and 7 arty regts (22 bns) with 20mm and 35mm AA guns.

Reserves: 582,500 militia (shown above).

The Swiss Air Force has nearly 300 combat aircraft, most of them British- and French-made. This Mirage III is on alert at a Swiss airfield.

YUGOSLAVIA

Population: 21,400,000.
Military service: Army and Air Force 15 months, Navy 18 months.
Total armed forces: 230,000 (155,000 conscripts).
Estimated GNP 1974: $25.3 bn.
Defence expenditure 1975: 29,500 m dinars ($1,705 m).
$1 = 17.3 dinars (1975), 15.1 dinars (1974).

Army: 190,000 (140,000 conscripts).
9 infantry divisions.
10 armoured brigades.
15 independent infantry brigades.
2 mountain brigades.
1 airborne battalion.
1,500 T-54/-55, T-34, and M-47 and about 650 M-4 med tks; some PT-76 lt tks; M-3, M-8, BTR-50P/-60P/-152, and M-60 APC; M-18 (76mm), M-36 (90mm), SU-100 SP guns; 105mm SP how; 76mm, 105mm, 122mm, 152mm, and 155mm guns/how; 130mm multiple RL; 120mm mor; 75mm, 82mm RCL; 57mm, 75mm, 100mm ATk guns; *Snapper, Sagger* ATGW; 20mm, 30mm, 37mm, 40mm, 57mm, 85mm, 88mm AA guns; and ZSU-57-2 SP AA guns.

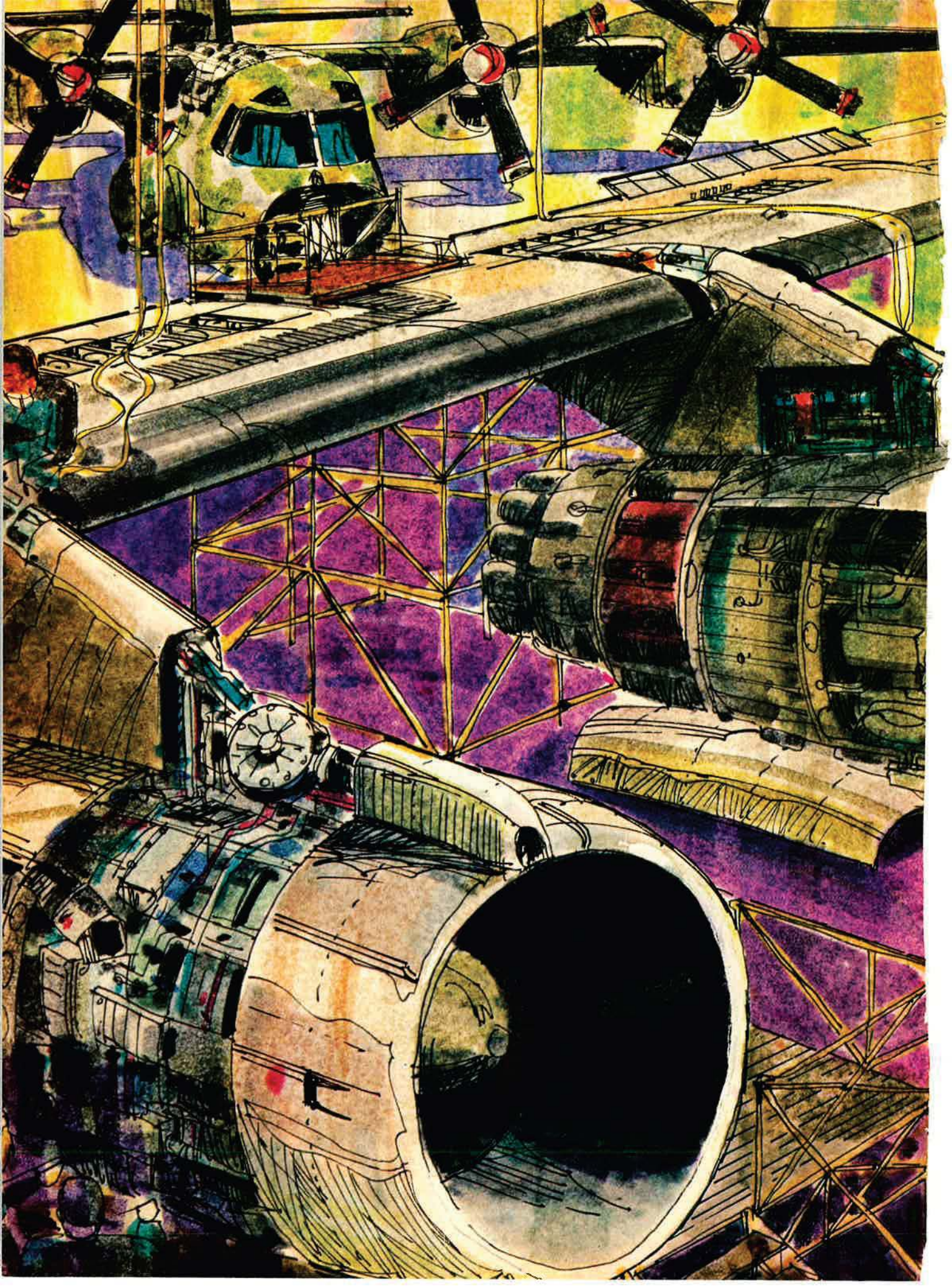
Navy: 20,000 (incl Marines; 8,000 conscripts).
5 submarines.
1 destroyer.
3 corvettes.
10 *Osa*-class FPB with *Styx* SSM.
34 MTB (14 *Shershen*-class, 20 under 100 tons).
26 patrol craft.
30 MCM vessels (14 river minesweepers).
31 landing craft (1 less than 100 tons).
25 coastal artillery batteries.
1 Marine brigade.

Air Force: 20,000 (7,000 conscripts); 270 combat aircraft.
12 FGA sqns with 10 F-84, 15 *Kraguj,* and 95 *Galeb/Jastreb.*
8 fighter sqns with 110 MiG-21.
2 recce sqns with 15 RT-33A and 25 *Galeb/Jastreb.*
56 tpts, incl C-47, Il-14, Il-18, An-12, and Yak-40.
60 *Galeb,* 30 T-33, and some MiG-21UTI trainers.
15 *Whirlwind* 35 Mi-4, 25 Mi-8 hel (130 SA-341 *Gazelle* on order).
8 SAM batteries with SA-2.

Para-Military Forces and Reserves: 500,000 Reservists, 20,000 Frontier Guards, 1,000,000 Territorial Defence Force.

Austria's small army has considerable strength in armor and artillery, including 155-mm howitzers.

With about 600 combat aircraft, including the Saab AJ-37 Viggen shown here, Sweden, with a population of 8,300,000, has one of the world's largest air forces.



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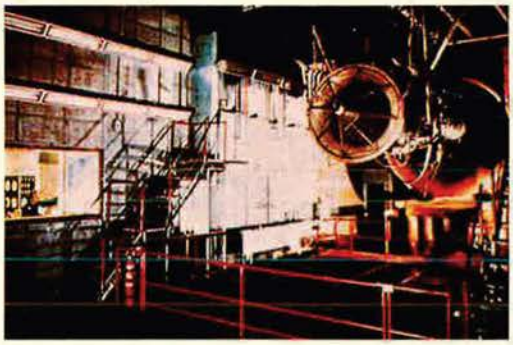

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The Middle East and The Mediterranean

BILATERAL AGREEMENTS WITH EXTERNAL POWERS

The Soviet Union has a fifteen-year treaty of friendship and co-operation with Egypt, signed in May 1971, and a similar treaty, though with less comprehensive defence provisions, was concluded with Iraq in April 1972. She has been a major arms supplier to these two countries and to Syria and Libya. Important military assistance has also been provided to Algeria, Sudan, and the People's Democratic Republic of Yemen.

The United States has varying types of security assistance agreements and has provided significant military aid on either a grant or credit basis to Greece, Turkey, Portugal, Spain, Morocco, Tunisia, Lebanon, Jordan, Saudi Arabia, and Israel. She provides, in addition, a significant amount of military equipment on a cash sales basis to many countries, notably Greece, Spain, Israel, Iran, Kuwait, Saudi Arabia, and Jordan. For grant military aid purposes Turkey is considered a forward defence area, and Spain is considered a base rights country under a basing agreement concluded in August 1970 and currently being renegotiated. A naval facilities agreement was signed with Bahrain in late 1971. Communications bases are maintained in Morocco under informal arrangements.

Britain is responsible for the defence of Gibraltar. A seven-year agreement with Malta, signed on 26 March 1972, permits Britain to base forces on the island for British and NATO purposes. This agreement expires on 31 March 1979 and Britain has announced that her forces will be withdrawn from Malta between April 1977 and that date. Britain concluded treaties of friendship with Bahrain, Qatar, and the United Arab Emirates in August 1971 and is also an arms supplier for Iran, Kuwait, Bahrain, Qatar, the United Arab Emirates, Saudi Arabia, Oman, Jordan, and, recently, Egypt. A small number of British troops are assisting government forces in Oman.

Britain—a signatory, with Greece and Turkey, of the 1959 Treaty of Guarantee, which guarantees the independence, territorial integrity, and security of the Republic of Cyprus—maintains a garrison in two Sovereign Base Areas in the island. Greece and Turkey are each entitled to maintain a contingent in Cyprus under an associated Treaty of Alliance with the Republic. Turkish forces in Cyprus were very substantially increased in July 1974, and the constitutional provisions of the 1959 Agreement are now under review.

The People's Republic of China has supplied arms to Albania and the People's Democratic Republic of Yemen.

France has a pilot-training agreement with Morocco and supplies arms to a number of countries, including Greece, Egypt, Libya, Morocco, Abu Dhabi, Iraq, Kuwait, and Saudi Arabia.

Spain directly assures the defence of Ceuta and Melilla, regarded as integral parts of Spain.

MULTILATERAL AGREEMENTS INCLUDING EXTERNAL POWERS

The members of the Central Treaty Organization (CENTO) are Britain, Iran, Pakistan, and Turkey, with the United States as an associate. All sit on the Military, Economic, and Counter-Subversion Committees and on the Permanent Military Deputies Group. The Treaty provides for mutual co-operation for security and defence but has no central command structure nor forces allocated to it. For the local powers, the economic organization of Regional Co-operation for Development (RCD), which has evolved independently out of CENTO, has recently been described as more important.

There are United Nations forces in Cyprus (UNFICYP), Syria (UNDOF), and Egypt (UNEF).

ARRANGEMENTS WITHIN THE REGION

Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, the United Arab Emirates, the Yemen Arab Republic, and the People's Democratic Republic of Yemen are members of the League of Arab States. Among its subsidiary bodies are the Arab Defence Council, set up in 1950, and the Unified Arab Command, organized in 1964.

Defence agreements were concluded by Egypt with Syria in November 1966 and Jordan in May 1967, to which Iraq later acceded. These arrangements provided for the establishment of a Defence Council and a Joint Command. The loosely associated Eastern Front Command, comprising Iraq, Jordan, the Palestine Liberation Army, and Syria, was reorganized in December 1970 into separate Jordanian and Syrian commands. Iraq and Syria concluded defence pacts in May 1968 and July 1969, but recent friction between the two countries casts some doubt on their application. Jordan and Syria

have recently set up a joint committee to co-ordinate economic and political planning and have been discussing the setting-up of a joint military command. The Federation of Arab Republics, formed by Libya, Syria, and Egypt in April 1971, provided for a common defence policy and a Federal Defence Council, but only in January 1973 was an Egyptian Commander-in-Chief appointed to command all Federation forces. The present status of Libya in relation to this is unclear.

Iran has a naval agreement with Oman, to whom she gives military assistance. Iranian and Jordanian troops are assisting government forces there.

ALGERIA

Population: 16,930,000.
Military service: voluntary.
Total armed forces: 63,000.
Estimated GNP 1974: $8.8 bn.
Defence expenditure 1975: 1,030 m dinars ($285 m).
$1=3.61 dinars (1975), 3.96 dinars (1974).

Army: 55,000.
1 armoured brigade.
4 motorized infantry brigades.
3 independent tank battalions.
50 independent infantry battalions.
1 parachute battalion.
12 companies of desert troops.
5 independent artillery battalions.
5 AA battalions.
3 engineer battalions.
100 T-34, 300 T-54/-55 med tks; 50 AMX-13 lt tks; 30 BTR-40, 40 BTR-50, 20 BTR-60, and 350 BTR-152 APC; 5 SU-85, 85 SU-100, and JSU-152 SP guns; 600 85mm guns and 122mm and 152mm how; 240 120mm and 240mm mor; *Sagger* ATGW; 20 140mm and 40 240mm RL; 15 *FROG*-4 SSM; 85mm and 100mm AA guns.

Reserves: 50,000.

Navy: 3,500.
6 ex-Soviet *SOI* submarine chasers.
6 *Komar*- and 3 *Osa*-class FPB with *Styx* SSM.
12 ex-Soviet P-6 torpedo boats.
2 fleet minesweepers (ex-Soviet T-43 class).

Air Force: 4,500; 186 combat aircraft.
2 lt bomber sqns with 25 Il-28.
2 interceptor sqns with 35 MiG-21.
6 FGA sqns: 1 with 20 Su-7BM, 4 with 70 MiG-17, 1 with 10 MiG-15.
2 COIN sqns with 26 *Magister*.
1 tpt sqn with 8 An-12, 3 F-27 (3 F-27 on order).
4 hel sqns with 4 Mi-6, 42 Mi-4, 5 Mi-8, 6 Hughes 269A, and 5 SA-330.

Para-Military Forces: 10,000 Gendarmerie with 50 AML armoured cars.

EGYPT

Population: 37,520,000.
Military service: 3 years.
Total armed forces: 322,500.
Estimated GNP 1974: $17.9 bn.
Defence expenditure 1975–76: £E 2,600 m ($6,103 m).
$1 = £E 0.426 (1975), £E 0.393 (1974).

Army: 275,000.
2 armoured divisions.
3 mechanized infantry divisions.
5 infantry divisions.
1 Republican Guard Brigade (division).
5 independent armoured brigades.
2 independent mechanized brigades.
2 airmobile brigades.
1 parachute brigade.
26 commando battalions.
4 artillery brigades.
2 heavy mortar brigades.
2 SSM regts (up to 24 *Scud*).
25 JS-3/T-10 hy, 1,100 T-54/-55, 820 T-62 med, 30 PT-76 lt tks; 2,500 BTR-40/-50P/-60P(/OT-64)/-152 APC; 100 BMP-76PB AFV; about 200 SU-100 and JSU-152 SP guns; 1,300 76mm, 100mm, 122mm, 130mm, 152mm, 180mm, and 40 203mm guns/how; 120mm, 160mm mor; 420 130mm, 140mm, 240mm RL; 57mm, 85mm, and 100mm ATk guns; 82mm, 107mm RCL; *Sagger, Swatter, Snapper* ATGW; 18 *FROG*-7, *Scud, Samlet* SSM; ZSU 23-4, ZSU-57-2 SP AA guns; SA-6 and SA-7 SAM.

Air Defence Command (75,000): 108 combat aircraft. (Under Army command with Army and Air Force manpower.)
11 sqns of MiG-21MF interceptors; 360 SA-2, 200 SA-3, 75 SA-6 SAM; 2,500 20mm, 23mm, 37mm, 40mm, 57mm, 85mm, and 100mm AA guns; missile radars incl *Fan Song, Low Blow, Flat Face, Straight Flush,* and *Long Track*; gun radars *Fire Can, Fire Wheel,* and *Whiff*; early warning radars *Knife Rest* and *Spoon Rest*.

Reserves: about 500,000.

Navy: 17,500.
12 submarines (6 W- and 6 R-class, ex-Soviet).
5 destroyers (including 4 ex-Soviet *Skory*-class).
3 escorts (ex-British).
12 *SOI* submarine chasers (ex-Soviet).
8 *Osa*- and 5 *Komar*-class FPB with *Styx* SSM.
30 MTB (6 *Shershen* and 24 P-6).
12 ex-Soviet MCM (6 T-43, 4 *Yurka,* 2 T-301).
14 landing craft (10 *Vydra,* 4 MP-SMB-1).

Reserves: about 15,000.

Air Force: 30,000; about 500 combat aircraft. (Some of these are in storage. It is reported that, in addition, 44 *Mirage* F-1 and 38 *Mirage* III are being supplied via Kuwait and Saudi Arabia, respectively.)
25 Tu-16D/G medium bombers (10 with *Kelt* ASM).
5 Il-28 light bombers.
Some MiG-23 fighter-bombers (48 being delivered).
80 Su-7 fighter-bombers.
125 MiG-17 fighter-bombers.
250 MiG-21 interceptors with *Atoll* AAM.
200 MiG-15, MiG-21, Su-7, Yak-18, some 150 L-29 and *Gomhouria* trainers.
About 50 Il-14 and 20 An-12 med tpts.
20 Mi-4, 20 Mi-6, 70 Mi-8, 4 *Sea King,* and 24 *Commando* hel.
(44 *Mirage* F-1, 6 *Sea King* hel on order.)

Reserves: about 20,000.

Para-Military Forces: about 120,000; National Guard 20,000, Frontier Corps 6,000, Defence and Security 60,000, Coast Guard 7,000.

IRAN

Population: 33,180,000.
Military service: 2 years.
Total armed forces: 250,000.
Estimated GNP 1974: $35.6 bn.
Defence expenditure 1975–76: 693,000 m rials ($10,405 m).
$1 = 66.6 rials (1975), 66.7 rials (1974).

Army: 175,000.
3 armoured divisions.
4 infantry divisions.
2 indep bdes (1 AB, 1 special force).
1 SAM battalion with *HAWK*.
Army Aviation Command.
300 *Chieftain,* 400 M-47/-48, and 460 M-60A1 med tks; about 2,000 M-113, BTR-50/-60 APC; 650 guns and how, incl 75mm, 330 105mm, 130mm, 102 155mm, 203mm, 175mm SP, 203mm SP; 64 M-21 RL; 106mm RCL; *ENTAC,* SS-11, SS-12, *TOW* ATGW; 650 23mm (20 SP), 35mm, 40mm, 57mm (80 SP), and 85mm AA guns; *HAWK* SAM. (1,680 *Chieftain* med,

The Egyptian Navy, largest in the Middle East, has more than 100 ships, including four Soviet-made Skory*-class destroyers like that shown above.*

250 *Scorpion* lt tks; ZSU-23-4 SP AA guns on order).
Aircraft include C-45, Li-8, 45 Cessna 185, 10 O-2A, 6 Cessna 310.
20 *Huskie,* 52 AB-205A, 24 AB-206A, and 14 CH-47C hel.

Deployment: Oman: 1,500: 1 bde, 1 hel sqn.

Reserves: 300,000.

Navy: 15,000.
3 destroyers.
4 frigates with Mk 2 *Seakiller* SSM and *Seacat* SAM.
4 corvettes.
25 patrol boats (9 under 100 tons).
6 minesweepers (4 coastal, 2 inshore).
2 landing craft.
8 SRN-6 and 4 *Wellington* BH-7 hovercraft.
Naval Air Transport battalion with 5 AB-205A, 14 AB-206A, 6 AB-212, 10 SH-3D hel.
3 Marine battalions.
(3 *Tang*-class submarines, 6 *Spruance*-class destroyers, 12 FPB with *Exocet* SSM, 2 BH-7 hovercraft, 6 S-65A hel on order.)

3 armoured divs, each of 2 armoured bdes and 1 mechanized brigade.
4 infantry divs, each of 1 mechanized and 3 infantry brigades.
1 Republican Guard mechanized brigade.
1 special forces brigade.
1,200 T-62, T-54/-55, 90 T-34 med, PT-76 lt tks; about 1,300 AFV, incl BTR-60/-152, BMP-76; 700 75mm, 85mm, 100mm, 120mm, 130mm, 152mm guns/how; 50 SU-100, 40 JSU-152 SP guns; 120mm, 160mm mor; RL: *FROG, Scud* SSM; 800 23mm, 37mm, 57mm, 85mm, 100mm AA guns; SA-7 SAM.

Reserves: 250,000.

Navy: 3,000.
3 *SOI* submarine chasers.
8 *Osa*-class FPB with *Styx* SSM.
13 P-6 torpedo boats.
2 minesweepers.
3 patrol boats (less than 100 tons).

Air Force: 12,000; 247 combat aircraft.
1 bomber sqn with 7 Tu-16.
6 FGA sqns: 2 with 30 MiG-23, 3 with 60 Su-7, 1 with 20 *Hunter.*
3 fighter sqns with 30 MiG-17.
5 interceptor sqns with 100 MiG-21.
2 tpt sqns with 12 An-2, 6 An-12, 10 An-24, 2 Tu-124.
7 hel sqns with 35 Mi-4, 16 Mi-6, 30 Mi-8, 20 *Alouette* III.
Trainers incl 30 MiG-15, MiG-21UTI, *Hunter* T-66/-69, Yak, L-29.
SA-2, SA-3, and SA-6 SAM.
(10 MiG-23 fighters, L-39 trainers, 40 *Alouette* III hel on order.)

Para-Military Forces: 10,000 National Guard, 4,800 security troops, and 4–5,000 others.

Eighty F-14 variable-wing, twin-seat fighters like this one have been ordered by the Iranian Air Force to be used as interceptors.

Air Force: 60,000; 238 combat aircraft.
6 FB sqns with 32 F-4D, 64 F-4E with *Sidewinder* and *Sparrow* AAM, *Maverick* ASM.
10 FB sqns with 80 F-5A, 45 F-5E.
1 recce sqn with 4 RF-4E, 13 RF-5A.
4 med tpt sqns with 56 C-130E/H.
1 tanker sqn with 6 Boeing KC-135.
2 lt tpt sqns with 12 F-27, 6 C-54, 5 C-47, and 5 *Beaver.*
15 *Huskie,* 40 AB-205, 5 AB-206A, 5 AB-212, 4 CH-47C, 16 *Super Frelon* hel.
Trainers include 30 T-41, 10 T-33, T-6, 2 E-3A, and 18 F-5B.
Rapier and *Tigercat* SAM.
(80 F-14 *Tomcat,* 190 F-4, 179 F-5E fighters, 16 RF-4E recce, 6 P-3 *Orion* MR, 6 KC-135 tanker, 26 C-130E, 30 C-130H, and 4 F-28 tpts, 22 CH-47C hel, *Blindfire* SAM radar on order.)

Para-Military Forces: 70,000 Gendarmerie with lt ac and hel; 40 patrol boats.

IRAQ

Population: 11,090,000.
Military service: 2 years.
Total armed forces: 135,000.
Estimated GNP 1974: $5.6 bn.
Defence expenditure 1974–75: 236 m dinars ($803 m).
$1 = 0.294 dinars (1974).

Army: 120,000.
3 armoured divs, each of 2 armoured bdes and 1 mechanized brigade.
4 infantry divs, each of 1 mechanized and 3 infantry brigades.
1 Republican Guard mechanized brigade.
1 special forces brigade.
1,200 T-62, T-54/-55, 90 T-34 med, PT-76 lt tks; about 1,300 AFV, incl BTR-60/-152, BMP-76; 700 75mm, 85mm, 100mm, 120mm, 130mm, 152mm guns/how; 50 SU-100, 40 JSU-152 SP guns; 120mm, 160mm mor; RL: *FROG, Scud* SSM; 800 23mm, 37mm, 57mm, 85mm, 100mm AA guns; SA-7 SAM.

Reserves: 250,000.

Navy: 3,000.
3 *SOI* submarine chasers.
8 *Osa*-class FPB with *Styx* SSM.
13 P-6 torpedo boats.
2 minesweepers.
3 patrol boats (less than 100 tons).

Air Force: 12,000; 247 combat aircraft.
1 bomber sqn with 7 Tu-16.
6 FGA sqns: 2 with 30 MiG-23, 3 with 60 Su-7, 1 with 20 *Hunter.*
3 fighter sqns with 30 MiG-17.
5 interceptor sqns with 100 MiG-21.
2 tpt sqns with 12 An-2, 6 An-12, 10 An-24, 2 Tu-124.
7 hel sqns with 35 Mi-4, 16 Mi-6, 30 Mi-8, 20 *Alouette* III.
Trainers incl 30 MiG-15, MiG-21UTI, *Hunter* T-66/-69, Yak, L-29.
SA-2, SA-3, and SA-6 SAM.
(10 MiG-23 fighters, L-39 trainers, 40 *Alouette* III hel on order.)

Para-Military Forces: 10,000 National Guard, 4,800 security troops, and 4–5,000 others.

ISRAEL

Population: 3,360,000.
Military service: men 36 months, women 24 months (Jews and Druses only; Moslems and Christians may volunteer). Annual training for reservists thereafter up to age 40/41 for men, up to age 30 for women.
Total armed forces: 34,000 regular, 122,000 conscripts (mobilization to 400,000 is possible in 72 hours).
Estimated GNP 1974: $11.7 bn.
Defence expenditure 1975–76: £I 22,000 m ($3,503 m).
$1 = £I 6.28 (1975), £I 4.21 (1974).

Army: 15,000 regular, 120,000 conscripts (including women); 375,000 on mobilization. 11 brigades (5 armd, 4 inf, 2 para) normally kept near full strength; 6 (1 armd, 4 mech, 1 para) between 50 per cent and full strength; rest at cadre strength.
10 armoured brigades.
9 mechanized brigades.
9 infantry brigades.
5 parachute brigades.
3 artillery brigades.
2,700 med tks, incl 200 *Sherman* (converting to SP arty), 900 *Centurion,* 400 M-48, 450 M-60, 400 T-54/-55, some 150 T-62; 65 PT-76 lt tks; about 3,600 AFV, incl AML-60, 15 AML-90, and some *Staghound* armd cars; about 3,300 M-2/-3/-113, BRDM, BTR-40/-50P(/OT-62)/-60P/-152 APC; 350 105mm and 155mm, 60 175mm, some 203mm SP how; 250 120mm, 130mm, and 155mm guns/how; *Ze'ev (Wolf)* SSM; 240mm RL; 900 120mm and 160mm (some SP) mor; 106mm RCL; *LAW,* 140 *TOW, Cobra,* SS-10/-11, *Sagger* ATGW; about 900 20mm, *Vulcan/Chapparal,* 30mm and 40mm AA guns; *Redeye* SAM.
(M-48, M-60 med tks; M-113 APC; *TOW* ATGW; *Redeye* SAM on order.)
(The 280-mile range MD-660 *Jericho* SSM may now be deployed.)

Navy: 4,000 regular, 1,000 conscripts; 6,000 on mobilization.
2 submarines (3 more on order).
6 *Reshef*-class FPB with *Gabriel* SSM.
12 *Saar*-class FPB with *Gabriel* SSM.
6 motor torpedo boats.
30 small patrol boats (less than 100 tons).
10 landing craft (3 less than 100 tons).
Naval commandos: 300.

Air Force: 15,000 regular, 1,000 conscripts; 20,000 on mobilization; 461 combat aircraft. (In addition there are combat aircraft in reserve, incl *Vautour* lt bbrs, *Mystère* IVA, *Ouragan* FB, and *Super Mystère* B.2 interceptors.)
9 FGA/interceptor sqns: 6 with 200 F-4E, 3 with 75 *Mirage* III/*Kfir.*
6 FGA sqns with 200 A-4E/F/N *Skyhawk.*
1 reconnaissance squadron with 6 RF-4E.
5 Boeing 707, 10 C-97/*Stratocruiser* (incl 2 tankers), 20 *Noratlas,* 10 C-47, 16 C-130E, 14 *Arava,* 10 Do-27, 10 Do-28, 4 *Islander* tpts.
Trainers incl 25 TA-4H, 85 *Magister,* 12 *Queen Air.*
9 *Super Frelon,* 18 CH-53G, 20 AB-205A, 25 UH-1D *Iroquois,* 20 S-65, and 5 *Alouette* II hel. 15 SAM batteries with 90 *HAWK.*
(35 F-4, 20 A-4; 8 C-130E; 8 CH-47, 12 S-61 hel; 8 *Queen Air* lt ac; *HAWK* SAM on order.)

Reserves (all services): 450,000.

Para-Military Forces: 4,000 Border Guards and 5,000 *Nahal* Militia.

JORDAN

Population: 2,730,000.
Military service: voluntary.
Total armed forces: 80,250.
Estimated GNP 1974: $1.0 bn.
Defence expenditure 1975: 48.0 m dinars ($155 m).
$1 = 0.309 dinars (1975), 0.311 dinars (1974).

Army: 75,000.
2 armoured divisions.
1 mechanized division.
2 infantry divisions.
4 special forces battalions.
2 AA brigades.

Among the hundreds of combat aircraft supplied Middle East countries by the USSR are Tu-16 bombers, found in the Egyptian and Iraqi Air Forces.

240 M-47/-48/-60 and 200 *Centurion* med tks; 100 *Saladin* armd cars; 140 *Ferret* scout cars; 320 M-113 and 120 *Saracen* APC; 110 25-pdr, 50 105mm and 155mm how; 35 M-52 105mm and 20 M-44 155mm SP how; 16 155mm guns; 81mm, 107mm, and 120mm mor; 106mm and 120mm RCL; *TOW* ATGW; 200 M-42 40mm SP AA guns.

Deployment: Oman: 1 special forces battalion.

Navy: 250.
12 small patrol craft.

Air Force: 5,000; 42 combat aircraft.
2 FGA sqns with 24 F-5A.
2 interceptor squadrons with 18 F-104A.
4 C-47, 2 *Dove*, 2 C-119 *Packet*, and 1 *Falcon* 20, 2 C-130B tpts.
3 *Whirlwind* and 10 *Alouette* III helicopters.
2 F-5B, 6 *Chipmunk*, 3 *Hunter*, 2 F-104, 10 T-6, and 5 *Bulldog* trainers.
(36 F-5E/B on order.)

Reserves: 30,000.

Para-Military Forces: 10,000; 3,000 Mobile Police Force, 7,000 Civil Militia.

KUWAIT

Population: 1,210,000.
Military service: conscription.
Total armed forces: 10,200.
Estimated GNP 1974: $5.4 bn.
Defence expenditure 1974: 47 m dinars ($162 m).
$1 = 0.291 dinars (1974).

Army: 8,000.
1 armoured brigade.
2 composite brigades (armour/infantry/artillery).
50 Vickers and 50 *Centurion* med tks; 250 *Saladin* armd, *Ferret* scout cars; *Saracen* APC; 10 25-pdr guns; 20 155mm how; SS-11, *Vigilant* ATGW.

Navy: 200 (Coastguard).
12 inshore patrol boats.
15 patrol launches.
2 landing craft.

Air Force: 2,000; 32 combat aircraft.
1 FGA sqn with 4 *Hunter* FGA-57 and 2 T-67.
1 interceptor sqn with 12 *Lightning* F-53, 2 T-55.
1 COIN sqn with 12 BAC-167 *Strikemaster* Mk 83.
2 *Caribou*, 1 *Argosy*, 2 Lockheed L-100-20 tpts.
1 hel sqn with 4 AB-205, 2 AB-206, 1 *Whirlwind*.
6 *Jet Provost* T-51 trainers (in store).
(20 *Mirage* F-1 (reportedly for Egypt), 36 A-4M *Skyhawk*, 20 *Gazelle*, 10 *Puma* hel, *HAWK* SAM on order.)

LEBANON

Population: 3,230,000.
Military service: 12 months selective.
Total armed forces: 15,300.
Estimated GNP 1974: $3.7 bn.
Defence expenditure 1975: £L 315 m ($1.44 m).
$1 = £L 2.18 (1975), £L 2.26 (1974).

Army: 14,000.
1 tank brigade with 2 tank battalions.
2 reconnaissance battalions.
9 infantry battalions.
1 commando battalion.
2 artillery battalions.
1 AA battalion.
60 *Charioteer* med, 25 AMX-13, 18 M-41 lt tks; 100 M-706, M-6, Panhard M-3, AEC armd cars; 80 M-113, 16 M-59 APC; 6 75mm guns; 24 122mm, 20 155mm how; 25 120mm mor; *ENTAC*, SS-11, 20 *TOW* ATGW; 60 20mm and 30mm, 15 M-42 40mm SP AA guns. (18 *TOW* on order.)

Navy: 300.
2 patrol vessels.
3 coastal patrol boats (3 more on order).
1 landing craft.

Air Force: 1,000; 24 combat aircraft.
1 FGA sqn with 13 *Hunter* F-69 and T-66.
1 interceptor sqn with 6 *Mirage* IIIEL with R-530 AAM (4 *Mirage* IIIEL and 1 IIIBL in storage).
1 hel sqn with 10 *Alouette* II/III, 6 AB-204.
1 *Dove*, 3 *Chipmunk*, 7 *Magister* comms ac.
Some French early warning/ground control radars.
(6 SA *Bulldog*, 6 AB-212 hel trainers on order.)

Para-Military Forces: 5,000 Gendarmerie.

LIBYA

Population: 2,320,000.
Military service: voluntary.
Total armed forces: 32,000.
Estimated GNP 1974: $5.9 bn.
Defence expenditure 1975: 60 m Libyan dinars ($203 m).
$1 = 0.296 dinars (1975), 0.296 dinars (1974).

Army: 25,000.
1 armoured brigade.
2 mechanized infantry brigades.
1 National Guard brigade.
1 commando battalion.
3 artillery battalions.
2 anti-aircraft artillery battalions.
50 T-62, 280 T-54/-55, and 15 T-34 med tks; 100 *Saladin* armd cars; 25 *Ferret* scout cars; 220 BTR-40/-50/-60, 30 *Saracen*, 110 OT-64, and 170 M-113AL APC; 70 122mm, 75 105mm, and some 155mm how; 300 *Vigilant* ATGW; 120 23mm, 57mm, L40/70 Bofors AA guns. (Soviet med tks, APC, arty, and SAM on order.)

Navy: 2,000.
1 frigate (with *Seacat* SAM).
1 corvette.
3 FPB with SS-12, MSSM.
11 patrol craft (1 coastal, 1 with BM-21 RL).
1 logistics support ship.
(4 FPB with *Otomat* SSM and 10 PR-72 FPB on order.)

Air Force: 5,000, including expatriate personnel serving on contracts or secondment; 92 combat aircraft.
2 interceptor sqns with 32 *Mirage* IIIE.
4 FGA sqns with 50 *Mirage* V.
1 recce sqn with 10 *Mirage* IIIER.
(Some *Mirage* may be in storage.)
8 C-130E and 9 C-47 med tpts.
10 *Mirage* IIIB, 3 T-33 trainers.
2 AB-206, 7 OH-13, 10 *Alouette* III, 6 AB-47, and 9 *Super Frelon* helicopters.
3 SAM regts with 60 *Crotale* and 8 batteries of SA-2, SA-3, and SA-6 SAM.

To counter possible arms embargoes, Israel built the Kfir fighter-bomber. Looking much like a Mirage V, it uses US-supplied J76 engines.

(12 Tu-22 bombers, 29 MiG-23 FGA, 12 MiG-8 hel, and *Galeb* trainers on order.)

MOROCCO

Population: 17,320,000.
Military service: 18 months.
Total armed forces: 61,000.
Estimated GNP 1974: $6.0 bn.
Defence expenditure 1974: 816 m dirham ($190 m).
$1=4.30 dirham (1974).

Army: 55,000.
1 light security brigade.
1 parachute brigade.
5 armoured battalions.
9 motorized infantry battalions.
9 infantry battalions.
2 Royal Guards battalions.
5 camel corps battalions.
3 desert cavalry battalions.
6 artillery groups.
2 engineer battalions.
25 M-48, 120 T-54 med, 120 AMX-13 lt tks; 36 EBR-75, 50 AML-245, and M-8 armd cars; 40 M-3 halftrack and 95 OT-64 APC; 25 SU-100, AMX-105, and 50 M-56 90mm SP guns; 100 76mm, 85mm, and 105mm guns; 150 75mm and 105mm how; 82mm, 120mm mor; 105mm RCL; *ENTAC* ATGW; 50 37mm and 100mm AA guns.

Navy: 2,000 (including 500 Marines).
1 frigate (royal yacht, with 1 hel).
2 coastal escorts (French PR-72-class).
1 patrol boat (2 more on order).
1 landing craft.
1 naval infantry battalion.

Air Force: 4,000; 60 combat aircraft.
2 FGA sqns with 24 *Magister*.
1 interceptor sqn with 20 F-5A and 4 F-5B.
2 tpt sqns with 10 C-47, 8 C-119G, and 6 C-130H.
6 *King Air*, 35 T-6, 25 T-28, 28 SF-260M trainers.
12 AB-205A, 5 AB-212, and 4 *Alouette* II hel.
(Some ac, incl 12 MiG-17 FGA, in storage.)
(6 C-119, 6 C-130H tpts, 40 *Puma* hel on order.)

Para-Military Forces: 30,000, incl 11,000 *Sureté Nationale*.

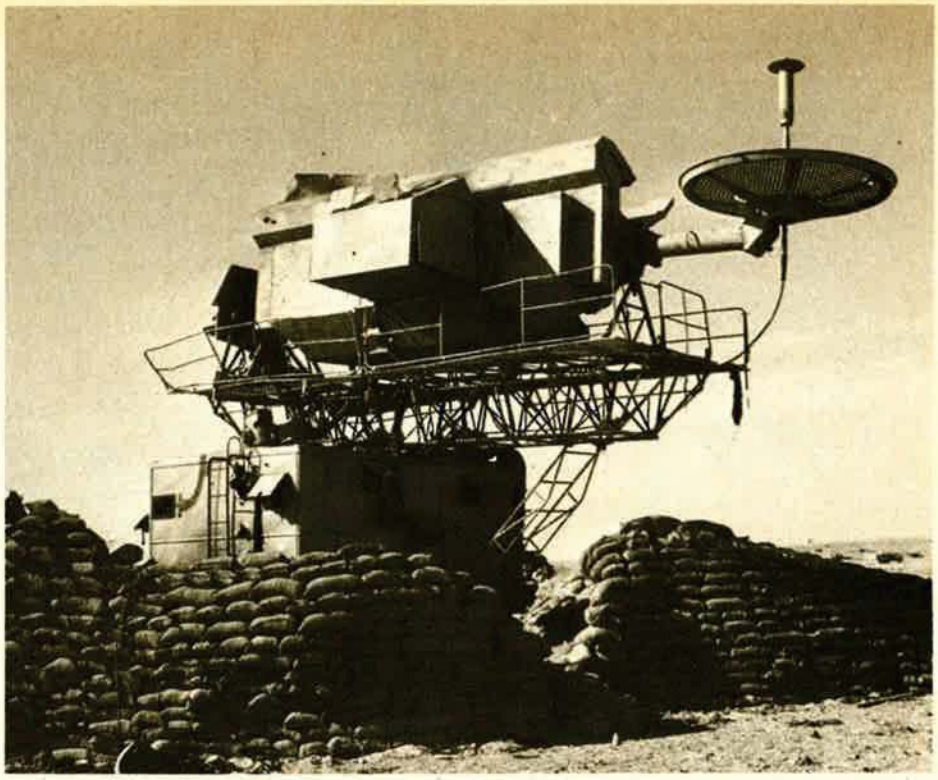
OMAN

Population: 760,000.
Military service: voluntary.
Total armed forces: 14,100.
Defence expenditure 1975: 125 m rial omani ($359 m).
$1=0.348 rial omani (1975).

Army: 12,900.
6 infantry battalions.
1 frontier force battalion.
1 artillery regiment.
1 signals regiment.
1 armoured car squadron.
1 engineer squadron.
68 *Saladin* and some V-100 *Commando* armd cars; *Ferret* scout cars; 75mm pack how; 25-pdr and 5.5-in. guns; *TOW* ATGW.

Navy: 200.
3 fast patrol boats (4 more on order).
1 patrol vessel (royal yacht).
2 minesweepers.

Air Force: 1,000; 47 combat aircraft.
1 FGA sqn with 31 *Hunter* (ex-Jordan).
1 COIN squadron with 16 BAC-167.



Fan Song radars, part of the SA-2 Guideline surface-to-air missile system, have been supplied by the USSR to defense forces of Egypt, Iraq, and Syria.

1 tactical transport sqn with 2 *Caribou* and 15 *Skyvan*.
2 tpt sqns: 1 with 3 BAC-111 and 3 *Viscount*, 1 with 8 BN *Defender*.
1 hel sqn with 20 AB-205 and 3 AB-206A.
(12 *Jaguar* FGA, AB-206, 5 Bell 214A hel, 28 *Rapier* SAM, *Blindfire* SAM radar on order.)

Para-Military Forces: 2,000; 1,000 Gendarmerie (1 battalion), 1,000 tribal Home Guard (*Firqats*).

SAUDI ARABIA

Population: 8,910,000.
Military service: voluntary.
Total armed forces: 47,000.
Estimated GNP 1974: $12.0 bn.
Defence expenditure 1975–76: 22,200 m Saudi riyals ($6,343 m).
$1=3.50 riyals (1975), 3.54 riyals (1974).

Army: 40,000.
1 armoured brigade.
4 infantry brigades.
1 parachute battalion.
1 Royal Guard battalion.
3 artillery battalions.
6 AA battalions.
10 SAM batteries with *HAWK*.
150 AMX-30, 25 M-47 med, 60 M-41 lt tks; 200 AML-60/-90, some *Staghound* and *Greyhound* armd cars; *Ferret* scout cars; 105mm guns; 75mm RCL; SS-11, *Harpon* ATGW; AA guns; *HAWK* SAM. (250 AMX-30 and M-60 med, 250 *Scorpion* lt tks; armd cars; 250 APC; guns/how; SP AA guns, *Rapier, Crotale*, and *HAWK* SAM on order.)

Deployment: Jordan: 1 brigade group; *Syria:* 1 brigade group.

Navy: 1,500.
3 FPB (*Jaguar*-class).
1 patrol boat (ex-US coastguard cutter).
(6 FPB, 4 MCM, 4 landing craft on order.)

Air Force: 5,500; 95 combat aircraft.
2 FB sqns with 30 F-5E.
2 COIN/training sqns with 30 BAC-167.
2 interceptor sqns with 35 *Lightning* F-52/F-53.
2 tpt sqns with 21 C-130.
2 hel sqns with 20 AB-206 and 10 AB-205.
Other ac incl 4 KC-130 tpts; 20 F-5B, 3 *Lightning* T-55 trainers; lt ac; 6 *Alouette* III, 1 AB-204, 15 AB-205 hel.
37 *Thunderbird* Mk 1 SAM.
(100 F-5E/F, 38 *Mirage* IIIAES (believed to be for Egypt), 10 KC-130, and *Alouette* III hel on order.)

Para-Military Forces: 16,000 National Guard in regular and semi-regular battalions; 6,500 Frontier Force and Coastguard with 50 small patrol boats and 8 SRN-6 hovercraft.

SUDAN

Population: 17,870,000.
Military service: voluntary.
Total armed forces: 48,600.
Estimated GNP 1974: 2.8 bn.
Defence expenditure 1975–76: £S 37 m ($97 m).
$1=£S 0.382 (1975), £S 0.339 (1974).

Army: 45,000.
2 armoured brigades.
7 infantry brigades.
1 parachute brigade.
3 artillery regiments.
3 air defence artillery regiments.
1 engineer regiment.
20 T-34/-85, 60 T-54, and 50 T-55 med tks; 16 T-62 lt tks (Chinese); 50 *Saladin* and 45 *Commando* armd cars; 60 *Ferret* scout cars; 50 BTR-50, 50 BTR-152, 49 *Saracen*, and 60 OT-64 APC; 55 25-pdr,

40 100mm, 20 105mm, and 18 122mm guns and how; 30 120mm mor; 30 85mm ATk guns; 80 Bofors 40mm, 80 Soviet 37mm, and 85mm AA guns.

Navy: 600.
7 **patrol boats** (ex-Iranian).
6 **coastal patrol** boats } (ex-Yugoslav).
2 **landing craft** }

Air Force: 3,000; 43 combat aircraft.
1 interceptor squadron with 18 MiG-21.
1 FGA squadron with 15 MiG-17 (ex-Chinese).
5 BAC-145 Mk 5 and 5 *Jet Provost* Mk 55 (in storage).
1 tpt sqn with 6 An-12, 5 An-24, and 4 F-27.
1 hel sqn with 4 Mi-4 and 10 Mi-8.

Para-Military Forces: 3,500: 500 National Guard, 500 Republican Guard, 2,500 Border Guard.

SYRIA

Population: 7,370,000.
Military service: 30 months.
Total armed forces: 177,500.
Estimated GNP 1974: $2.9 bn.
Defence expenditure 1975: £Syr 2,500 m ($668 m).
$1 = £Syr 3.74 (1975), £Syr 3.52 (1974).

Army: 150,000.
2 armoured divisions.
3 mechanized infantry divisions.
2 armoured brigades.
1 mechanized brigade.
3 infantry brigades.
8 commando battalions.
3 parachute battalions.
2 artillery brigades.
24 SAM batteries with SA-2 and SA-3.
14 SAM batteries with SA-6.
100 T-34, 1,300 T-54/-55, 700 T-62 med, 70 PT-76 lt tks; 1,100 BTR-50/-60, BTR-152 APC; 700 122mm, 130mm, 152mm, and 180mm guns/how; 75 SU-100 SP guns; 140mm and 240mm RL; *FROG*-7 and *Scud* SSM; 120mm and 60mm mor; *Snapper, Sagger, Swatter* ATGW; 23mm, 37mm, 57mm, 85mm, and 100mm AA guns; SA-2, SA-3, SA-6, SA-7, SA-9 SAM.

Reserves: 100,000.

Air Defence Command (under Army Command, with Army and Air Force manpower).
SAM batteries, AA arty, and interceptor ac and radar.

Navy: 2,500.
3 *Komar*- and 3 *Osa*-class FPB with *Styx* SSM.
1 T-43-class minesweeper.
11 torpedo boats (ex-Soviet P-4).
1 coastal patrol vessel.

Reserves: 2,500.

Air Force: 25,000; about 400 combat ac.
1 sqn with Il-28 lt bombers.
4 FGA sqns with 50 MiG-17.
3 FGA sqns with 45 Su-7.
2 FGA sqns with 45 MiG-23.
About 250 MiG-21 interceptors (more on order).
6 Il-14 and 3 An-12 transports.
Hel incl 4 Mi-2, 8 Mi-4, 39 Mi-8, and 9 Ka-25.

Para-Military Forces: 9,500; 8,000 Gendarmerie; 1,500 Desert Guard (Frontier Force).

TUNISIA

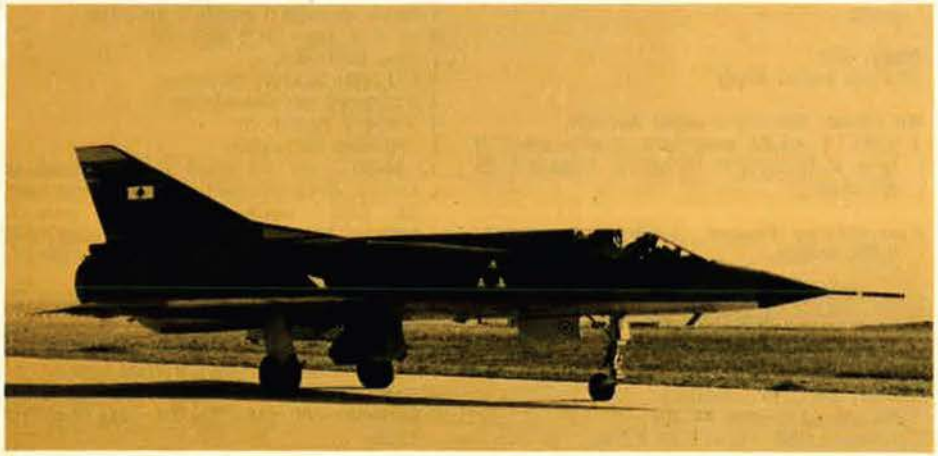
Population: 5,750,000.
Military service: 12 months selective.
Total armed forces: 24,000 (14,500 conscripts).
Estimated GNP: $3.6 bn.
Defence expenditure 1975–76: 20.5 m dinars ($56 m).
$1 = 0.386 dinars (1975), 0.409 dinars (1974).

Army: 20,000 (13,500 conscripts).
1 armoured battalion.
5 infantry battalions.
1 commando battalion.
1 Sahara battalion.
1 artillery battalion.
1 engineer battalion.
30 AMX-13, 20 M-41 lt tks; 20 *Saladin*, 15 EBR-75, 13 AML-60, some M-8 armd cars; 10 105mm SP, 10 155mm guns.

Navy: 2,000 (500 conscripts).
1 destroyer escort (ex-US *Edsall*-class).
1 corvette (French A-69 type).
1 coastal minesweeper (on loan from France).
2 patrol boats with SS-12M SSM (1 on order).
13 coastal patrol boats (12 less than 100 tons).

Air Force: 2,000 (500 conscripts); 24 combat aircraft.
1 fighter sqn with 12 F-86F.
1 COIN sqn with 12 SF-260W *Warrior*.
3 Dassault *Flamant* light tpts (3 G-222 on order).
8 MB-326B, 12 T-6, and 12 Saab 91D *Safir* trainers.
2 *Alouette* II and 6 *Alouette* III hel.

Para-Military Forces: 9,000; 5,000 Gendarmerie (6 battalions), 4,000 National Guard.



A Mirage III of the Lebanese Air Force. Several Mideast countries have bought, or are buying, French-made aircraft, in some cases for transfer to Egypt.

YEMEN ARAB REPUBLIC (NORTH)

Population: 6,520,000.
Military service: 3 years.
Total regular forces: 32,000.
Defence expenditure 1974–75: 266 m riyals ($58 m).
$1 = 4.56 riyals (1974).

Army: 30,000.
6 infantry brigades (3 reserve).
1 parachute brigade.
3 commando brigades.
2 armoured battalions.
2 artillery battalions.
1 AA battalion.
30 T-34 med tks; 30 *Saladin* armd cars; 70 BTR-40 APC; 50 SU-100 SP guns; 50 76mm, some 122mm guns; 75mm RCL; 120mm mor; 37mm AA guns.

Navy: 300.
5 P-4 class FPB (ex-Soviet).

Air Force: 1,700; 24 combat aircraft. (Some aircraft are believed to be in storage.)
1 light bomber sqn with 12 Il-28.
1 fighter sqn with 12 MiG-17.
C-47 and 2 Short *Skyvan* tpts.
4 MiG-15 UTI, 18 Yak-11 trainers.

Para-Military Forces: 20,000 tribal levies.

YEMEN: PEOPLE'S DEMOCRATIC REPUBLIC (SOUTH)

Population: 1,660,000.
Military service: conscription, term unknown.
Total armed forces: 18,000.
Estimated GNP 1972: $500 m.
Defence expenditure 1972: 10 m South Yemeni dinars ($26 m).
$1 = dinars 0.383 (1972).

Army: 15,200.
9 infantry brigades, each of 3 battalions.
2 armoured battalions.
1 artillery brigade.
1 signals unit.
1 training battalion.
50 T-34, T-54 med tks; *Saladin* armd cars; *Ferret* scout cars; 25-pdr, 105mm pack how, 122mm how; mor; 122mm RCL; 23mm SP, 37mm, 57mm, and 85mm AA guns; SA-7 SAM.

Navy: 300 (subordinate to Army).
2 submarine chasers (ex-Soviet *SO*I-class).
2 MTB (ex-Soviet P-6 class).
3 minesweepers (ex-British *Ham*-class).
2 landing craft (ex-Soviet *Polnocny*-class).

Air Force: 2,500; 27 combat aircraft. (Some of the aircraft are believed to be in storage.)
1 fighter sqn with 12 MiG-21.
1 fighter-bomber sqn with 15 MiG-17.
1 tpt sqn with 4 An-24.
1 hel sqn with 8 Mi-8.

Para-Military Forces: Popular Militia; Public Security Force.

Sub-Saharan Africa

MULTILATERAL AGREEMENTS

The Organization of African Unity (OAU), constituted in May 1963, includes all internationally recognized independent African states except South Africa. It has a Defence Commission which is responsible for defence and security co-operation and the defence of the sovereignty, territorial integrity, and independence of its members; however, it has rarely met.

There is a regional defence pact among France, Congo (Brazzaville), the Central African Republic, and Chad, and a five-party defence agreement among France, Dahomey, Ivory Coast, Niger, and Upper Volta which has set up the *Conseil de défense de l'Afrique équatoriale.*

BILATERAL AGREEMENTS

The United States has varying types of security assistance agreements and provides significant military aid on either a grant or credit basis to Ethiopia and Zaire. For grant military assistance purposes, Ethiopia, where the United States has a large but reducing communications centre, is considered a base rights country.

The Soviet Union in July 1974 signed a Treaty of Friendship with the Somali Republic, to whom she gives military aid. Military aid is also given to Guinea, Mali, Mauritania, Nigeria, and Uganda.

China has a military assistance agreement with Congo (Brazzaville) and may have formal arrangements covering military assistance and training with Tanzania.

Britain maintains defence agreements with Kenya and Mauritius. France has defence agreements with Cameroon, Gabon, Malagasy Republic, Senegal, and Togo; technical military assistance agreements with Cameroon, the Central African Republic, Chad, Congo (Brazzaville), Dahomey, Gabon, Ivory Coast, Malagasy Republic, Mauritania, Niger, Senegal, Togo, and Upper Volta; and mutual facilities agreements with Dahomey, Gabon, Ivory Coast, Mauritania, and Niger.

Spain assures the defence of the overseas province of Spanish Sahara. Portugal was to retain formal responsibility for matters of defence in her former overseas territories until the attainment of full independence (25 June 1975 in Mozambique and 11 November 1975 in Angola).

Military links have existed in practice between South Africa and Rhodesia, although there is no known formal agreement. South African para-military forces were in Rhodesia, assisting anti-insurgent forces until March 1975, but have now been withdrawn.

PEOPLE'S REPUBLIC OF CONGO

Population: 1,040,000.
Military service: voluntary.
Total armed forces: 5,500.
Estimated GNP 1972: $314 m.
Defence expenditure 1974: 4.61 bn CFA francs. ($19 m).
$1=241 CFA francs (1974), 256 CFA francs (1972).

Army: 5,000.
1 armoured regiment (5 squadrons).
1 infantry battalion.
1 para-commando battalion.
1 artillery group.
1 engineer battalion.
1 reconnaissance squadron.
14 Chinese T-62, 4 PT-76 lt tks; 10 BRDM scout cars; 24 BTR-152 APC; 6 75mm and 10 100mm guns; 8 122mm how; 10 120mm mor; 57mm ATk guns; 10 14.5mm, 30 37mm, and some 57mm AA guns.

Navy: 200.
12 river patrol boats.

Air Force: 300; no combat aircraft.
1 C-47, 3 An-24 med tpts; 3 *Broussard* lt tpts; 4 *Alouette* II/III hel. (1 Fokker F-28 on order.)

Para-Military Forces: 1,400 Gendarmerie; 2,500 militia.

ETHIOPIA

Population: 27,430,000.
Military service: voluntary.
Total armed forces: 44,800.
Estimated GNP 1974: $US 2.7 bn.
Defence expenditure 1974–75: $E 165m ($US 80 m).
$US 1=$E 2.07 (1974).

Army: 41,000.
1 mech div with 1 mech, 2 inf bdes.
3 inf divs, each of 3 inf bdes.
1 tank battalion.
1 airborne infantry battalion.
4 armoured car squadrons.
4 artillery battalions.
2 engineer battalions.
12 M-60 med, 50 M-41 lt tks; about 50 M-113 APC; 56 AML-245/60 armd cars; 36 75mm pack, 52 105mm, and 12 155mm how; 146 M-2 107mm and M-30 4.2-in. mor. (36 M-60; M-113 on order.)

Navy: 1,500.
1 coastal minesweeper.
1 training ship (ex-US seaplane tender).
5 large patrol craft (ex-US PGM type).
4 coastal patrol craft (less than 50 tons).
4 landing craft (ex-US LCM, less than 100 tons).

Air Force: 2,300; 37 combat aircraft.
1 lt bomber squadron with 4 *Canberra* B-2.

1 fighter-bomber squadron with 10 F-86F.
1 fighter-bomber squadron with 9 F-5A.
1 recce squadron with 6 T-28A.
1 COIN squadron with 8 Saab-MFI 17.
1 tpt sqn with 6 C-47, 2 C-54, 5 C-119G, and 3 *Dove*.
3 trg sqns with 20 *Safir*, 19 T-28A/D, 20 T-33A, 5 F-5B.
1 hel sqn with 10 AB-204B and 2 UH-IH.
(12 F-5E, 12 A-37B, and 15 Cessna 310 on order.)

Para-Military Forces: 19,200: Territorial Army active strength 8,000; mobile emergency police force 6,800; frontier guards 1,200; commando force 3,200.

GHANA

Population: 9,840,000.
Military service: voluntary.
Total armed forces: 15,450.
Estimated GNP 1974: $3.6 bn.
Defence expenditure 1974–75: 95.8 m cedi ($83 m).
$1 = 1.15 cedi (1974).

Army: 13,000.
2 brigades comprising 6 infantry battalions and support units.
1 reconnaissance battalion.
1 field engineer battalion.
1 mortar battery.
10 *Saladin* armd cars; 30 *Ferret* scout cars; 10 120mm mor.

Deployment: Egypt (UNEF): 1 bn, 501 men.

Navy: 1,200.
2 ASW corvettes.
1 coastal minesweeper.
1 inshore minesweeper.
2 patrol craft (ex-British *Ford*-class).
1 training vessel.

Air Force: 1,250; 6 combat aircraft.
1 COIN squadron with 6 MB-326F.
2 tpt sqns with 8 *Islander* and 6 *Skyvan* 3M.
1 communications and liaison squadron with 6 F-27 and 1 HS-125.
1 hel sqn with 2 Bell 212, 3 *Alouette* IIIB, and 3 Hughes 269.
6 *Bulldog* trainers (6 more on order).

Para-Military Forces: 2,250: 3 Border Guard battalions.

KENYA

Population: 13,370,000.
Military service: voluntary.
Total armed forces: 7,550.
Estimated GNP 1974: $2.5 bn.
Defence expenditure 1974: 300 m shillings ($2.5 m).
$1 = 7.16 shillings (1974).

Army: 6,500.
4 infantry battalions.
1 support battalion.
3 *Saladin* and 10 *Ferret* armd cars; 16 81mm and 8 120mm mor; 56 84mm *Carl Gustav* RCL.

Navy: 350.
4 MGB, each with 2 40mm Bofors guns.

Air Force: 700; 14 combat aircraft.
1 FGA sqn with 4 Hunter FGA-9.
1 COIN sqn with 5 BAC-167 *Strikemaster*.
1 COIN sqn with 5 *Bulldog* armed trainers.
1 lt tpt sqn with 6 DHC-4A *Caribou*.
1 lt tpt sqn with 7 DHC-2 *Beaver*.
Other ac incl 1 *Turbo Commander* 680F, 2 *Navajo*, and 2 Bell 47G hel.

Para-Military Forces: 1,800 police.

NIGERIA

Population: 62,480,000.
Military service: voluntary.
Total armed forces: 208,000.
Estimated GDP 1974: $22.8 bn.
Defence expenditure 1975–76: 1,153.5 m naira ($1,786 m).
$1 = 0.646 naira (1975), 0.613 naira (1974).

Army: 200,000.
3 infantry divisions.
3 reconnaissance regiments.
3 artillery regiments.
3 engineer regiments.
Support units and garrison troops.
Saladin, 20 AML-60/90 armd cars; *Ferret* scout cars; *Saracen* APC; 76mm, 25-pdr, 105mm, and 122mm guns and how; 20mm and 40mm AA guns. (*Scorpion* light tanks and *Fox* scout cars on order.)

Reserves: 10,000.

Navy: 3,000.
1 ASW/AA frigate.
2 corvettes.
5 patrol craft (ex-British *Ford*-class).
4 MTB (2 more on order).
1 landing craft.

Reserves: 2,000.

Air Force: 5,000; 29 combat aircraft.
2 FGA/AD sqns with 21 MiG-15/17.
1 COIN sqn with 8 L-29 *Delfin*.
2 med tpt squadrons with 6 F-27.
1 lt comms squadron with 12 Do-27/28A/B.
1 SAR hel sqn with 3 *Whirlwind* and 4 B-105.
3 training/service sqns with 20 *Bulldog*, 5 P-149-D, 16 Do-27/28A/B, 4 *Navajo*, 1 F-28.
(6 C-130H and 3 F-27 on order.)

RHODESIA

Population: 6,270,000 (273,000 White).
Military service: 12 months (White, Asian, and Coloured population).
Total armed forces: 5,700.
Estimated GNP 1974: $US 3.1 bn.
Defence expenditure 1975–76: $R 57 m ($US 102 m).
$US 1 = $R 0.560 (1975), $R 0.578 (1974).

Army: 4,500 Regular; 10,000 Territorial Force.
3 infantry battalions (one with *Ferret* scout cars).
1 Special Air Service squadron.
1 artillery battery.
2 engineer squadrons.
20 *Ferret* scout cars; 25-pdr, 105mm pack how.
There is an establishment for 3 brigades, based on regular infantry battalions, which would be brought up to strength by mobilizing the Territorial Force.

Air Force: 1,200; 40 combat aircraft.
1 light bomber sqn with 9 *Canberra* B-2 and T-4.
1 FGA sqn with 12 *Hunter* FGA-9.
1 FGA sqn with 7 *Vampire* FB-9.
1 reconnaissance sqn with 12 *Provost* T-52.
1 tpt sqn with 4 C-47, 1 Beech 55 *Baron*, 5 T-28.
1 light transport squadron with 7 AL-60F5.
1 helicopter squadron with 16 *Alouette* III.

Reserves: 10,000 Territorial Force.
All White, Asian, and Coloured citizens completing conscript service are assigned for part-time training to territorial units, which include territorial battalions based on the cities and country districts.
Army Reserves: 8 infantry battalions, 1 field artillery regiment, and one engineer squadron.
Ground personnel servicing regular Air Force units are reservists or non-White civilians.
Reservists are called up for up to 90 days a year.

Para-Military Forces: The British South African Police (BSAP): 8,000 active, 35,000 reservists. The White population forms only about a third of the active strength but nearly three-quarters of the Police Reserves.

SOMALI DEMOCRATIC REPUBLIC

Population: 3,150,000.
Military service: voluntary.
Total armed forces: 23,000.
Estimated GNP 1972: $0.3 bn.
Defence expenditure 1974: 100 m shillings ($15 m).
$1 = 6.55 shillings (1974), 6.93 shillings (1972).

Army: 20,000.
6 tank battalions.
9 mechanized infantry battalions.
2 commando battalions.
5 field artillery battalions.
5 AA artillery battalions.
Some 250 T-34, T-54/-55 med tks; 60 BTR-40 and 250 BTR-152 APC; about 100 76mm and 100mm guns; 130 122mm how; 150 14.5mm, 37mm, 57mm, and 100mm AA guns. (Spares are short and not all equipment is serviceable, conditions that exist for Navy and Air Force equipment as well.)

Navy: 300.
2 *SOI*-class submarine chasers.
6 P-4 and 4 P-6 MTB (ex-Soviet).
4 medium landing craft (ex-Soviet T-4 class).

Air Force: 2,700; 52 combat aircraft.
1 light bomber squadron with 3 Il-28.
2 FGA squadrons with 2 MiG-15, 19 MiG-17, 4 MiG-19.
1 fighter squadron with 24 MiG-21.
1 transport sqn with 3 An-2, 3 An-24/26.
1 helicopter sqn with Mi-2, Mi-4, and Mi-8.
Other aircraft incl 3 C-47, 1 C-45, 6 P-148.

Para-Military Forces: 3,000: 500 border guards; 2,500 People's Militia.

SOUTH AFRICA

Population: 24,900,000 (4,160,000 White).
Miiltary service: 12 months.
Total armed forces: 50,500 (35,400 conscripts).
Estimated GNP 1974: $32.5 bn.
Defence expenditure: 1975–76: 948.1 m rand ($1,332 m).
$1 = 0.712 rand (1975), 0.667 rand (1974).

Army: 38,000 (31,000 conscripts).
1 armoured brigade.
1 mechanized brigade.
4 motorized infantry brigades.
2 parachute battalions.
6 field and 1 medium artillery regiments.
2 light AA artillery regiments.
6 field engineer squadrons.
5 signals regiments.

(All of the above are cadre units that would be brought up to full strength on mobilization of the Citizen Force and form 2 divisions.)

141 *Centurion*, 20 *Comet* med tks; 1,000

AML-245/-60, AML-245/-90 *Eland*, 50 M-3 armd cars, and 80 *Ferret* scout cars; 250 *Saracen*, about 100 *Commando* APC; 25-pdr gun/how, 155mm how; 17 pdr, 90mm ATk guns; *ENTAC* ATGW; 204GK 20mm, K-63 twin 35mm, L-70 40mm, and 3.7-in. AA guns; 18 *Cactus* (*Crotale*), 54 *Tigercat* SAM.

Reserves: 138,000 Active Reserve (Citizen Force).
Reservists serve 19 days per year for 5 years.

Navy: 4,000 (1,400 conscripts).
3 *Daphne*-class submarines.
2 destroyers with 2 *Wasp* ASW helicopters.
6 ASW frigates (3 with 1 *Wasp* ASW hel each).
1 escort minesweeper (training ship).
10 coastal minesweepers.
4 patrol craft (ex-British *Ford*-class).
(6 corvettes, with *Exocet* SSM, being built.)

Reserves: 10,400 trained Citizen Force with 2 frigates and 7 minesweepers.

Air Force: 8,500 (3,000 conscripts); 108 combat aircraft.
1 light bomber sqn with 6 *Canberra* B(I)-12, 3 T-4.
1 light bomber sqn with 10 *Buccaneer* S-50 with AS-30 ASM.

Although South Africa's armed forces are not the largest in Sub-Saharan Africa, that nation has the largest and best equipped air force, which includes a squadron of these Buccaneer S-50 light bombers.

2 fighter sqns with 32 *Mirage* IIIEZ and 8 IIIDZ.
1 fighter/recce sqn with 16 *Mirage* IIICZ, 4 IIIBZ, and 4 IIIRZ with AS-20 ASM, Matra R-530 AAM.
2 MR sqns with 7 *Shackleton* MR3, 18 Piaggio P-166S *Albatross* (2 more P-166S on order).
4 tpt sqns with 7 C-130B, 9 Transall C-160Z, 23 C-47, 5 DC-4, 1 *Viscount* 781, and 7 HS-125.
4 hel sqns, 2 with 20 *Alouette* III each, 1 with 20 SA-330 *Puma*, 1 with 15 SA-321L *Super Frelon*.
1 flight of 7 *Wasp* (naval-assigned).
1 comms and liaison sqn (army-assigned) with 16 Cessna 185A/D/E (being replaced by AM-3C).
Trainers incl *Harvard*; 160 MB-326M *Impala* (some armed in a COIN role); 30 *Vampire* FB Mk 6, Mk 9, T Mk 55; T-6; TF-86; C-47 and *Alouette* II/III. (32 *Mirage* F-1A2, 16 F-1CZ, and 15 MB-326K on order.)

Reserves: 3,000 Citizen Force.
8 sqns with 20 *Impala*, 40 AM-3C *Bosbok*, 100 *Harvard* IIA, III, T-6G *Texan*; Cessna 185A/D, A-185E.

Para-Military Forces: 75,000 Commandos—armed civilian military organized in infantry battalion-type units grouped in formations of 5 or more units with local industrial and rural protection duties. Members undergo 10 months' initial and periodic refresher training. There are 12 Air Commando squadrons with private aircraft.

TANZANIA

Population: 15,110,000.
Military service: voluntary.
Total armed forces: 14,600.
Estimated GNP 1974: $1.9 bn.
Defence expenditure 1974–75: 300 m shillings ($42 m).
$1=7.16 shillings (1974).

Army: 13,000.
1 tank battalion.
4 infantry battalions.
1 artillery battalion.
20 Chinese T-59 med, 14 T-62 lt tks; BTR-40/-152 APC; 24 ex-Soviet 76mm guns, 18 ex-Chinese 122mm how; 30 ex-Chinese 120mm mor; 50 14.5mm and 37mm AA guns.

Navy: 600.
6 ex-Chinese *Shanghai*-class MGB.

Air Force: 1,000; 20 combat aircraft.
1 fighter sqn with 12 ex-Chinese MiG-17 and 8 F-6 (MiG-19).
1 tpt sqn with 1 An-2, 10 DHC-4 *Caribou*, 3 DHC-2 *Beaver*, 1 HS-748, 4 *Cessna* 310.
7 Piaggio P-149D, 5 Piper *Cherokee* trainers.

Para-Military Forces: A police marine unit; 35,000 Citizens' Militia.

UGANDA

Population: 11,360,000.
Military service: voluntary.
Total armed forces: 21,000.
Estimated GDP 1974: $2.0 bn.
Defence expenditure 1974–75: 350 m shillings ($49 m).
$1=7.16 shillings (1974).

Army: 20,000.
2 brigades each of 4 battalions.
2 mechanized infantry battalions.
1 parachute/commando battalion.
1 artillery regiment.
1 training battalion.
15 T-54/-55, 12 M-4 med tks; 15 *Ferret* scout cars; 100 BTR-40/-152, OT-64, BRDM APC; 122mm how; 160mm mor; *Sagger* ATGW; AA guns.

Navy:
A small lake patrol service being formed.

Air Force: 1,000; 48 combat aircraft.
2 fighter sqns with some 42 MiG-15/-17/-21.
1 COIN sqn with 6 *Magister* armed trainers, probably unserviceable.
1 tpt sqn with 3 DC-3, 1 DHC-4 *Caribou*, 1 DHC-6 *Twin Otter*, 1 IAI-1123 *Westwind*.
1 hel sqn with 6 AB-205, 4 AB-206, 1 AB-212.
Trainers incl 5 P-149, 5 L-29, 10 Piper lt ac.

ZAIRE REPUBLIC

Population: 25,640,000.
Military service: voluntary.
Total armed forces: 43,400.
Estimated GNP 1974: $3.5 bn.
Defence expenditure 1974: 52 m zaires ($104 m).
$1=0.501 zaires (1974).

Army: 40,000.
1 armoured car regiment.
1 mechanized battalion.
14 infantry battalions.
7 parachute battalions.
7 'Guard' battalions.
The above, together with ancillary and support units, form 1 parachute division and 7 brigade groups.
100 AML armd cars; M-3 and 30 *Ferret* scout cars; 122mm guns; 75mm how; 107mm mor; 57mm ATk guns; 75mm RCL; 20mm, 37mm, 40mm AA guns.

Coast, River, and Lake Guard: 400.
1 70-ton coastal patrol craft.
6 33-ton patrol craft (ex-US *Stewart*-type).
1 18-ton patrol craft.
4 patrol boats (ex-Chinese).

Air Force: 3,000; 34 combat aircraft.
1 COIN wing with 23 MB-326GB, 6 AT-6G, and 5 AT-28 (15 *Mirage* VM, 2 VDM on order).
1 tpt wing with 3 C-130H (3 more on order), 1 DC-6, 4 C-54, 10 C-47, 15 Cessna 310, 2 Mu-2 (5 DHC-5 *Buffalo* on order).
1 hel sqn with 15 *Alouette* II/III, 23 SA-330 *Puma*, and 7 Bell 47.
Trainers incl 12 SF-260MC, 2 Do-27.

Para-Military Forces: 20,000: 8 National Guard and 6 Gendarmerie battalions.

ZAMBIA

Population: 4,770,000.
Miiltary service: voluntary.
Total armed forces: 5,800.
Estimated GNP 1974: $2.5 bn.
Defence expenditure 1974: 50 m kwacha ($78 m).
$1=0.644 kwacha (1974).

Army: 5,000.
4 infantry battalions.
1 reconnaissance squadron.
2 artillery batteries.
1 SAM battery.
1 engineer squadron.
1 signals squadron.
Ferret scout cars; 8 105mm M-56 pack how; 24 20mm AA guns; 4 *Rapier* SAM.

Air Force: 800; 24 combat aircraft.
3 COIN sqns, 1 with 2 Soko G-2A *Galeb* and 4 J-1 *Jastreb*, 2 with 18 MB-326GB armed trainers.
2 tpt sqns with 10 Do-28 *Skyservant*, 10 C-47, 5 DHC-4 *Caribou*, 5 DHC-2 *Beaver*, 2 *Pembroke*, 1 HS-748 (7 DHC-5 *Buffalo* on order).
8 SF-260MZ trainers; 8 AB-205 and 1 AB-212 hel. (17 AB-205 on order.)

Para-Military Forces: 2,500: 1,000 mobile police border guard; 1,500 territorial forces.

CHINA

Chinese defence policy operates at the two extremes of nuclear deterrence and People's War. The former aims to deter strategic attack, and the latter, by mass-mobilization of the country's population, to deter or repel any conventional land invasion.

NUCLEAR WEAPONS

The Chinese nuclear programme continued slowly during the year. There have been no nuclear tests since the one in June 1974 (the sixteenth since tests started in 1964), but facilities for producing nuclear materials were expanded. The stockpile of nuclear weapons (probably around two to three hundred, both fission and fusion) could grow rapidly. A variety of delivery systems—aircraft and missiles—are available. For tactical missions there are fighter aircraft and for longer ranges the Tu-16 medium bomber, with a radius of action of as much as 2,000 miles. MRBM with an estimated range of some 700 miles, and IRBM with about a 1,750-mile range are operational, and further deployment of the latter took place during the year. Some are reported to be in silos or caves. The missile force seems to be under the control of the Second Artillery, apparently the missile arm of the People's Liberation Army (PLA).

A multi-stage ICBM with a range of perhaps 3,500 miles (sufficient to reach Moscow and most parts of Asia) appears to have been ready for deployment for some time, but is not yet in operation. An ICBM thought to have a range of some 8,000 miles has also been under development for some years, but full-range testing, which would require impact areas in the Indian or Pacific Oceans, has not yet been carried out (though an instrumentation ship which could be used for monitoring such tests has been built). China has one G-class submarine with missile launching tubes but does not appear to have missiles for it. All the present missiles are liquid-fuelled, but solid propellants are being developed.

CONVENTIONAL FORCES

China's 3 million regular forces, the PLA, are generally equipped and trained for the environment of People's War, but increasing effort is being made to arm a proportion of the formations with modern weapons. Infantry units account for most of the manpower and 125 of the 162 divisions; there are only 7 armoured divisions. The naval and air elements of the PLA have only about one-seventh of the total manpower, compared with over a third for their counterparts in the Soviet Union, but their equipment, notably that of the Navy, is steadily being modernized. The PLA is essentially a defensive force and lacks the facilities and logistic support for protracted large-scale military operations outside China. It is, however, gradually acquiring greater logistic capacity.

Major weapons systems produced include MiG-19, MiG-21, and F-9 fighters (the last Chinese-designed), SA-2 SAM, Type-59 medium and Type-60 amphibious tanks, and a Chinese-designed Type-60 light tank and APC. R- and W-class medium-range diesel submarines in some numbers, together with SSM destroyers and fast patrol boats, are being built for the Navy. A nuclear-powered attack submarine (armed with conventional torpedoes) has been under test for years.

DEPLOYMENT AND COMMAND

The PLA is organized in 11 Military Regions, but is not deployed evenly throughout them. The major concentrations are in the North-East (Peking and Manchuria), the coastal provinces, and in the Yangtse and the Yellow River basins. Following the incidents in 1969 there was some shift of forces northward towards the Sino–Soviet border, but the number of troops there now seems to have stabilized. Chinese construction and engineer troops, numbering 10,000 to 20,000, are still building roads in northern Laos. There are also road-building troops in Nepal.

At the end of December 1973 there was a major reshuffle of the military commanders in eight of the eleven military regions, including the capital. The move appeared to be aimed at reducing the political power of regional military leaders; it matched continued moves to reduce administrative and party functions of the military. Party control was further emphasized by the appointment of two civilians, Teng Hsiao-p'ing and Chang Ch'un-ch'iao, as Chief of the General Staff and Director of the General Political Department of the PLA. In January 1975, Yeh Chien-ying was appointed Defence Minister, to fill the post left vacant by Lin Piao.

BILATERAL AGREEMENTS

China has a 30-year Treaty of Alliance and Friendship with the Soviet Union, signed in 1950, which

contains mutual defence obligations, but it is highly unlikely that this remains in force. There is a mutual defence agreement with North Korea, dating from 1961, and an agreement to provide free military aid. There are non-aggression pacts with Afghanistan, Burma, and Cambodia (the last signed when Prince Sihanouk was first in power; it is not clear whether it applies to the new regime). Chinese military equipment and logistic support have been offered to an increasing number of countries, particularly in Africa. Major recipients of arms in recent years have been Albania, Pakistan, and Tanzania.

CHINA

Population: 800–900,000,000.
Military service: Army 2–4 years, Air Force 3–5 years, Navy 4–6 years.
Total regular forces: 3,250,000.
GNP and defence expenditure—see box, below.

Strategic Forces:
IRBM: 20–30.
MRBM: about 50.
Aircraft: about 60 Tu-16 medium bombers.

Army: 2,800,000.
7 armoured divisions.
125 infantry divisions.
4 cavalry divisions.
6 airborne divisions (under Air Force).
20 artillery divisions.
41 railway and construction engineer divisions.
8,500 Soviet JS-2 hy, T-34 and T-54, Chinese-produced T-59 med tks; T-60 (PT-76 type) amphibious and T-62 lt tks; 3,600 APC; 15,000 guns, how, and RL to 152mm, incl SU-76, SU-100, and JSU-122 SP arty; 5,500 120mm, 160mm, and 240mm mor; 57mm, 75mm, 82mm, 107mm RCL; 37mm, 57mm, 85mm, 100mm AA guns.

Deployment:
China is divided into 11 Military Regions (MR), in turn divided into Military Districts (MD) with usually two or three Districts to a Region. Divisions are grouped into some 36 Armies, generally of 3 infantry divisions, 3 artillery regiments, and, in some cases, 3 armoured regiments. 1 Army appears to be assigned to each MD but some formations are centrally controlled.

The geographical distribution of the divisions (excluding artillery) is believed to be:
North and North-East China (Shenyang and Peking MR—2–3 divs of border troops also in each of these MR): 55 divisions.
East and South-East China (Tsinan, Nanking, and Foochow MR): 25 divisions.
South-Central China (Canton, which includes Hainan island, and Wuhan MR): 21 divisions.
Mid-West China (Lanchow MR): 15 divisions.
West and South-West China (Sinkiang, Chengtu, and Kunming MR—2–3 divs of border troops also in each of these MR): 26 divisions.

Navy: 230,000 (including Naval Air Force and 28,000 Marines).
1 G-class submarine (with ballistic missile tubes—China is not known to have any missiles for this boat).
51 fleet submarines (30 Soviet R-, 21 W-class, and including older training vessels).
4 *Luta*-class destroyers with *Styx* SSM (more building).
2 ex-Soviet *Gordy*-class destroyers with *Styx* SSM.
10 destroyer escorts (some 4 *Riga*-type with SSM).
15 patrol escorts.
20 submarine chasers (Soviet *Kronstadt*-type).
60 *Osa*- and 40 *Komar*-type FPB with *Styx* SSM (more building).
150 MTB and 70 hydrofoils (less than 100 tons).
320 MGB (*Shanghai-, Swatow-, Whampoa*-classes).
30 minesweepers (20 Soviet T-43 type).
54 landing ships (ex-US).
20 coast and river defence vessels.
408 support ships.

Deployment:
North Sea Fleet: about 150 vessels; deployed from the mouth of the Yalu river to Lienyunkang; major bases at Tsingtao, Lushun, and Luta.
East Sea Fleet: about 500 vessels; deployed from Lienyunkang to Chaoan Wan; major bases at Shanghai, Chou Shan, and Ta Hsiehtao.
South Sea Fleet: about 200 vessels; deployed from Chaoan Wan to the North Vietnamese frontier; major bases at Huangpu, Chanchiang, and Yulin.

Naval Air Force: 30,000; about 600 shore-based combat aircraft, organized into 4 bomber and 4 fighter divisions, including about 100 Il-28 torpedo-carrying and Tu-2 light bombers and some 400 fighters, incl MiG-17, MiG-19/F-6, and some F-9; Be-6 *Madge* MR aircraft; 50 Mi-4 *Hound* helicopters. Naval fighters are integrated into the air defence system.

Air Force: 220,000 (including strategic forces and 85,000 air defence personnel); about 3,800 combat aircraft.
About 60 Tu-16 and a few Tu-4 medium bombers.
About 300 Il-28 and 100 Tu-2 light bombers.
About 200 MiG-15, 1,500 MiG-17, 1,500 MiG-19, 50 MiG-21, and some F-9 fighters organized into air divisions and air regiments.
About 400 fixed-wing transport ac, incl more than 200 An-2, 50 Il-14, and Il-18, and 300 hel, incl Mi-4. These could be supplemented by about 400 aircraft of the Civil Air Bureau.
There is an air defence system, capable of providing a limited point defence of key urban and industrial areas, military installations, and advanced weapon complexes. Some 3,000 naval and air force fighters are assigned to this role, together with several hundred CSA-1 (SA-2) SAM and anti-aircraft artillery.

Para-Military Forces: About 300,000 security and border troops (including 20 infantry-type divisions and 40 independent regiments) are stationed in the frontier areas. In addition to a public security force, there is a civilian militia with varous elements: the Armed Militia, about 5 million, organized into divisions and regiments; the Urban Militia, up to 1 million; the Civilian Production and Construction Corps, about 4 million; and the Ordinary and Basic Militia, who receive some basic training.

Gross National Product and Defence Expenditure

Gross National Product

There are no official Chinese figures for GNP or National Income. Western estimates have varied greatly and it is difficult to choose from a wide range of figures, variously defined and calculated. For example, the Chinese Prime Minister indicated a figure of $120 billion in 1970 as the gross value of industrial, transport, and agricultural production, but this is not the same as GNP, since it excludes certain services and probably includes some double-counting. An estimate by W. Klatt, published in *Handbook on the Far East and Australasia 1974*, has placed 1970 National Income, which is less than GNP to the extent of depreciation, at $90 billion. Using his estimated annual economic growth rate of 4–5 per cent and the American GNP price deflators, the 1973 value at prices then ruling would be approximately $120 bn. This compares with a recent 1973 estimate of $220 bn by A. G. Ashbrook, Jr., in a paper submitted to the Joint Economic Committee of the Congress of the United States (10 July 1975).

Defence Expenditure

China has not made public any budget figures since 1960, and there is no general agreement on the resources that are devoted to defence. Such estimates as there have been are only speculative. An Australian estimate has suggested a range of $4–5 billion; British estimates have been in the region of $10–12 billion, whilst the United States Arms Control and Disarmament Agency (ACDA) has recently estimated the 1973 expenditure at $15 billion. Observers in the United States have, however, noted a fall in the level of Chinese weapon procurement between 1971 and 1974, with most of the fall occurring in 1972.

Other Asian Countries And Australasia

BILATERAL AGREEMENTS

The United States has bilateral defence treaties with Japan, the Republic of China (Taiwan), the Republic of Korea, and the Philippines. She has a number of military arrangements with other countries of the region. She provides military aid on either a grant or credit basis to Taiwan, Indonesia, the Republic of Korea, Laos, Malaysia, the Philippines, and Thailand. She sells military equipment to many countries, notably Australia, Taiwan, and Japan. For grant military assistance purposes, the Republic of Korea and Taiwan are considered forward defence areas. Laos and Thailand have received grant military aid assistance direct from the US Department of Defense budget, the only countries in the world to do so. There are military facilities agreements with Australia, Japan, the Republic of Korea, and the Philippines. There are major bases in the Philippines and on Guam. An expansion of naval and air facilities on Diego Garcia in the Chagos Archipelago is under consideration by the United States and Britain.

The Soviet Union has treaties of friendship, co-operation, and mutual assistance with India, Bangladesh, Mongolia, and the Democratic People's Republic of Korea. Military assistance agreements exist with Sri Lanka (Ceylon) and the Democratic Republic of Vietnam. Important Soviet military aid is also given to Afghanistan.

Australia has supplied a small amount of defence equipment to Malaysia and Singapore and is giving defence equipment and assistance to Indonesia, including the provision of training facilities. For bilateral agreements between China and other Asian countries, see p. 77.

MULTILATERAL AGREEMENTS

In 1954 the United States, Australia, Britain, France, New Zealand, Pakistan, the Philippines, and Thailand signed the South-East Asia Collective Defence Treaty, which came into force in 1955 and brought SEATO into being. The parties agreed that in the event of armed attack against any of their territories in the Treaty area, or against the territory of any state designated by a protocol to the Treaty, each state would act to meet the common danger in accordance with its constitutional processes, or consult in the event of a lesser threat. The parties also agreed to co-operate in developing their economies to promote economic progress and social well-being. SEATO adopted a series of military contingency plans and held regular military exercises, but in recent years has turned its attention increasingly to rendering assistance to national counter-subversion programmes and to aid projects. In September 1973 the structure of the Headquarters was extensively rearranged to give effect to this policy. Pakistan left SEATO in 1973, after formally denouncing the Treaty. France ceased her financial contributions in 1974 but continues to adhere to the Treaty. In July 1975 the Philippines and Thailand agreed in principle that the organization should be phased out. [*See also p. 117.*]

Australia, New Zealand, and the United States are the members of a tripartite treaty known as ANZUS, which was signed in 1951 and is of indefinite duration. Under this treaty each agrees to 'act to meet the common danger' in the event of armed attack on either metropolitan or island territory of any one of them, or on armed forces, public vessels, or aircraft in the Pacific.

Australia, Malaysia, New Zealand, Singapore, and Britain have agreed five-power defence arrangements relating to the defence of Malaysia and Singapore. These came into effect on 1 November 1971 and stated that, in the event of any externally organized or supported armed attack or threat of attack against Malaysia or Singapore, the five governments would consult together for the purpose of deciding what measures should be taken, jointly or separately. Britain, Australia, and New Zealand stationed land, air, and naval forces in Singapore (the ANZUK force) but in 1973 Australia withdrew most of her land forces from the area. Britain is to withdraw her forces, except for a small contribution to the integrated air defence systems, by April 1976. New Zealand troops are to remain, as are Australian air forces in Malaysia (as part of the air defence system).

AFGHANISTAN

Population: 19,140,000.
Military service: 2 years.

Total armed forces: 88,000.
Estimated GNP 1972: $1.6 bn.
Defence expenditure 1973–74: 2,022 m afghanis ($45 m).

$1 = 45.0 afghanis (1973), 45.0 afghanis (1972).

Army: 80,000.

3 armoured divisions (under strength).
6 infantry divisions (under strength).
1 mountain infantry brigade.
150 T-34, 200 T-54/-55 med tks; 40 PT-76 lt tks; 400 BTR-40/-50/-60/-152 APC; 500 76mm, 100mm, 122mm, and 152mm guns and how; 70 120mm and 160mm mor; 50 132mm multiple RL; 260 37mm, 57mm AA guns; *Snapper* ATGW.

Reserves: 150,000.

Air Force: 8,000; 160 combat aircraft.
3 light bomber squadrons with 30 Il-28.
5 FGA sqns with 55 MiG-15/-17, 25 MiG-17, 20 SU-7.
3 interceptor sqns with 30 MiG-21.
2 transport sqns with 10 An-2, 15 Il-14.
3 hel sqns with 18 Mi-4, 18 Mi-8.
1 AD div with 1 SAM bde (3 bns with 48 SA-2), 1 AA bde (2 bns with 85mm, 100mm guns), and 1 radar bde of 3 bns.

Reserves: 12,000.

Para-Military Forces: 25,000 Gendarmerie.

AUSTRALIA

Population: 13,100,000.
Military service: voluntary.
Total armed forces: 69,100.
Estimated GNP 1974: $US 73.5 bn.
Defence expenditure 1974–75: $A 1,568.4 million ($US 2,331 m).
$US 1 = $A 0.753 (1975), $A 0.673 (1974).

Army: 31,300.
1 infantry division HQ.
3 task force HQ.
1 tank regiment.
2 cavalry/APC regiments.
6 infantry battalions.
1 Special Air Service regiment.
1 medium artillery regiment.
2 field artillery regiments.
1 light AA artillery regiment.
1 aviation regiment.
3 field engineer regiments.
2 signals regiments.
1 army survey regiment.
1 logistic support force.
143 *Centurion* med tks; 42 *Ferret* scout cars; 753 M-113 APC; 35 5.5-in. guns; 254 105mm how; M-40 106mm, L-6 *Wombat* 120mm RCL; *ENTAC* ATGW; 40mm AA guns; *Redeye* SAM; 30 Bell 47 and 32 Bell 206B-1 hel; 18 Pilatus *Porter,* 11 *Nomad* lt ac; 45 watercraft (42 *Leopard* med tks, 24 Bell 206B-I on order).

Reserves: 19,500. Army Reserve of 19,000 intended to form 7 field force groups with supporting arms and services; Emergency Reserve 500.

Navy: 16,200.
4 *Oberon*-class submarines (2 more on order).
1 aircraft carrier (carries 8 A-4, 6 S-2, 10 hel).
3 ASW destroyers with *Tartar* SAM, *Ikara* ASW msls.
3 GP destroyers (1 training).
6 frigates with *Seacat* SAM/SSM, *Ikara* ASW (2 more on order).
1 coastal minesweeper (modified British *Ton*-class).
2 coastal minehunters.
12 patrol boats.
2 fleet support ships; 8 landing craft.

Fleet Air Arm:
1 fighter-bomber sqn with 8 A-4G *Skyhawk.*
2 ASW sqns with 13 S-2E *Tracker* and 2 HS-748.
1 ASW helicopter sqn with 8 *Wessex* 31B.
1 hel sqn with 4 Bell UH-1H, 2 Bell 206B, 4 *Wessex.*
1 trg sqn with 7 MB-326H and 7 A-4G.
(10 *Sea King* ASW hel being delivered.)

Reserves: 6,300. Navy Citizen Military Force, 5,500; Emergency Reserve 800.

Air Force: 21,600; 151 combat aircraft.
2 FB squadrons with 18 F-111C (6 more in store).
3 interceptor/FGA squadrons with 48 *Mirage* IIIO (52 more in store) with *Matra* R-530 AAM.
1 recce squadron with 8 *Canberra* B-20.
2 MR sqns, 1 with 9 *Orion,* 1 with 10 *Neptune.*
5 tpt sqns, 2 with 24 C-130A/E; 2 with 24 DHC-4 *Caribou;* 1 with 2 BAC-111, 10 HS-748, 3 *Mystère* 20.
2 hel sqns with *Iroquois.*
80 MB-326 and 41 CA-25 *Winjeel* trainers (some in store).
(8 P-3C, 37 CT-4 *Airtrainers,* 12 CH-47, and 12 UH-1H hel on order.)

Deployment: Malaysia/Singapore: 2 sqns of *Mirage* IIIO.

Reserves: 1,215. Air Force Reserves 570; Emergency Reserve 645.

BANGLADESH

Population: 66,790,000.
Military service: voluntary.
Total armed forces: 36,000.
Estimated GNP 1972: $5.3 bn.
Defence expenditure 1973–74: taka 470 m ($65 m).
$1 = taka 7.24 (1973), taka 7.30 (1972).

Army: 30,000.
5 inf bdes with 17 inf bns, 1 tk regt, 3 arty regts, 3 engr bns, and supporting arms.
16 T-34 med tks; 105mm and M-56 pack how; 25-pdr gun/how; 120mm mor; 75mm RCL, 6-pdr ATk guns. (Spares are short and little equipment is operational.)

Navy: 500.
1 patrol boat (ex-Soviet *Poluchat*-class).
3 armed river patrol boats.

Air Force: 5,500; 14 combat aircraft. (Spares are short and little equipment is operational.)
1 fighter sqn with 7 MiG-21 and 7 F-86 *Sabre.*
1 tpt sqn with 4 An-24.
1 hel sqn with 1 *Alouette* III, 2 *Wessex,* 4 Mi-8.
Trainers incl 2 MiG-21UTI, 1 T-33A.

Para-Military Forces: 16,000 National Defence Force, 20,000 Bangladesh Rifles.

BURMA

Population: 30,940,000.
Military service: voluntary.
Total armed forces: 167,000.
Estimated GNP 1974: $2.8 bn.
Defence expenditure 1972–73: 545 m kyat ($101 m).
$1 = 4.86 kyat (1974), 5.40 kyat (1972).

Army: 153,000.
3 infantry divisions each with 10 battalions.
2 armoured battalions.
84 indep inf battalions (in 9 regional commands).
4 artillery battalions.
Support services.
Comet lt tks; 40 Humber armd cars; 45 *Ferret* scout cars; 24 25-pdr; 120 76mm, 80 105mm how; 120mm mor; 50 6-pdr and 17-pdr ATk guns; 10 40mm and some 3.7-in. AA guns.

Navy: 7,000 (including 800 marines).
2 frigates.
4 coastal escorts.
5 MGB/MTB (less than 100 tons).
37 gunboats (some 15 less than 100 tons).
25 river patrol boats (less than 100 tons).
10 transports.

Air Force: 7,000; 11 combat aircraft.
2 COIN sqns with 10 AT-33 and 1 *Vampire.*
12 C-47, 6 DHC-3 *Otter,* 5 C-45, 5 Cessna 180 transports.
Trainers incl 20 *Provost,* 10 T-33, 10 *Chipmunk,* 1 *Vampire* T-55.
Hel incl 5 KB-47, 10 HH-43 *Huskie,* 10 *Alouette* III, 10 KV-107.

Para-Military Forces: 35,000 People's Police Force.

CHINA: REPUBLIC OF (TAIWAN)

Population: 16,450,000.
Military service: 2 years.
Total armed forces: 494,000.
Estimated GNP 1974: $13.3 bn.
Defence expenditure 1974–75: 38.0 bn New Taiwan dollars ($1,000 bn).
$US 1 = $NT 38.0 (1974).

Army: 340,000.
2 armoured divisions.
12 infantry divisions.
6 light divisions.
2 armoured cavalry regiments.
2 airborne brigades.
4 special forces groups.
1 SAM battalion with 24 *HAWK* launchers.
2 SAM battalions with 24 *Nike Hercules.*
1,620 M-47/-48 med tks; 625 M-41 lt tks; 200 M-18 SP ATk; 155 M-113 APC; 350 75mm M-116 pack how; 625 105mm, 300 155mm guns and how; 225 105mm SP how; 90 240mm how; 115 40mm AA and SP AA guns; *HAWK, Nike Hercules* SAM; 50 UH-1H, 7 H-34, 2 KH-4 helicopters.

Deployment: Quemoy: 60,000;
Matsu: 20,000.

Reserves: 750,000.

Navy: 37,000.
2 submarines (ex-US *Guppy* II class).
18 destroyers.
10 frigates (8 ex-US armed transports).
3 patrol vessels (plus up to 10 small patrol boats).
22 MCM craft (9 coastal minesweepers).
6 torpedo boats.
50 landing vessels: 1 dock, 2 command, 21 LST, 4 medium, 22 utility.

Reserves: 60,000.

Marines: 35,000.
2 divisions.
M-47 med tks; LVT-4 APC; 105mm and 155mm how; 106mm RCL.

Reserves: 65,000.

Air Force: 82,000; 216 combat aircraft.
6 fighter-bomber squadrons with 90 F-100A/D and 10 F-5A.
2 fighter sqns with 35 F-5A/E (70 F-5E on order).
3 interceptor sqns with 63 F-104G.
1 recce sqn with 8 RF-104G.
1 ASW sqn with 10 S-2A *Tracker.*
1 SAR sqn with 10 UH-1H and 10 HU-16A.

25 C-47, 50 C-119, and 10 C-123 tpts.
125 T-28, T-33, F-5B, F-100, F-104B, and PL-1B *Chien-shou* trainers.

Reserves: 130,000.

Para-Military Forces: 175,000 militia.

INDIA

Population: 601,510,000.
Military service: voluntary.
Total armed forces: 956,000.
Estimated GNP 1974: $86.7 bn.
Defence expenditure 1975–76: 22,740 m rupees ($2,660 m).
$1 = 8.55 rupees (1975), 7.84 rupees (1974).

Army: 826,000.
2 armoured divisions.
15 infantry divisions.
10 mountain divisions.
5 independent armoured brigades.
6 independent infantry brigades.
2 parachute brigades.
9 indep arty bdes, incl about 20 AA arty regts.
180 *Centurion* Mk 5/7, 1,000 T-54/-55, and some 500 *Vijayanta* med tks; 120 PT-76 lt tks; 500 OT-62, OT-64(2A), and Mk 2/4A APC; about 3,000 mostly towed 75mm, 76mm, 25-pdr, about 350 100mm, 105mm (incl pack), *Abbott* 105mm SP, 350 130mm, 5.5-in., 152mm, 203mm guns and how; 107mm and 500 120mm, some 160mm mor; 57mm, 106mm RCL; SS-11 and *ENTAC* ATGW; 6-pdr, 100mm ATk guns; 30mm, 40mm, 3.7-in. AA guns; 40 *Tigercat* SAM; 60 *Krishak*, 15 *Auster* AOP-9 lt ac.

Reserves: 200,000. Territorial Army 40,000.

Navy: 30,000 (including Naval Air).
8 submarines (Soviet F-class).
1 aircraft carrier (capacity 21 aircraft, incl 10 *Sea Hawk*, 4 *Alizé*, 2 *Alouette* III).
2 cruisers.
3 destroyers.
26 frigates (3 with 2 *Seacat* SAM, 10 *Petya*-class, 9 GP, 1 AA, 3 trg).
8 *Osa*-class FPB with *Styx* SSM.
17 patrol boats (9 coastal, incl 5 *Poluchat*-class).
8 minesweepers (4 inshore).
1 landing ship.
3 landing craft (*Polnocny-class*).

Naval Air Force: 1,500.
1 attack sqn with 33 *Sea Hawk* (10 in carrier).
1 MR sqn with 12 *Alizé* (4 in carrier).
1 MR squadron with 6 L-1049 *Super Constellation*.
2 hel sqns with 18 *Alouette* III (2 in carrier, 3 in frigates).
1 ASW sqn with 10 *Sea King* hel.
3 comms sqns with 2 *Devon*, 7 HJT-16 *Kiran*, 4 *Vampire* T-55, 4 Hughes 300 hel.
(8 FPB, 4 Il-38, 2 *Sea King* ASW on order.)

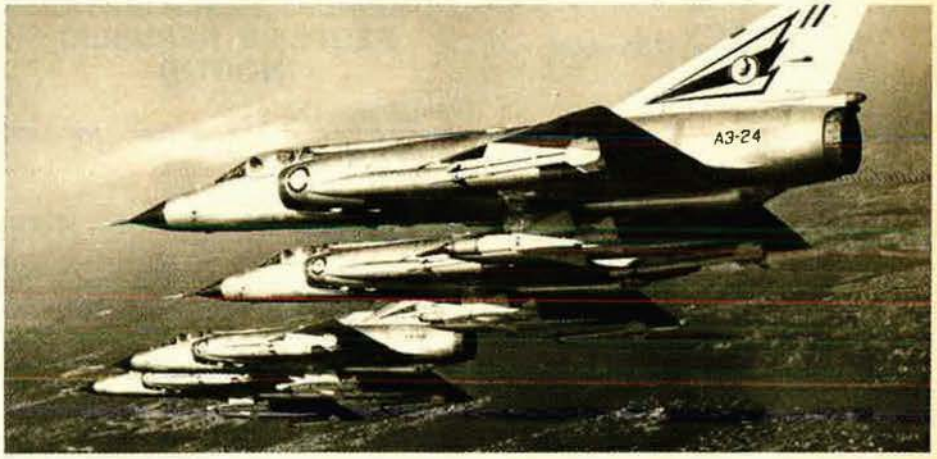
Air Force: 100,000; 725 combat aircraft.
3 light bomber squadrons with 50 *Canberra* B(I)-58, B(I)-12.
14 FGA sqns: 6 with 77 Su-7BKL, 3 with 60 HF-24 *Marut* 1A, 5 with 130 *Hunter* F-56. (Some ac in storage.)
10 interceptor sqns with 220 MiG-21F/PF/FL/MF (126 MF on order) with *Atoll* AAM.
8 interceptor squadrons with 180 *Gnat* Mk I (Mk II on order).
1 reconnaissance squadron with 8 *Canberra* PR-57.
13 tpt sqns: 1 with 15 Il-14, 1 with 28 HS-748, 2 with 55 C-119G, 2 with 32 An-12, 2 with 25 DHC-3 *Otter*, 4 with 50 C-47, 1 with 15 *Caribou*. (17 HS-748 med tpts on order.)
8 hel sqns with 75 Mi-4, 30 Mi-8, 80 *Alouette* III, 5 Bell 47, 10 SA-315 *Cheetah* (40 *Alouette*, 90 *Cheetah* on order).
22 HJT-16, 30 T-6 trainers (50 *Iskra* on order).
20 SA-2 SAM sites.

Para-Military Forces: About 100,000 in Border Security Force, approximately 50,000 in other para-military organizations.

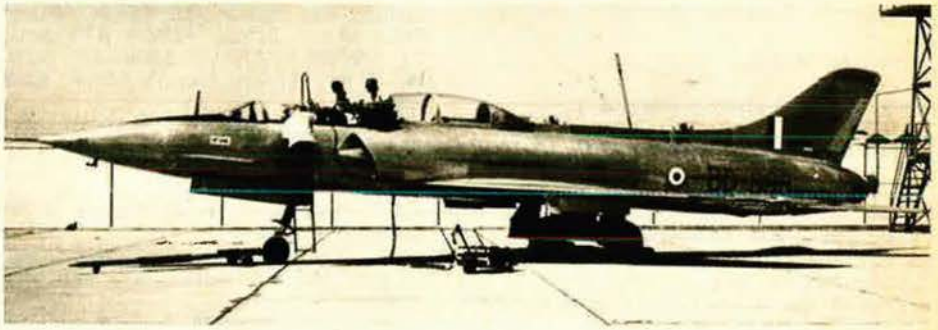
Stuart, 57 AMX-13, and 75 PT-76 lt tks; 78 *Saladin*, 58 *Ferret* armd cars; *Saracen* and 130 BTR-40 APC; 50 76mm, some 25-pdr, 15 105mm, 75 122mm guns/how; 200 120mm mor; *ENTAC* ATGW; 20mm, 40mm, 200 57mm AA guns; *Beaver*, 6 *Otter*, C-45, 3 Aero *Commander*, Cessna 180, Piper L-4 ac; 6 *Alouette* III hel.

Deployment: Egypt (UNEF): 1 battalion, 400 men.

Navy: 38,000 (incl Naval Air and 5,000 Marines).
3 submarines (ex-Soviet W-class).
9 frigates (3 ex-Soviet *Riga*-class, 4 ex-US).



Among the 151 combat aircraft of the Australian Air Force are 100 of these Mirage IIIOs, of which fifty-two are in storage. The RAAF also has twenty-four F-IIICs.



The Indian Air Force, fourth largest in the world, has these Marut fighter-bombers in single and two-seat configurations and many Soviet-built aircraft.

INDONESIA

Population: 130,240,000.
Military service: selective.
Total armed forces: 266,000.
Estimated GNP 1974: $15.0 bn.
Defence expenditure 1975–76: 460 bn rupiahs. ($1,108 m).
$1=415 rupiahs (1975), 415 rupiahs (1974).

Army: 200,000. (About one-third of the army is engaged in civil and administrative duties.)
1 armoured cavalry brigade (1 tk bn, support units). In *Kostrad* (Strategic Reserve Command).
14 infantry brigades (90 inf bns, 1 para bn, 9 field arty bns, 11 AA bns, 9 engr bns), 3 in *Kostrad*.
2 airborne infantry brigades (6 bns). In *Kostrad*.
1 independent tank battalion.
7 independent armoured cavalry battalions.
4 independent para-commando battalions.
9 *Komar*-class FPB with *Styx* SSM.
38 patrol craft (6 small FPB on order).
14 minesweepers (incl ex-Soviet T-43 class, 6 ex-US).
3 command/support ships.
10 amphibious vessels.
1 Marine brigade.

Naval Air: 1,000.
5 HU-16, 6 C-47, 4 *Nomad* MR ac, 3 Aero *Commander*; 3 Bell 47G, 3 *Alouette* III hel.

Air Force: 28,000; 47 combat aircraft.
1 light bomber sqn with 2 B-26 *Invader*.
3 FGA sqns, with 17 CA-17 *Avon-Sabre*, 11 F-51D *Mustang*, and 17 T-33A.
65 tpts, incl 8 C-130B, 37 C-47, and 7 *Skyvan*.
2 hel squadrons with 12 UH-34D, 5 Bell 204B, 6 others.
Trainers incl L-29, T-33, T-34, T-41, C-47.

(16 A-7, 16 OV-10, 8 F-27, and 6 CASA C-212 on order.)

Some equipment, ships, and aircraft are non-operational, for lack of spares.

Para-Military Forces: Police Mobile Brigade, 12,000; about 100,000 Militia.

JAPAN

Population: 11,530,000.
Military service: voluntary.
Total armed forces: 236,000.
Estimated GNP 1974: $480 bn.
Defence expenditure 1975–76: 1,327.3 bn yen ($4,484 m).
$1=296 yen (1975), 285 yen (1974).

Army: 155,000.
1 mechanized division.
12 infantry divisions (7,000–9,000 men each).
1 tank brigade.
1 airborne brigade.
1 composite brigade.
1 artillery brigade.
1 signal and 5 engineer brigades.
1 helicopter brigade.
2 anti-aircraft artillery brigades.
7 SAM groups (each of 4 batteries) with 140 *HAWK.*
33 aviation squadrons with 360 aircraft.
600 Type 61 med tks; 150 M-41 lt tks; 430 Type 60, 30 Type 73 APC; 380 M-2 105mm and 240 M-1 155mm, 30 M-52 105mm SP, 10 M-44 155mm SP, and some 203mm how; M-2 155mm guns; Type 30 SSM; 57mm, 75mm, 106mm RCL; Type 60 twin 106mm SP RCL; Type 64 ATGW; 107mm mor (some SP); 35mm twin, 40mm, 75mm AA guns; *HAWK* SAM; 90 lt ac, incl L-19, LM-1, LR-1; 250 hel, incl UH-1, KV-107, OH-6J, and H-13.

Reserves: 39,000.

Navy: 39,000 (including Naval Air).
15 submarines.
29 destroyers (2 with 3 hel and *ASROC,* 1 with *Tartar* SAM and *ASROC,* 4 with 2 hel and *ASROC,* 8 with 2 hel or *ASROC,* 14 GP).
16 frigates (9 with *ASROC*; 7 GP).
20 coastal escorts.
4 motor torpedo boats.
9 coastal patrol craft (all less than 100 tons).
41 MCM vessels (1 command, 1 support, 2 minelayer, 31 coastal, 6 inshore minesweepers).
4 LST (4 more on order).

Naval Air: 2,200.
8 MR sqns with 120 P-2J, P2V-7, S2F-1, and PS-1 (30 P-2J, 5 PS-1, and 3 US-1 on order).
6 hel sqns with 60 S-61A, S-62, KV-107A, HSS-2 (3 more KV-107 on order).
Other ac incl 4 YS-11, 3 *King Air,* 25 *Queen Air;* 10 Bell 47, 5 OH-6; 10 T-34 and 30 KM-2.

Reserves: 600.

Air Force: 42,000; 445 combat aircraft.
5 FGA sqns with 150 F-86F.
9 interceptor sqns: 5 with 170 F-104J, 2 with 80 F-4EJ, 2 with 30 F-86F.
1 recce sqn with 10 RF-4E, 5 RF-86F.
2 transport squadrons with 10 C-46, 10 YS-11, 20 C-1.
Trainers incl 360 T-1, T-33, T-34A, and F-104DJ.
1 SAR wing with 20 MU-2E ac, 20 V-107, and 10 S-62 hel.
5 SAM groups with *Nike-J.*
A Base Defence Ground Environment with 28 control and warning units.

THE KHMER REPUBLIC (CAMBODIA)

Population: 7,530,000.
Estimated GNP 1971: $1.5 bn.

The armed forces of the former regime in Phnom Penh are believed to have been demobilized following the cessation of hostilities. The present situation as regards the Khmer 'Liberation Army'—which was organized into some four divisions and three independent regiments, equipped with a mixture of Soviet, Chinese, and American arms, and totalled some 80,000 men—is unclear.

KOREA: DEMOCRATIC PEOPLE'S REPUBLIC (NORTH)

Population: 15,940,000.
Military service: Army 5 years, Navy and Air Force 3–4 years.
Total armed forces: 467,000.
Estimated GNP 1972: $3.5 bn.
Defence expenditure 1974: 1,578 m won ($770 m).
$1=2.05 won.

Army: 410,000.
1 tank division.
3 motorized divisions.
20 infantry divisions.
3 independent infantry brigades.
3 SAM brigades with 180 SA-2.
300 T-34, 700 T-54/-55, and T-59 med tks; 80 PT-76 and 50 T-62 lt tks; 200 BA-64, BTR-40/-60/-152 APC; 200 SU-76 and SU-100 SP guns; 3,000 guns and how up to 152mm; 1,800 RL and 2,500 120mm, 160mm, and 240mm mor; 82mm, 106mm RCL; 45mm, 57mm, 100mm ATk guns; 12 *FROG*-5/-7 SSM; 2,500 AA guns, incl 37mm, 57mm, ZSU-57, 85mm; SA-2 SAM.

Reserves: 250,000.

Navy: 17,000.
8 submarines (4 ex-Soviet W-class, 4 ex-Chinese R-class).
15 submarine chasers (ex-Soviet *SO*I-class).
10 *Komar* and 8 *Osa*-class FPB with *Styx* SSM.
54 MGB (15 *Shanghai,* 8 *Swatow*-class, 20 inshore).
90 torpedo boats (45 P-4, 30 P-6 class, ex-Soviet).

Air Force: 40,000; 588 combat aircraft.
2 light bomber squadrons with 60 Il-28.
13 FGA sqns with 28 Su-7 and 300 MiG-15/-17.
16 fighter sqns with 150 MiG-21 and 40 MiG-19.
1 recce sqn with 10 Il-28 *Beagle.*
1 tpt regt with 150 An-2.
1 tpt regt with 30 Mi-4 and 10 Mi-8 hel.
70 Yak-18 and 59 MiG-15 and MiG-17 trainers.

Reserves: 40,000.

Para-Military Forces: 50,000 security forces and border guards; a civilian militia of 1,500,000 with small arms and some AA artillery.

KOREA: REPUBLIC OF (SOUTH)

Population: 34,410,000.
Military service: Army and Marines 2½ years, Navy and Air Force 3 years.
Total armed forces: 625,000.
Estimated GNP 1974: $17.5 bn.
Defence expenditure 1975: 353.1 bn won ($719 m).
$1=491 won (1975), 397 won (1974).

Army: 560,000.
23 infantry divisions.
2 armoured brigades.
40 artillery battalions.
1 SSM battalion with *Honest John.*
2 SAM bns each with 2 *HAWK* and 2 *Nike Hercules* btys.
1,000 M-47, M-48, and M-60 med tks; 400 M-113 and M-577 APC; 2,000 105mm, 155mm, and 203mm guns and how; 107mm mor; 57mm, 75mm, and 106mm RCL; *Honest John* SSM; *HAWK* and *Nike Hercules* SAM.

Reserves: 1,000,000.

Navy: 20,000.
7 destroyers.
9 destroyer escorts (6 escort transports).
15 coastal escorts.
22 patrol boats (less than 100 tons).
10 coastal minesweepers.
20 landing ships (8 tank, 12 medium).
60 amphibious craft.

Reserves: 33,000.

Marines: 20,000.
1 division.

Reserves: 60,000.

Air Force: 25,000; 216 combat aircraft.
11 FB sqns: 2 with 36 F-4C/D, 5 with 100 F-86F, 4 with 70 F-5A.
1 recce sqn with 10 RF-5A.
4 tpt sqns with 20 C-46, 12 C-54, and 12 C-123.
15 hel, including 6 UH-19, 7 UH-1D/N.
Trainers incl 20 T-28, 20 T-33, 20 T-41, 14 F-5B.

Reserves: 35,000.

Para-Military Forces: A local defence militia, 2,000,000 Homeland Defence Reserve Force.

LAOS

Population: 3,340,000.
Estimated GNP 1972: $211 m.
$1=600 kip (1974), 500 kip (1972).

1. Royal Lao Forces
Military service: 18 months.
Total strength: 52,500.
Defence expenditure 1974–75: 16.0 bn kip ($27 m).

Army: 50,000.
Being reorganized to comprise:
7 infantry brigades (with 24 bns, 5 arty bns).
50 infantry battalions (under Military Regions).
Supporting arms and services.
4 M-24 and 6 PT-76 lt tks; 29 M-706 scout cars; 20 M-113 APC; 25 75mm, 65 105mm, 2 155mm how; 30 4.2-in mor.

Navy: about 500.
4 river squadrons consisting of: 20 patrol craft; 16 landing craft/transports (all under 100 tons, about half operational).

Air Force: 2,000; 75 combat aircraft.
65 T-28A/D light attack aircraft.
10 AC-47 gunships.
Tpts incl 20 C-47, 5 Cessna 185, 10 C-123.
5 T-41D trainers.
About 28 UH-34D hel.

The Japanese Navy numbers some eighty combat vessels, including fifteen submarines.

2. Pathet Lao Forces
35,000 men (incl dissident neutralists).
12 PT-76 lt tks; BTR-40 armd cars; 105mm how, 57mm, 82mm mor; 107mm RCL.

MALAYSIA

Population: 12,470,000.
Military service: voluntary.
Total armed forces: 61,100.
Estimated GNP 1974: $US 6.4 bn.
Defence expenditure 1975: $M 1,018.4 m ($US 445 m).
$US 1=$M 2.29 (1975), $M 2.40 (1974).

Army: 51,000.
8 infantry brigades, consisting of:
29 infantry battalions.
3 reconnaissance regiments.
3 artillery regiments.
1 special service unit.
3 signals regiments.
engineer and administrative units.
600 *Ferret* scout cars; 100 *Commando*, 44 AML/M-3 APC; 45 25-pdr and 10 5.5-in. guns; 60 105mm how, 6 17-pdr ATk guns; 35 40mm, 3.7-in. AA guns; 30 4.2-in. mor; 120mm RCL.

Reserves: about 26,000.

Navy: 4,800.
2 frigates (1 ASW with *Seacat* SAM, 1 training).
8 FPB (4 with SS-11/-12 and 4 with *Exocet* SSM).
24 patrol craft.
6 coastal minesweepers.

Reserves: 444.

Air Force: 5,300; 40 combat aircraft.
2 fighter-bomber sqns with 20 CA-27 *Sabre*.
2 COIN sqns with 20 CL-41G *Tebuan*.
3 tpt, 1 liaison sqns with 16 C-7A, 8 *Herald* 401, 5 *Dove*, 2 *Heron*, 2 HS-125, 2 F-28-100.
4 hel sqns: 15 S-61A, 25 *Alouette* III, 6 Bell 47G.
1 training sqn with 14 *Bulldog* 102.
(14 F-5E, 2 F-5B, 6 C-130H, and 14 C-7A on order.)

Para-Military Forces: Police Field Force of 15,000 with 17 bns and 40 patrol boats; local Defence Corps; border scouts about 60,000.

MONGOLIA

Population: 1,440,000.
Military service: 2 years.
Total armed forces: 30,000.
Estimated GNP 1974: $2.8 bn.
Defence expenditure 1975: 373 m tugrik ($112 m).
$1=3.32 tugrik.

Army: 28,000.
2 infantry brigades.
30 T-34, 100 T-54/-55 med tks; 10 SU-100 SP guns; 40 BTR-60, 50 BTR-152 APC; 100mm, 130mm, 152mm guns/how; *Snapper* ATGW; 37mm, 57mm AA guns.

Reserves: 30,000.

Air Force: 2,000; no combat aircraft.
20 An-2, 6 Il-14, and 4 An-24 transports.
10 Mi-1 and Mi-4 helicopters.
Yak-11 and Yak-18 trainers.
1 SAM battalion with SA-2.

Para-Military Forces: about 18,000 frontier guards and security police.

NEPAL

Population: 12,100,000.
Military service: voluntary.
Total armed forces: 20,000.
Estimated GNP 1972: $1.0 bn.
Defence expenditure 1973–74: 83.2 m rupees ($8 m).
$1=10.6 rupees (1973), 10.1 rupees (1972).

Army: 20,000.
5 infantry brigades (1 Palace Guard).
1 parachute battalion.
1 artillery regiment.
1 engineer regiment.
4 3.7-in. pack how; 4 4.2-in., 18 120mm mor; 2 40mm AA guns; 3 *Skyvan*, 1 DC-3, 1 HS-748 tpts; 3 *Alouette* III hel.

NEW ZEALAND

Population: 3,094,000.
Military service: voluntary, supplemented by Territorial service of 12 weeks for the Army.
Total armed forces: 12,685.
Estimated GNP 1974: $US 13.9 bn.
Defence expenditure 1975–76: $NZ 179.2 m. ($US 233 m).
$US 1=$NZ 0.768 (1975), $NZ 0.688 (1974).

Army: 5,525 (plus 5,618 active Territorials).
2 infantry battalions.
1 artillery battery.
Regular troops also form the nucleus of 2 brigade groups and a logistic group. These units would be completed by mobilization of Territorials.
10 M-41 lt tks; 9 *Ferret* scout cars; 66 M-113 APC; 27 25-pdr, 10 5.5-in. guns; 20 105mm how; 22 106mm RCL.

Deployment: Singapore: 1 inf bn (less 1 coy).

Reserves: 2,495 Regular, 100 Territorial.

Navy: 2,850.
4 frigates with *Seacat* SAM (2 with *Wasp* hel).
2 escort minesweepers (1 training).
14 patrol craft (11 less than 100 tons).

Reserves: 2,870 Regular, 365 Territorial.

Air Force: 4,310; 36 combat aircraft.
1 FB sqn with 9 A-4K and 4 TA-4K *Skyhawk*.
1 FB/trg sqn with 16 BAC-167 and 2 *Harvard*.
1 MR sqn with 5 P-3B *Orion*.
3 med tpt sqns with 5 C-130H, 9 Bristol *Freighter*, 6 *Dakota*, and 2 *Devon*.
2 tpt hel sqns with 6 Bell 47G, 2 *Sioux*, and 13 UH-1D/H *Iroquois*.
24 *Harvard*, 15 *Devon*, 4 *Airtourer*, 4 *Sioux* trainers (13 CT-4 *Airtrainer* on order).

Deployment: Singapore: 1 transport squadron (3 Bristol *Freighter* tpts and 4 *Iroquois* hel).

Reserves: 1,220 Regular, 140 Territorial.

PAKISTAN

Population: 60,170,000.
Military service: 2 years selective.
Total armed forces: 392,000.
Estimated GNP 1974: $7.6 bn.
Defence expenditure 1975–76: 7,020 m rupees ($722 m).
$1=9.72 rupees (1975), 9.70 rupees (1974).

Army: 365,000 (including 25,000 Azad Kashmir troops).
2 armoured divisions.
13 infantry divisions.
2 independent armoured brigades.
1 air defence brigade.
3 sqns army aviation.
Some M-4, 300 M-47/-48; 50 T-55 and 600 T-59 med tks; 100 M-24 lt tks; 350 M-113 APC; about 1,200 25-pdr, 100mm, 105mm, 122mm, 130mm, 155mm guns/how; 130 107mm, 120mm mor; 6-pdr, 17-pdr ATk guns; 75mm, 82mm, 106mm RCL; *Cobra* ATGW; 23mm, 30mm, 37mm, 40mm, 57mm, 90mm/3.7-in. AA guns; O-1E lt ac; 12 Mi-8, 15 *Sioux*, and 20 *Alouette* III hel.

Reserves: 500,000.

Navy: 10,000.
3 submarines (French *Daphne*-class).
6 40-ton midget submarines (Italian SX-404 class).
1 light cruiser/training ship.
4 destroyers (ex-British *Battle-*, *CH-*, and *CR*-class).
4 frigates (ex-British).
14 patrol boats (6 ex-Chinese *Hu Chwan-*, 8 *Shanghai*-class).
8 coastal minesweepers.
2 UH-19 SAR hel (6 *Sea King* on order).

Reserves: 5,000.

Air Force: 17,000; 278 combat aircraft.
1 light bomber squadron with 10 B-57B.
3 FGA/interceptor sqns with 49 *Mirage* IIIEP/V.
5 fighter-bomber/interceptor sqns with 70 F-86.
7 FGA sqns with 140 MiG-19/F-6.
1 recce squadron with 4 RT-33A, 2 RB-57, and 3 *Mirage* IIIRP (3 Breguet *Atlantic* MR on order).
Transports include 11 C-130B, 6 C-47, 1 *Falcon* 20, and 1 F-27.
6 HH-43B, 2 *Alouette* III, and 3 UH-19 hel.
Trainers incl 5 Saab *Supporter* (40 more on order).

Reserves: 8,000.

Para-Military Forces: 55,000: Civil Armed Forces 33,000, National Guard 22,000.

PHILIPPINES

Population: 42,660,000.
Military service: selective.
Total armed forces: 67,000.
Estimated GNP 1974: $8.8 bn.
Defence expenditure 1975–76: 2,900 m pesos ($407 m).
$1=7.13 pesos (1975), 6.75 pesos (1974).

Army: 39,000.
3 light infantry divisions.
2 independent infantry brigades.
1 artillery group.
10 engineer construction battalions.
4 M-41 lt tks; 20 M-113 APC; 60 105mm and 5 155mm how; 15 107mm mor; 75mm, 106mm RCL.

Navy: 14,000 (incl 3,500 Marines and naval engrs).
1 destroyer escort.
15 patrol gunboats.
4 hydrofoil patrol vessels (under 50 tons).
27 small patrol craft.
4 minesweepers.
11 landing ships.
5 Marine battalion landing teams.

Air Force: 14,000; 52 combat aircraft.
1 FGA sqn with 16 F-5A/B.
2 fighter sqns with 20 F-86F.
1 COIN sqn with 16 SF-260W *Warrior*.
5 tpt sqns with 24 C-47, 10 F-27, 4 L-100-30, 15 C-123K, and 12 *Nomad* lt tpt.
Trainers incl 12 T-28, 10 T-33, 20 T-34, 20 T-41, and SF-260MX.
25 UH-1D, 2 MS-62; 8 FH-1100 and 2 H-34 hel. (38 Bo-105 lt utility hel on order.)

Reserves: 218,500.

Para-Military Forces: 59,900: Philippine Constabulary 34,900; Local Self-Defence force 25,000.

SINGAPORE

Population: 2,280,000.
Military service: 24–36 months.
Total armed forces: 30,000.
Estimated GNP 1974: $US 5.1 bn.
Defence expenditure 1975–76: $S 613 m ($US 269 m).
$US1=$S 2.28 (1975), $S 2.46 (1974).

Army: 25,000.
1 armoured brigade (1 tk bn, 2 APC bns).
3 inf bdes (9 inf, 3 arty, 3 engr, and 1 sigs bns).
75 AMX-13 tks; 250 V-200 *Commando* APC; some 6 25-pdr, 16 155mm guns/how; 120mm mor; 32 106mm RCL.

Reserves: 25,000; 2 reserve brigades.

Navy: 2,000.
6 FPB (German *Jaguar*-class with *Gabriel* SSM).
7 motor gunboats.
1 ex-US LST and 4 landing craft.

Air Force: 3,000; about 95 combat aircraft.
2 FGA/recce sqns with 32 *Hunter* FGA-74/FR-74.
2 FGA sqns (being formed), each with 16 A-4S *Skyhawk* (8 more on order).
2 COIN sqns with 15 BAC-167 and 14 SF-260M.
2 tpt/liaison sqns, 1 with 6 *Airtourer*, 1 with 6 *Skyvan* SAR ac.
1 helicopter SAR sqn with 8 *Alouette* III.
Hunter, 6 WA-7, 4 *Airtourer*, 2 SF-260 trainers.
1 SAM sqn with 24 *Bloodhound* (1 more forming with *Rapier*).

Para-Military Forces: 7,500 police, Marine, and Gurkha guard bns; Home Guard 30,000.

SRI LANKA (CEYLON)

Population: 13,950,000.
Military service: voluntary.
Total armed forces: 13,600.
Estimated GNP 1974: $2.6 bn.
Defence expenditure 1975: 170.1 m rupees ($24 m).
$1=7.10 rupees (1975), 6.52 rupees (1974).

Army: 8,900.
1 brigade of 3 battalions.
1 reconnaissance regiment.
1 artillery regiment.
6 *Saladin* armd cars; 12 *Ferret* scout cars; 10 BTR-152 APC; 76mm pack how; 25-pdr and 105mm guns.

Reserves: 12,000; 1 brigade of 3 battalions.

Navy: 2,400.
1 frigate (ex-Canadian *River*-class).
5 fast gunboats (ex-Chinese *Shanghai*-class).
24 coastal patrol craft (1 hydrofoil).

Air Force: 2,300; 12 combat aircraft.
1 FGA sqn with 5 MiG-17, 1 MiG-15UTI, and 6 *Jet Provost* Mk 51.
1 transport sqn with 2 Riley, 2 *Heron*, 1 *Dove*, and 1 CV-440.
1 comms sqn with 4 Cessna 337 and 2 *Dove*.
5 Cessna 150, 9 *Chipmunk*, 1 *Dove*, 2 *Jet Provost* trainers.
1 hel sqn: 7 *JetRanger*, 2 KA-26, and 6 Bell 47-G2.

Reserves: 1,100; 4 sqns Air Force Regt, 1 sqn Airfield Construction Regt.

Para-Military Forces: 16,300.

THAILAND

Population: 39,770,000.
Military service: 2 years.
Total armed forces: 204,000.
Estimated GNP 1974: $11.4 bn.
Defence expenditure 1975–76: 7,640 m baht ($371 m).
$1=20.6 baht (1975), 20.3 baht (1974).

Army: 135,000.
5 infantry divisions (including 4 tank battalions).
2 independent regimental combat teams.
1 SAM battalion with *HAWK*.
4 aviation companies and some flights.
20 M-24 and 175 M-41 lt tks; 200 M-113 APC; 130 105mm and 12 155mm how; 57mm, 75mm, 106mm RCL; 40mm AA guns, 40 *HAWK* SAM.
90 O-1 lt ac; 90 UH-1, 4 CH-47, 17 OH-13, and 9 other hel.

Reserves: 200,000.

Navy: 27,000, including 9,000 Marines.
7 frigates (1 with *Seacat* SAM, 2 in reserve).
14 patrol vessels.
13 patrol boats.
16 coastal gunboats (less than 100 tons).
4 coastal minelayers.
10 minesweepers (less than 100 tons).
7 landing ships (3 med, 1 support).
41 landing craft.
1 MR sqn with 10 S-2F and 2 HU-16B.
1 marine bde (3 inf, 1 arty bn).

Air Force: 42,000; 110 combat aircraft.
1 fighter-bomber sqn with 10 F-5A.
10 COIN sqns with 30 AT-28D, 25 AT-6, 16 OV-10C, 11 AU-23A *Peacemaker* and 16 A-37.
2 RT-33A reconnaissance aircraft.
3 tpt sqns with 20 C-47 and 15 C-123B.
3 hel sqns with 30 CH-34C and 22 UH-1H.
4 battalions of airfield defence troops.
Trainers incl 5 SF-260MT, 20 *Chipmunk*, 6 T-33A, 20 T-35, 12 T-37B, 12 T-41.
(30 F-5E, 20 AU-23, 10 SF-260, 1 HS-748, 24 CT-4, 16 FH-1100, 25 Bell UH-1H on order.)

Para-Military Forces: 49,000 Volunteer Defence Corps; 14,000 Border Police with 54 hel.

VIETNAM: DEMOCRATIC REPUBLIC OF (NORTH)

Population: 23,600,000.
Military service: 2 years minimum.
Total armed forces: 700,000.
Estimated GNP 1972: $1.8 bn.
Estimated defence expenditure 1970: 2,150 m dong ($584 m).
$1=3.60 dong (1972), 3.68 dong (1970).

This entry relates only to North Vietnam. The population and GNP of the Republic of Vietnam (South) are not incorporated. The forces and equipment shown represent strengths at the cessation of hostilities in April 1975. Equipment and manpower of the former Army of South Vietnam are not included.

Army: 685,000.
24 infantry divisions plus 3 training divisions. (Inf divs normally total 8–10,000 men, incl 3 inf regts, 1 tk bn, 1 arty regt, and support elements.)
1 artillery command (of 10 regiments).
About 10 independent infantry regiments.
15 SAM regiments (each with 18 SA-2 launchers).
40 AA artillery regiments.
900 T-34, T-54, and T-59 med tks; PT-76 and Type 60 lt tks; BTR-40 APC; SU-76, JSU-122 SP guns; 800 85mm, 122mm, 130mm, 152mm guns/how; 57mm, 75mm, 82mm, and 160mm mor; 107mm, 122mm, and 140mm RL; *Sagger* ATGW; 8,000 12.7mm, 14.5mm, 23mm, 37mm, 57mm, 85mm, and 100mm AA guns and ZSU-57-2 SP AA guns; SA-2, SA-3, and SA-7 SAM.

Deployment: 300,000 in South Vietnam and Laos and Cambodia border areas; 10,000 in Cambodia.

Navy: 3,000.
2 coastal escorts (ex-Soviet *SOI*-type).
4 *Komar*-class FPB with *Styx* SSM.
30 MGB (*Shanghai*- and *Swatow*-class).
4 MTB.
About 30 small patrol boats (less than 100 tons).
Some 20 landing craft.
Some armed junks and small craft.
10 Mi-4 SAR helicopters.

Air Force: 12,000; 268 combat aircraft.
1 light bomber sqn with 8 Il-28.
4 interceptor sqns with 70 MiG-21F/PF.
2 interceptor sqns with 80 MiG-19.
6 fighter-bomber sqns with 110 MiG-15/-17.
20 An-2, 4 An-24, 12 Il-14, and 20 Li-2 transports.
15 Mi-4 and 10 Mi-6 helicopters.
About 30 training aircraft.

Para-Military Forces: 50,000 Frontier, Coast Security, and People's Armed Security Forces; Armed Militia of about 1,500,000.

Latin America

CONTINENTAL TREATIES AND AGREEMENTS

In March and April 1945 the Act of Chapultepec was signed by Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, the United States, Uruguay, and Venezuela. This Act declared that any attack upon a member party would be considered an attack upon all, and provided for the collective use of armed force to prevent or repel such aggression.

In September 1947, all the parties to the Chapultepec Act—except Ecuador and Nicaragua—signed the Inter-American Treaty of Reciprocal Assistance, otherwise known as the Treaty of Rio (Cuba withdrew from the Treaty in March 1960). This Treaty constrained signatories to the peaceful settlement of disputes between themselves and provided for collective self-defence should any member party be subject to external attack.

The Charter of the Organization of American States (OAS), drawn up in 1948, embraced declarations based upon the Treaty of Rio. The member parties—the signatories to the Act of Chapultepec plus Barbados, El Salvador, Jamaica, and Trinidad and Tobago—are bound to peaceful settlement of internal disputes, and to collective action in the event of external attack upon one or more signatory states. (Legally, Cuba is a member of the OAS but has been excluded—by a decision of OAS Foreign Ministers—since January 1962. Barbados and Trinidad and Tobago signed the Charter in 1967.)

The United States is also a party to two multilateral defence treaties: the Act of Havana, 1940, signed by representatives of all the then 21 American Republics, which provides for the collective trusteeship by American nations of European colonies and possessions in the Americas should any attempt be made to transfer the sovereignty of these colonies from one non-American power to another; and the Havana Convention, which corresponds with the Act of Havana, signed in 1940 by the same states, with the exception of Bolivia, Chile, Cuba, and Uruguay.

A Treaty for the Prohibition of Nuclear Weapons in Latin America (The Tlatelolco Treaty) was signed in February 1967 by 22 Latin American countries; 20 countries have now ratified it (Argentina and Chile have signed but not ratified). Britain and the Netherlands have ratified it for the territories within the Treaty area for which they are internationally responsible. The United States, Britain, France, and China have signed Protocol II to the Treaty (an undertaking not to use or threaten to use nuclear weapons against the parties to the Treaty). An Agency has been set up by the contracting parties to ensure compliance with the Treaty.

OTHER AGREEMENTS

In July 1965, El Salvador, Guatemala, Honduras, and Nicaragua agreed to form a military bloc for the co-ordination of all resistance against possible Communist aggression.

The United States has bilateral military assistance agreements with Argentina, Bolivia, Brazil, Chile, Colombia, the Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. She has a bilateral agreement with Cuba, for jurisdiction and control over Guantanamo Bay. (This agreement was confirmed in 1934. In 1960, the United States stated that it could be modified or abrogated only by agreement between the parties, and that she had no intention of agreeing to modification or abrogation.) She also has a treaty with the Republic of Panama granting her, in perpetuity, full sovereign rights over the Canal Zone.

The Soviet Union has no defence agreements with any of the states in this area, although in recent years she has supplied military equipment to Cuba.

Britain assures the defence of Belize, France of French Guiana, and the Netherlands of Surinam (Dutch Guiana).

ARGENTINA

Population: 25,010,000.
Military service: Army and Air Force 1 year, Navy 14 months.
Total armed forces: 133,500.
Estimated GNP 1974: $86.7 bn. (Rapid inflation makes defence expenditure and GNP figures in local currency and dollar terms unreliable.)
Defence budget 1975: 10,309 m pesos ($1,031 m).
$1 = 10.0 pesos (1975), 4.97 pesos (1974).

Army: 83,500.
2 mechanized brigades.
2 motorized infantry brigades.
2 infantry brigades.
3 mountain brigades.
1 airmobile brigade.
5 air defence battalions.
1 aviation battalion.
120 M-4 *Sherman* med tks; 120 AMX-13 lt tks; 250 M-113, some AMX, 150 Mowag,

M-3, and M-16 APC; 200 105mm and 155mm guns; 105mm pack how, 155mm how and 24 French Mk F3 and some US M-7 155mm SP how; 120mm mor; 75mm, 90mm, 105mm RCL; SS-11/-12, *Cobra* ATGW; 30mm, 40mm AA guns; *Tigercat* SAM; 3 DHC-6 *Twin Otter* lt tpt ac; 7 Bell UH-1H and 7 FH-1100 hel.

Reserves: 250,000; 200,000 National Guard, 50,000 Territorial Guard.

Navy: 33,000, incl Naval Air Force and Marines.
4 submarines (2 Type 209, 2 ex-US *Guppy*-class).
1 aircraft carrier (21 S-2A/A-4Q/hel).
3 cruisers (1 with *Seacat* SAM, 1 trg).
8 destroyers.
11 patrol vessels (2 training).
6 coastal minesweepers/minehunters.
3 large patrol craft.
4 MGB/MTB.
5 landing ships.
20 landing craft (1 LCT).
(2 Type 42 destroyers, 6 Type 21 frigates, *Exocet* and *Gabriel* SSM, *Sea Dart* SAM on order.)

Naval Air Force: 3,000.
1 FB sqn with 16 A-4Q *Skyhawk.*
1 FB/trg sqn with 8 MB-326GB.
1 MR sqn with 6 S-2A *Tracker,* 4 P-2V5 *Neptune.*
1 SAR sqn with 3 HU-16B *Albatross.*
1 ASW/SAR sqn with 9 *Alouette* III, 4 *Sea King* hel.
2 tpt sqns with 8 C-47, 3 C-54, 3 L-188.
30 T-28 *Fennec* trainers; *Queen Air* B-80, C-45, 1 HS-125, PC-6, and 8 DHC-6 GP ac. (2 *Lynx* on order.)

Marines: 6,000.
5 battalions.
1 field artillery battalion.
1 air defence battalion.
20 LVTP-7 and 15 LARC-5 APC; 105mm, 155mm how; RCL; *Bantam* ATGW; 30mm AA guns, 10 *Tigercat* SAM.

Air Force: 17,000; 132 combat aircraft.
1 bbr sqn with 9 B-26 *Invader* and 2 *Canberra* T-64.
5 tpt sqns with 6 C-130E, 4 DHC-6 *Twin Otter,* 11 F-27, 3 F-28, 6 C-47, 3 DC-6, and 6 C-45 med tpts; 24 FMA *Guarani* II, 14 Aero *Commander,* 7 *Broussard,* 23 *Huanquero* lt tpts.
1 hel sqn with 14 Hughes 500M; 6 Bell UH-1H; 4 UH-1D, 6 UH-19, 5 SA-315 *Lama,* and 4 Bell 47G/J hel.
60 T-34 *Mentor,* 14 *Paris* I trainers.
(A-4P, F-5E, 8 MB-326K, 50 IA-58 *Pucará,* 12 G-222, 2 C-130H, 5 F-28 on order.)

Para-Military Forces: 21,000. Gendarmerie: 11,000. 10 hel, under Army command, mainly for frontier duties; National Maritime Prefecture: 9,000, 1 frigate, 8 hel, 5 *Skyvan,* subordinate to the Navy, performs coastguard duties.

BOLIVIA

Population: 5,600,000.
Military service: 12 months selective.
Total armed forces: 27,000.
Estimated GNP 1974: $1.7 bn.
Defence expenditure 1974: 691 m pesos ($35 m).
$1=20 pesos (1974).

Army: 21,000.
4 cavalry regiments.
14 infantry regiments (1 Palace Guard).
2 mechanized regiments.
2 motorized regiments.
2 ranger regiments.
1 paratroop battalion.
3 artillery regiments.
6 engineer battalions.
10 M-706, 18 M-113, 20 Mowag APC; 25 75mm pack, 20 FH-18, and 25 M-101 how; light mor.

Navy: 1,000.
16 small patrol craft.
1 transport.

Air Force: 5,000; 37 combat aircraft.
1 fighter sqn with 12 T-33 and 3 F-86 (being replaced by 18 AT-26 *Xavante* (Brazilian-built MB-326GB)).
1 COIN sqn with 10 F-51D *Mustang.*
1 COIN sqn with 12 AT-6G.

Argentina designed and has produced fifty IA-58 Pucará aircraft like this for counterinsurgency and close air support missions.

2 FB sqns with 47 A-4P *Skyhawk.*
1 fighter sqn with 12 *Mirage* IIIEA and 2 *Mirage* IIIDA.
3 FGA sqns with 20 F-86F *Sabre,* 16 MS-760A *Paris* I, 12 MB-326GB.
1 recce sqn with 12 IA-35IV *Huanquero.*
12 C-47, 5 CV-440, and some C-45 transports; 8 Cessna 185, 3 Cessna 172, and 2 *Turbo-Centurion* light transport aircraft. (2 C-130 and 6 *Arava* transports on order.)
10 T-6, 5 T-28, 6 T-41D, 8 Fokker S-11, and 18 T-23 *Uirapuru* trainers.
12 Hughes 500M and 3 Hiller OH-23C/D hel.

Para-Military Forces: About 5,000 armed police and frontier guards.

BRAZIL

Population: 107,710,000.
Military service: 1 year.
Total armed forces: 254,500.
Estimated GNP 1974: $90.3 bn.
Defence expenditure 1975: 10,511 m cruzeiros ($1,283 m).
$1=8.19 cruzeiros (1975), 6.79 cruzeiros (1974).

Army: 170,000.
7 divisions, each with up to 4 armd, mech, or mot inf bdes.
2 independent infantry brigades.
5 light 'jungle' infantry brigades.
1 parachute brigade.
150 M-4 med tks; M-3A1 *Stuart* and 200 M-41 lt tks; 120 EE-9 *Cascavel* armd cars; EE-11 *Urutu,* M-3A1, M-4, M-8, M-59, and 500 M-113 APC; 75mm, 105mm, 155mm how; 105mm SP how; 108-R and 114mm RL; 106mm RCL; 40mm, 90mm AA guns; *HAWK* SAM. (*Cobra* ATGW and 4 *Roland* SAM on order.)

Navy: 49,500, including Naval Air Force, 13,000 Marines, and Auxiliary Corps.
8 submarines.
1 aircraft carrier (12 S-2F/*Sea King*).
1 cruiser.
14 destroyers.
10 corvettes (fleet tugs).
5 river patrol ships.
2 river monitors (gunboats).
6 gunboats.
8 coastal minesweepers.
2 LST.
(2 submarines, 6 frigates, and 2 coastal minesweepers on order.)

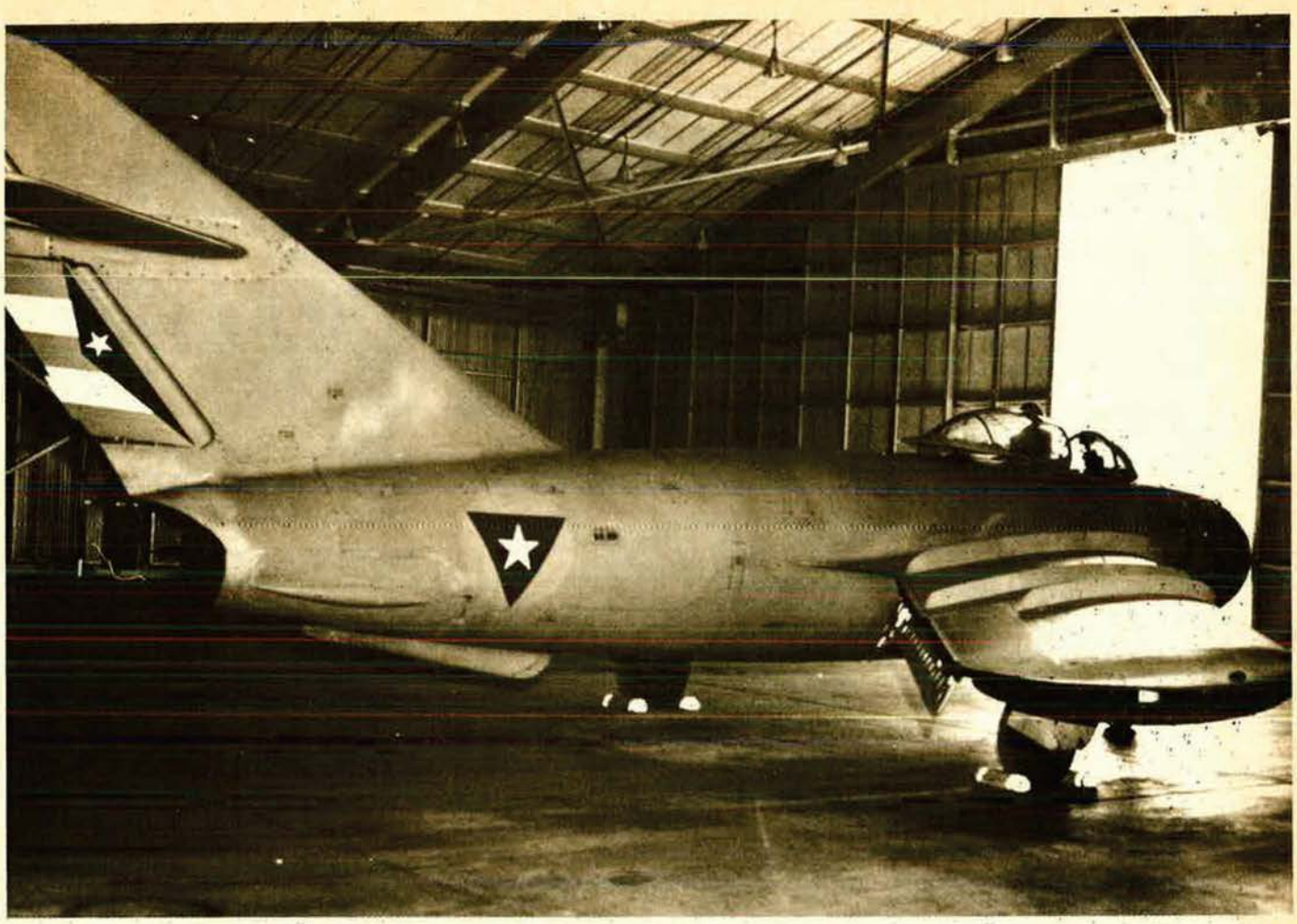
Naval Air Force:
1 ASW sqn with 6 SH-3D *Sea King.*
1 utility sqn with 5 *Whirlwind* 3, 4 *Wasp,* 4 FH-1100, some Bell 47G.
1 trg sqn with 10 Hughes 269/300.
(18 Bell 206B, 9 *Lynx,* 30 *Gazelle* on order.)

Air Force: 35,000; 160 combat aircraft.
1 light bomber sqn with 15 B-26K *Invader.*
1 interceptor sqn with 12 *Mirage* IIIEBR, 4 *Mirage* IIIDBR.
6 COIN sqns with 30 AT-33A, 80 AT-26 *Xavante* (operate with Army).
1 ASW sqn with 13 S-2F *Tracker* (6 in carrier).
1 MR sqn with 6 P-2V *Neptune* (with Navy).
1 SAR sqn with 13 *Albatross,* 3 RC-130E.
110 L-42 *Regente* and 15 L-6 *Paulistinha* lt observation/liaison aircraft (with Army).
About 180 tpts, incl 50 C-47, 6 C-119F, 9 C-130E, 9 HS-125, 8 HS-748, 8 DC-6/C-118, 6 *Catalina,* 2 BAC-111, 12 DHC-5, 5 Pilatus *Porter,* and 15 C-95 *Bandeirante.*
80 T-23 *Uirapuru,* 65 T-25 *Universal,* 25 Cessna T-37C trainers.
60 Bell 47, 11 Bell 206A, 24 UH-1 hel.
(42 F-5E/B, 65 C-95, 5 C-130H, and 4 HS-748 on order.)

Para-Military Forces: Public security forces about 200,000. State militias in addition.

CHILE

Population: 10,630,000.
Military service: 1 year.
Total armed forces: 73,800.
Estimated GNP 1974: $18.5 bn. (Rapid in-



Cuba is the only Latin American country to use Soviet military aircraft. Her entire force of 205 combat aircraft, including seventy MiG-17s like the one above, are Soviet supplied.

flation makes defence expenditure and GNP figures in local currency and dollar terms unreliable.)
Defence expenditure 1974: 159.7 bn escudos ($213 m).
$1=750 escudos (1974).

Army: 40,000.

5 divisions, incl 6 cav regts (2 armd, 3 horsed, 1 hel-borne), 16 inf regts (incl 10 mot), 5 arty regts, some AA and support dets.
76 M-4 med tks; 10 M-3 and 60 M-41 lt tks; some Mowag MR-8 APC; 105mm how, M-56 105mm pack how; 106mm RCL; AA guns, hel (armd cars and mor on order).

Reserves: 160,000.

Navy: 21,800 (incl Naval Air and Marines).
4 submarines (2 *Oberon*, 2 ex-US *Fleet*-class).
3 cruisers (2 ex-US *Brooklyn*-class).
6 destroyers (4 ex-US *Sumner-, Fletcher*-class).
2 frigates (*Leander*-class).
3 destroyer escorts (ex-US APD transport).
6 large patrol craft.
4 motor torpedo boats.
6 landing ships/craft (4 ex-US LST, 2 medium).

Naval Air Force: 500.
1 MR sqn with 5 HU-16C and 3 PBY-5A *Catalina*.
1 tpt sqn with 5 C-45, 3 C-47, 6 Beechcraft D-185.
1 SAR sqn with 6 Bell *JetRanger*, 2 HSS-2 hel.

Marines: 3,800.
1 brigade; coast defence units.

Air Force: 12,000; 32 combat aircraft.
2 fighter sqns with 32 *Hunter* F-71.
2 tpt sqns: 1 with 2 C-130E, 6 DC-6B, and 25 C-47, 1 with 6 DHC-6. Other tpts incl 10 C-45, 9 Beech 99A.
5 *Twin Bonanza*, 10 Cessna 180, 4 Cessna O-1, and 5 T-6 liaison aircraft.
36 T-34, 28 T-37B, and 11 *Vampire T-22/-55* trainers.
Hel incl 7 Bell OH-13H, 2 Sikorsky UH-19, 6 S-55T, 6 Hiller OH-23G, and 10 Bell

The AT-26 Xavante (Aermacchi MB-326GB) is assembled in Brazil from parts made in Italy. Bolivia has ordered eighteen of these aircraft.

UH-1D.
(36 A-37B, 10 T-25, 18 F-5E/F on order.)

Para-Military Forces: 30,000 *Carabineros.*

COLOMBIA

Population: 24,720,000.
Military service: 2 years.
Total armed forces: 64,300.
Estimated GNP 1974: $13.6 bn.
Defence expenditure 1974: 2,393 m pesos ($102 m).
$1=23.4 pesos (1974).

Army: 50,000.
10 infantry brigades ('Regional Brigades').
1 Presidential Guard.
1 airborne battalion.
Some mechanized cavalry and 20 infantry, 5 artillery, and 6 engineer units.
M-4A3 med tks; M-3A1 lt tks; M-8 and M-20 armd cars; M101 105mm how; mor.

Reserves: 250,000.

Navy: 8,000 (including 1,500 Marines).
3 submarines (2 midget, 1 Type 209; 1 more Type 209 on order).
6 destroyers (4 ex-US *Fletcher-, Sumner-, Dealy*-class, 2 *Swedish Halland*-class).
4 frigates (2 transports, 1 hospital ship).
4 river gunboats (1 hospital boat).
25 coastal patrol craft (23 less than 100 tons).
1 Marine battalion.

Air Force: 6,300; 16 combat aircraft.
1 fighter sqn with 13 *Mirage* VCOA, 1 VCOR, 2 VCOD.
Tpts incl 5 C-130B/E, 6 C-47, 10 C-54, 3 HS-748, 10 *Beaver*, 4 *Otter*, Aero *Commander*, 6 Pilatus *Porter*, 1 Fokker F-28.
Trainers incl 10 T-37, 30 T-41D, 10 T-33, 30 T-34.
16 Bell 47, 1 Bell 204B; 12 Hughes OH-6A, 6 TH-55, 4 H-23; 6 HH-43B *Huskie* hel.

Para-Military Forces: 5,000 National Police Force.

CUBA

Population: 9,290,000.
Military service: 3 years.
Total armed forces: 117,000.
Estimated GNP 1970: $4.5 bn.
Estimated defence expenditure 1971: 290 m pesos ($290 m).
$1=1 peso.

Army: 90,000.
15 infantry 'divisions' (brigades).
3 armoured brigades.
Some independent 'brigades' (battalion groups).
More than 600 tks, incl 60 JS-2 hy, T-34, T-54/-55 med, and PT-76 lt tks; 200 BTR-40, BTR-60, and BTR-152 APC; some BRDM armd cars; 100 SU-100 SP guns; 105mm, 122mm, 130mm, and 152mm guns and how; 30 *FROG-4* SSM; 57mm, 76mm, and 85mm ATk guns; 57mm RCL; *Snapper* ATGW; 12.7mm, 14.5mm, 37mm, 85mm, and 100mm AA guns.

Reserves: 90,000.

Navy: 7,000.
1 escort patrol vessel (ex-US).
15 submarine chasers (ex-Soviet *SOI, Kronstadt*).
5 *Osa*- and 18 *Komar*-class FPB with *Styx* SSM.
24 MTB (ex-Soviet P-4 and P-6).
25 armed patrol boats (under 100 tons).
15 Mi-4 hel.
Some 50 *Samlet* coast defence SSM.

Air Force: 20,000 (including Air Defence Forces); 205 combat aircraft.
1 fighter-bomber sqn with 15 MiG-15.
5 interceptor sqns with 50 MiG-21, 30 MiG-21MF.
2 interceptor sqns with 40 MiG-19.
4 interceptor sqns with 70 MiG-17.
About 70 Il-14, An-24, and An-2 tpt ac.
Trainers incl 25 MiG-15UTI and 60 Zlin 226/326.
About 30 Mi-1 and 24 Mi-4 helicopters.
24 SAM bns with 144 SA-2 *Guideline.*

Para-Military Forces: 10,000 State Security troops; 3,000 border guards; 100,000 People's Militia.

DOMINICAN REPUBLIC

Population: 4,680,000.
Military service: 1 year, selective.
Total armed forces: 15,800.
Estimated GNP 1974: $2.8 bn.
Defence expenditure 1974: 36 m pesos ($36 m).
$1=1 peso.

Army: 9,000.
3 infantry brigades.
1 artillery regiment.
1 anti-aircraft regiment.
Reconnaissance, engineer, and signals units.
20 AMX-13 lt tks; some APC; armd cars; 105mm how; AA arty.

Navy: 3,800.
3 frigates (2 ex-US *Tacoma-*, 1 ex-Canadian *River*-class).
2 corvettes (ex-Canadian *Flower*-class).
2 fleet minesweepers.
12 patrol craft (9 under 100 tons).
1 landing ship medium.
2 landing craft.

Air Force: 3,000; 32 combat aircraft.
1 fighter-bomber sqn with 10 *Vampire* Mk I.
1 fighter-bomber sqn with 20 F-51D *Mustang.*
2 PBY-5 *Catalina* maritime patrol aircraft.
1 tpt sqn with 6 C-47, 3 DHC-2 *Beaver*, and 3 Cessna 170.
4 T-6 *Texan*, 4 T-28 trainers.
2 Bell OH-13, 2 Hiller UH-12, 7 Hughes OH-6A, 2 Sikorsky UH-19, and 3 *Alouette* II/III hel.

Para-Military Forces: 10,000 Gendarmerie.

ECUADOR

Population: 7,200,000.
Military service: 2 years, selective.
Total armed forces: 22,300.
Estimated GNP 1974: $3.2 bn.
Defence expenditure 1973: 1,280 m sucres ($52 m).
$1 = 24.9 sucres (1974), 24.7 sucres (1973).

Army: 15,000.
11 infantry battalions.
1 parachute battalion.
3 reconnaissance squadrons.
4 horsed cavalry squadrons.
10 independent infantry companies.
3 artillery groups.
1 anti-aircraft battalion.
2 engineer battalions.
15 M-3, 25 M-41, and 41 AMX-13 lt tks; AML-60 armd cars, some APC incl amphibians; 105mm and 6 155mm SP how; 40mm AA guns; 1 *Skyvan*, 1 Cessna T-41, and 3 lt ac; 4 hel.

Navy: 3,800.
3 destroyers (1 ex-US transport, 2 ex-British).
2 coastal escorts (ex-US).
2 MGB, 3 MTB (3 FPB on order).
12 small patrol craft.
2 landing ships (medium).
5 light aircraft, 2 *Alouette* hel. (1 *Arava* lt tpt on order.)

Air Force: 3,500; 24 combat aircraft.
1 lt bomber sqn with 5 *Canberra* B-6.
1 interceptor sqn with 7 *Meteor* FR-9.
1 COIN sqn with 12 BAC-167 *Strikemaster.*
1 tpt sqn with 3 HS-748, 2 *Skyvan* 3M, and 12 C-47; other tpts incl 6 C-45, 4 DC-6B.
Trainers incl 8 T-28, 5 T-33, 16 T-41, 24 Cessna 150 *Aerobat.*
2 *Puma* and 6 *Alouette* III hel.
(12 *Jaguar* A/B, 4 BAC-167, 4 SA-315B *Lama*, 9 *Arava*, 2 HS-748, 2 DHC-5 *Buffalo*, 3 DHC-6 *Twin Otter* on order.)

Para-Military Forces: 5,800.

MEXICO

Population: 58,350,000.
Military service; voluntary, with part-time conscript militia.
Total armed forces: 82,500 regular; 250,000 part-time conscripts.
Estimated GNP 1974: $59.0 bn.
Defence expenditure 1974: 5,292 m pesos ($423 m).
$1 = 12.5 pesos (1974).

Army: 65,000, plus 250,000 conscripts.
1 mechanized brigade group (Presidential Guard).
1 infantry brigade group.
1 parachute brigade.
Zonal Garrisons incl:
21 indep cav regts, 55 indep inf bns, 2 arty bns.
Anti-aircraft, engineer, and support units.
M-3 lt tks; HWK-11 APC; 100 armd cars; 75mm, 105mm how.

Navy: 11,500 (incl Naval Air Force and Marines).
2 destroyers (ex-US *Fletcher*-class).
1 destroyer escort (ex-US *Edsall*-class).
8 frigates (6 transports (5 ex-US), 2 gunboats).
35 escort and fleet minesweepers.
10 patrol boats.
3 LST.
(21 fishery protection vessels on order.)

Naval Air Force: 336.
5 HU-16 MR and 5 *Alouette* II hel.

Marines: 2,000 men; 16 security companies.

Air Force: 6,000; 15 combat aircraft.
1 COIN sqn with 15 AT-33A.
1 SAR sqn with 18 LASA-60 lt ac.
About 50 tpts, incl 12 DC-6/C-54/C-118, 6 C-47, 10 C-45, 3 *Islander*, 1 *Jetstar*, 5 *Arava* ambulance, 1 MU-2S, 5 *Bonanza* F-33C (15 *Arava* and 15 *Bonanza* on order).
Trainers incl 25 PT-13, 20 T-6, 15 AT-11, 30 T-28, 10 T-34 (some armed), and 15 Beech 23 *Musketeer.* About 30 hel, incl 5 Bell 205A, 5 206B, 1 Hiller UH-12E, 6 *Alouette* III, 3 *Puma.*
1 parachute battalion.

PARAGUAY

Population: 2,850,000.
Military service: 2 years.

Total armed forces: 14,500.
Estimated GNP 1974: $1.3 bn.
Defence expenditure 1973: 2,336 m guaranies ($19 m).
$1 = 125 guaranies (1974), 125 guaranies (1973).

Army: 10,500.
1 cavalry brigade.
6 infantry regiments.
5 motorized engineer battalions.
3 artillery batteries.
9 M-4 med tks; APC; 75mm and 105mm how.

Navy: 2,000 (including 500 Marines).
3 patrol boats (ex-Argentinian minesweepers).
2 river gunboats.
8 coastal patrol craft (all under 20 tons).

Air Force: 2,000; 13 combat aircraft.
1 COIN sqn with 8 T-2D and 5 AT-6 *Texan.*
10 C-47, 3 C-45, 1 DHC-6 tpts.
9 Bell OH-13A helicopters.
(20 T-23 *Uirapuru* trainers on order.)

Para-Military Forces: 5,000 security forces.

PERU

Population: 15,850,000.
Military service: 2 years, selective.
Total armed forces: 56,000.
Estimated GNP 1974: $9.5 bn.
Defence expenditure 1974: 9,932 m soles ($226 m). (Peru uses a biennial defence budget system. This estimate represents the 1974 portion of a total 20,125 million soles budget for 1 Jan. 1973–31 Dec. 1974.)
$1 = 44.0 soles (1974).

Army: 39,000.
1 **armoured 'division'** (brigade).
8 **infantry and mech** 'divisions' (brigades).
1 **para-commando 'airborne** division' (brigade).
1 jungle 'division' (brigade).
Artillery and engineer battalions.
200 T-55, 60 M-4 med tks; 100 AMX-13 lt tks; 50 M-3A1 scout cars; 105mm, 122mm, 152mm, and 155mm hows; 8 Bell 47G hel (2 *Nomad* lt tpt ac on order).

Deployment: Syria (UNDOF): 1 bn, 353.

Navy: 8,000 (incl Naval Air and 1,000 Marines).
4 submarines.
3 **light** cruisers.
4 **destroyers (2 with *Exocet* SSM).**
3 **destroyer escorts (4** *Lupo*-class with ***Albatros* SAM on order).**
2 corvettes (ex-US fleet minesweepers).
8 large and 3 coastal patrol craft.
6 river gunboats (one hospital vessel).
1 coastal minesweeper.
17 landing ships/craft (2 LST, 1 med).
2 Bell 47G and 2 *Alouette* III helicopters.
1 Marine battalion.

Air Force: 9,000; 94 combat aircraft.
2 lt bbr sqns with **24 *Canberra.***
3 fighter sqns: 1 **with 12** *Mirage* VP and 2 VDP; 1 with **12 F-86F;** 1 with 16 *Hunter* F-52.
1 FGA sqn with 20 AT-33A.
1 MR sqn with 4 PV-2 *Harpoon* and 4 HU-16A *Albatross.*
6 C-130, 4 C-54, 10 C-47, 3 F-28, 8 DHC-6, 16 DHC-5, 20 *Queen Air,* 1 Pilatus *Porter,* 1 *Learjet* 25B, 5 Cessna 185, 5 Helio *Courier* tpt ac.
2 *Hunter* T-62, 8 T-33A, 40 T-41, 26 T-37B, 5 T-34 trainers.
12 *Alouette* III, 20 Bell 47G, 17 Bell 212, and 8 Mi-8 helicopters.
(8 *Mirage* VP, 20 F-5E, 4 F-5F, 6 C-130H, 24 A-37B, 10 Bell 206 on order.)

Para-Military Forces: 20,000 *Guardia Civil.*

URUGUAY

Population: 3,080,000.
Military service: voluntary.
Total armed forces: 22,000.
Estimated GNP 1974: $2.8 bn.
Defence expenditure 1973: 61.1 bn pesos ($68 m).
$1 = 1,124 pesos (1974), 895 pesos (1973).

Army: 17,000.
4 regional divisions comprising:
2 armoured regiments.
13 infantry battalions.
6 engineer battalions.
8 **cavalry squadrons.**
4 **artillery 'battalions'** (batteries).
17 M-**24 *Chaffee*** and 18 M-3A1 lt tks; 10 M-3A1 scout cars; 15 M-113A1 APC; 24 105mm how.

Navy: 3,000 (incl naval **air, naval** infantry).
4 **destroyer** escorts (1 **training).**
2 **escorts (ex-US minesweepers).**
3 patrol craft (2 under 100 tons).
1 coastal minesweeper.
3 S-2A MR, 3 SNB-5 (C-45); 1 T-34B, 4 SNJ-4 (T-6); 2 Bell 47G, 4 OH-23 helicopters.

Air Force: 2,000; 6 combat aircraft.
1 **fighter sqn** with 6 **AT-33A.**
2 **tpt sqns** with 12 **C-47, 5 F-27,** 2 FH-227, **2 *Queen Air,*** 8 U-**17, 2 Cessna** 182.
12 T-6, 6 T-41 trainers.
2 Bell UH-1H and 2 Hiller UH-12 helicopters.

Para-Military Forces: 22,000.

VENEZUELA

Population: 12,130,000.
Military service: 2 years, selective.
Total armed forces: 44,000.
Estimated GNP 1974: $19.3 bn.
Defence expenditure 1975: 2,100 m bolivares ($494 m).
$1 = 4.25 bolivares (1975), 4.27 bolivares (1974).

Army: 28,000.
1 **armoured brigade** } **being reorganized**
1 **cavalry regiment** } **into an armoured**
1 **tank battalion group** } **division.**
11 infantry battalions.
13 ranger battalions.
6 artillery groups.
5 engineer and anti-aircraft battalions.
120 AMX-30 med tks; 40 AMX-13; 35 M-18 76mm SP ATk; 12 M-8 and 15 *Shorland* armd cars; 20 AMX 155mm SP guns; M-**101 105mm how; AA guns; some 20 hel incl 2 Sikorsky UH-19D, *Alouette* III, Bell** 47G. (22 AMX-30 on order.)

Navy: 8,000 (incl 2,500 Marines).
3 ex-US submarines.
5 destroyers (1 with *Seacat* SAM).
6 destroyer escorts.
3 FPB.
10 **patrol** craft.
16 **coastal** patrol craft (21 more on **order).**
6 landing ships (2 LST, 4 med).
1 MR sqn with 6 S-2E *Tracker.*
4 HU-16 SAR aircraft; 2 C-47 transports; 2 Bell 47J hel.
(2 Type 209 submarines, 3 FPB with *Otomat* SSM on order.)

Marines:
3 battalions.

Air Force: 8,000; 85 combat aircraft.
1 bomber sqn with 30 *Canberra.*
1 COIN sqn with 20 OV-10E *Bronco.*
3 fighter sqns (2 with 16 CF-5A, 4 -5B; 1 with 9 *Mirage* IIIEV, 4 VV, 2 DV).
1 tpt sqn with 6 C-130H, 20 C-47.
1 tpt sqn with 12 C-123B *Provider,* 1 HS-748.
12 T-52 *Jet Provost,* 12 T-2D, 20 T-34, 17 Cessna 182, 2 Beech 95, and 12 *Queen Air* trainers (12 T-2D on order).
15 *Alouette* III, 15 Bell UH-1, 5 Sikorsky UH-19 hel.

Para-Military Forces: 11,500 National Guard, a volunteer force for internal security.

South American nations are mainly equipped with American- or British-made aircraft like this Hawker Hunter found in the Chilean and Peruvian Air Forces.

Tables of Comparative Strengths

1. Nuclear Delivery Vehicles
Comparative Strengths and Characteristics
(A) UNITED STATES AND SOVIET UNION

(i) ***Missiles and Artillery***

		United States					Soviet Union				
	Category[a]	Type	Max. range[b] (statute miles)	Estimated warhead yield range[c]	First deployed	No. deployed (July 1975)	Type[d]	Max. range[b] (statute miles)	Estimated warhead yield range[c]	First deployed	No. deployed (July 1975)
Land-based missiles	ICBM	LGM-25C *Titan* 2	7,250	5–10MT	1962	54	SS-7 *Saddler*	6,900	5MT	1961	190[e]
		LGM-30F *Minuteman* 2	8,000	1–2MT	1966	450	SS-8 *Sasin*	6,900	5MT	1963	19[e]
		LGM-30G *Minuteman* 3	8,000	3 × 170KT	1970	550	SS-9 *Scarp*	7,500	18–25MT[f]	1965	288
							SS-11 *Sego*	6,500	1–2MT or 3 × KT[g]	1966	991[h]
							SS-13 *Savage*[i]	5,000	1MT	1968	60
							SS-17	6,500	4 × KT	1975	10[j]
							SS-18	7,500	18–25MT or 5–8 × MT[k]	1975	10
							SS-19	6,500	6 × KT	1975	50[j]
	IRBM						SS-5 *Skean*[l]	2,300	1MT	1961	100
	MRBM						SS-4 *Sandal*[l]	1,200	1MT	1959	500
	SRBM	MGM-31A *Pershing*[m]	450	KT	1962	108[n]	SS-1b *Scud* A[m]	50	KT	1957	(300)[o]
		MGM-52A *Lance*[m]	70	KT	1972	72[n]	SS-1c *Scud* B[m]	185	KT	1965	
		MGR-1B *Honest John*[m,o]	25	KT	1953	n.a.	SS-12 *Scaleboard*	500	MT	1969	
							FROG 1–7[m]	10–45	KT	1957–65	(600)[o]
	LRCM						SS-N-3 *Shaddock*	450	KT	1962	(100)[o]
Sea-based missiles	SLBM (nuclear subs)	UGM-27C *Polaris* A3	2,880	3 × 200KT	1964	256	SS-N-5 *Serb*	750	MT	1964	24
		UGM-73A *Poseidon*[p]	2,880	10 × 50KT	1971	400	SS-N-6 *Sawfly*[q]	1,750	MT	1969	544
							SS-N-8	4,800	MT	1972	156
	SLBM (diesel subs)						SS-N-4 *Sark*	350	MT	1961	27
							SS-N-5 *Serb*	750	MT	1964	33
	SLCM						SS-N-3 *Shaddock*	450	KT	1962	312[r]
Artillery	Self-propelled	M-110 203mm (8-in) how[m]	10	KT	1962	150[n]					
		M-109 155mm how[m]	10	2KT	1964	300[n]					
	Towed	M-115 203mm (8-in) how[m]	10	KT	1950s	n.a.	M-55 203mm gun/how[m]	18	KT	1950s	n.a.

(ii) ***Aircraft***[a]

	United States						Soviet Union					
Category	Type	Max. range[t] (statute miles)	Max. speed (Mach no.)[u]	Max. weapons load (lb)	First deployed	No. deployed (July 1975)	Type[v]	Max. range[t] (statute miles)	Max. speed (Mach no.)[u]	Max. weapons load (lb)	First deployed	No. deployed (July 1975)
Long-range bombers[w]	B-52 D-F	11,500	0.95	60,000	1956	432[z]	Tu-95 *Bear*	7,800	0.78	40,000	1956	100
	B-52 G/H	12,500	0.95	75,000	1959		Mya-4 *Bison*	6,050	0.87	20,000	1956	35[y]
Medium-range bombers[w]	FB-111A	3,800	2.5	37,500	1969	66	Tu-16 *Badger*	4,000	0.8	20,000	1955	755[z]
							Backfire B	3,600	2.5	20,000	1974	25
Land-based strike aircraft (incl. short-range bombers)	F-105D	2,100	2.25	16,500	1960	(1,500)[o]	Il-28 *Beagle*	2,500	0.81	4,850	1950	(2,500)[o]
	F-4	2,300	2.4	16,000	1962		Su-7 *Fitter* A	900	1.7	4,500	1959	
	F-111 A/E	3,800	2.2/2.5	25,000	1967		Tu-22 *Blinder*	1,400	1.5	12,000	1962	
	A-7D	3,400	0.9	15,000	1968		Yak-28 *Brewer*	1,750	1.1	4,400	1962	
	F-15A	2,500	2.5	12,000	1975		MiG-21MF *Fishbed J*	1,150	2.2	2,000	1970	
							MiG-23 *Flogger*	1,800	2.5	2,800	1971	
							Su-19A *Fencer*	1,800	2.3	8,000	1974	
							Su-17/-20 *Fitter* C	1,100	1.6	5,000	1974	
Carrier-based strike aircraft	A-4	2,055	0.9	10,000	1956	(1,200)[o]						
	A-6A	3,225	0.9	18,000	1963							
	A-7A/B/E	3,400	0.9	15,000	1966							
	F-4	1,997	2.4	16,000	1962							
	F-14A	2,000	2.4	19,500	1974							

(iii) ***Historical Changes of Strength 1962–1975 (mid-years)***

		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
USA	ICBM	294	424	834	854	904	1,054	1,054	1,054	1,054	1,054	1,054	1,054	1,054	1,054
	SLBM	144	224	416	496	592	656	656	656	656	656	656	656	656	656
	Long-range bombers[w]	600	630	630	630	630	600	545	560	550	505	455	442	437	432
USSR	ICBM	75	100	200	270	300	460	800	1,050	1,300	1,510[g]	1,527[g]	1,527[g]	1,575	1,618
	SLBM	Some	100	120	120	125	130	130	160	280	440	560	628	720	784
	Long-range bombers[w]	190	190	190	190	200	210	150	150	150	140	140	140	140	135

[a] ICBM range = 4,000+ miles; IRBM range = 1,500–4,000 miles; MRBM range = 500–1,500 miles; SRBM range = under 500 miles. LRCM range = over 350 miles.
[b] Operational range depends upon the payload carried; use of maximum payload may reduce missile range by up to 25 per cent.
[c] MT range = 1 MT or over; KT range = less than 1 MT; figures given are estimated maxima.
[d] Numerical designations of Soviet missiles (e.g. SS-9) are of US origin; names (e.g. *Scarp*) are of NATO origin.
[e] The initial dismantling of older SS-7 and SS-8 launchers is under way.
[f] SS-9 missiles exist in three operational modes: single 18 or 25 MT warhead and 3 MRV of 4–5 MT each.
[g] A version of the SS-11 with three MRV is replacing some of the single warhead versions in the SS-11 force.
[h] Including 100 deployed within IRBM/MRBM fields.
[i] A solid-fuel replacement for the SS-13, the SSX-16, which has about twice the throw-weight and may also be deployed in a land-mobile mode, is undergoing tests.
[j] The SS-17 and SS-19 have begun deployment in modified SS-11 silos.
[k] The SS-18, a follow-on to the SS-9, has begun deployment in a single warhead mode, and a version with 5–8 MIRV has been tested.
[l] A 2,400-mile-range replacement for the SS-4 and SS-5, the SSX-20, has been tested.
[m] Dual-capable (i.e., capable of delivering conventional or nuclear warheads). Although shown in the table, it is uncertain whether the Soviet 203mm artillery is nuclear capable. Conventional warheads for the US *Lance* and *Pershing* are under development.
[n] Figures are only for systems in Europe.
[o] Figures in brackets are estimates only.
[p] *Poseidon* can carry up to 14 RV over a reduced range.
[q] SS-N-6 has been tested with a new single warhead (MT range) and with 3 MRV, but is not known to be deployed in either of these forms.
[r] 264 SS-N-3 are deployed aboard submarines and 48 on surface vessels.
[s] All aircraft listed are dual-capable, but many, especially in the strike aircraft categories, are not configured for the nuclear role and are more likely to carry conventional munitions.
[t] Theoretical maximum range, with internal fuel only, at optimum altitude and speed. Ranges for strike aircraft assume no weapons load. Especially in the case of strike aircraft, therefore, range falls sharply for flights at higher speeds, lower altitude or with full weapons load.
[u] Mach 1.0 = speed of sound.
[v] Names of Soviet aircraft (e.g. *Bear*) are of NATO origin.
[w] Long-range bomber = maximum range 6,000+ miles; medium-range bomber = maximum range 3,500–6,000 miles, primarily designed for bombing missions. *Backfire* is classified as a medium-range bomber on the basis of reported range characteristics.
[x] Including 35 B-52 aircraft in active storage.
[y] Excluding approximately 50 Mya-4 aircraft configured as tankers.
[z] Including approximately 280 Tu-16 aircraft in the Naval Air Force, configured for attacks on shipping.

(B) OTHER NATO AND WARSAW PACT COUNTRIES

(i) *Missiles and Artillery*

	Category[a]	NATO (excluding USA) Type[b]	Operated by[c]	Max. range[d] (statute miles)	Estimated warhead yield range[e]	First deployed	No. deployed (July 1975)	Warsaw Pact (excluding USSR) Type[f]	Operated by[c]	Max. range[d] (statute miles)	Estimated warhead yield range[e]	First deployed	No. deployed (July 1975)
Land-based missiles	IRBM SRBM	SSBS S-2	FR	1,875	150 KT	1971	18						
		Sergeant[g]	GE	85	KT	1962	20	SS-1b *Scud* A[h]	All	50	KT	1957	(100)
		Pershing[g]	GE	450	KT	1962	72	SS-1c *Scud* B[h]	All	185	KT	1965	(100)
		Pluton	FR	75	15 KT	1974	12						
		Honest John	[i]	25	KT	1953	(150)	*FROG* 1-7[h]	All	10–45	KT	1957–65	(200)
SLBM	SLBM	UGM-27C *Polaris* A3	BR	2,880	3 × 200 KT	1967	64						
		MSBS M-1	FR	1,550	500 KT	1972	32						
		MSBS M-2	FR	1,900	500 KT	1974	16						
Artillery	SP	M-110 203mm how	[j]	10	KT	1962	n.a.						
		M-109 155mm how	[k]	10	2 KT	1964	n.a.						
	Towed	M-115 203mm how	[j]	10	KT	1950s	n.a.						

[a] IRBM range 1,500–4,000 miles; SRBM range under 500 miles.
[b] All NATO vehicles are of American origin, with the exception of the SSBS IRBM and the MSBS SLBM, which are of French origin.
[c] BR = Britain. FR = France. GE = West Germany.
[d] Use of maximum payload may reduce missile range by up to 25 per cent.
[e] KT range = less than 1 MT; figures given are estimated maxima.
[f] All Warsaw Pact vehicles are of Soviet origin. Numerical designations (e.g., SS-1b) are of American origin, names (*Scud* A, *FROG*) of NATO origin.
[g] These SRBM are operated by West Germany but the nuclear warheads for them are in American custody. *Sergeant* and *Honest John* are dual-capable.
[h] These dual-capable systems are operated by the countries shown, but nuclear warheads for them are in Soviet custody.
[i] *Honest John* is dual-capable and is operated by Belgium, Britain, Denmark, West Germany, Greece, Italy, the Netherlands and Turkey, but with the nuclear warheads held in American custody. In the case of Denmark, there are no nuclear warheads held on Danish soil. France also has *Honest John* but the nuclear warheads for it were withdrawn in 1966 and its nuclear role has been taken over by the *Pluton*, which has a French nuclear warhead.
[j] The 203mm (8-in.) how is dual-capable and is operated by Belgium, Britain, Denmark, West Germany, Greece, Italy, the Netherlands and Turkey but any nuclear warheads for it are in American custody.
[k] The 155mm how is primarily a conventional artillery weapon but is dual-capable. It is operated by Belgium, Britain, Canada, Denmark, West Germany, Greece, Italy, the Netherlands, Norway and Turkey, but in very few cases is it likely to have a nuclear role, certainly not in the case of Canada. Any nuclear warheads would be in American custody, none of them being held on either Danish or Norwegian soil.

(ii) *Aircraft*[a]

Category[b]	NATO (excluding USA) Type[c]	Operated by[d]	Max. range[e] (statute miles)	Max. speed (Mach no.)[f]	Max. weapons load (lb)	First deployed	No. deployed (July 1975)	Warsaw Pact (excluding USSR) Type[g]	Operated by[d]	Max. range[e] (statute miles)	Max. speed (Mach no.)[f]	Max. weapons load (lb)	First deployed	No. deployed (July 1975)
Medium-range bombers	*Vulcan* B2	BR	4,000	0.95	21,000	1960	50							
Strike aircraft (incl. short-range bombers)[k]	F-104	[h]	1,300	2.2	4,000	1958	n.a.[i]	Il-28 *Beagle*[i]	PO	2,500	0.81	4,850	1950	n.a.[i]
	F-4	BR, GE	1,600	2.4	16,000	1962	n.a.[i]	Su-7 *Fitter*[i]	CZ, PO	900	1.7	4,500	1959	n.a.[i]
	Buccaneer S2	BR	2,000	0.95	8,000	1962	n.a.[i]	Su-20 *Fitter*[i]	PO	1,100	1.6	5,000	1974	n.a.[i]
	Mirage IVA	FR	2,000	2.2	8,000	1964	52							
	Jaguar	BR, FR	1,000	1.1	8,000	1973 1974	60 60							

[a] All aircraft listed are dual-capable and many would be more likely to carry conventional than nuclear weapons.
[b] Medium-range bomber = maximum range 3,500–6,000 miles, primarily designed for bombing missions.
[c] *Vulcan* and *Buccaneer* are of British origin; F-104 and F-4 are of American origin; *Mirage* is of French origin; *Jaguar* is Anglo-French.
[d] BR = Britain, FR = France, GE = West Germany, CZ = Czechoslovakia, PO = Poland.
[e] Theoretical maximum range, with internal fuel only, at optimum altitude and speed. Ranges for strike aircraft assume no weapons load. Especially in the case of strike aircraft, therefore, range falls sharply for flights at lower altitude, at higher speed or with full weapons load (e.g., combat *radius* of F-104, at operational height and speed, with typical weapons load, is approximately 420 miles).
[f] Mach 1 = speed of sound.
[g] Warsaw Pact aircraft are of Soviet origin; the names listed (e.g., *Beagle*) are of NATO origin.
[h] The dual-capable F-104 is operated by Belgium, Canada, Denmark, West Germany, Greece, Italy, the Netherlands, Norway and Turkey, but the Canadian aircraft no longer have a nuclear role. The nuclear warheads for these aircraft are held in American custody.
[i] Nuclear warheads for these dual-capable aircraft are held in Soviet custody.
[j] The absence of figures here reflects the uncertainty as to how many of these nuclear-capable aircraft actually have a nuclear role.
[k] A number of strike aircraft, such as the A-4 and *Mirage III*, may also be capable of carrying tactical nuclear weapons.

2. Comparisons of Defence Expenditures 1972-1975

Country	$ million				$ Per head				% of Government Expenditure[a]				% of GNP[b]			
	1972	1973	1974	1975	1972	1973	1974	1975	1972	1973	1974	1975	1971	1972	1973	1974
Warsaw Pact[c]																
Bulgaria	268	302	345	392	31	35	40	45	6.0	6.3	6.0	6.0	2.5	2.4	2.5	2.7
Czechoslovakia	1,275	1,342	1,412	1,542	88	93	97	106	8.5	8.3	8.0	7.3	3.7	3.8	3.8	3.8
Germany, East	1,854	2,029	2,171	2,333	109	119	128	137	9.2	9.2	8.9	7.9	5.2	5.2	5.4	5.4
Hungary	419	425	457	485	40	41	44	45	4.6	4.2	4.0	3.5	2.7	2.5	2.3	2.3
Poland	1,697	1,853	1,977	2,170	51	56	59	65	8.5	8.4	7.2	7.0	3.9	3.5	3.4	3.6
Romania	523	528	572	647	25	25	26	30	5.2	4.9	4.2	4.0	2.0	1.9	1.7	1.6
Soviet Union[d]	84,400	88,900	96,400	103,800	342	356	382	409	n.a.	n.a.	n.a.	n.a.	10.3	10.8	10.5	10.6
NATO[e]																
Belgium	1,008	1,360	1,504	1,821	104	139	153	185	10.1	10.2	9.8	9.5	2.8	2.8	2.7	2.8
Britain	7,889	9,033	9,900	10,380	141	161	176	184	13.1	12.9	11.6	10.8	5.0	5.2	4.9	5.2
Canada	2,238	2,417	2,850	2,960	102	109	126	129	13.9	12.0	10.4	11.0	2.3	2.2	2.0	2.0
Denmark	484	625	725	940	97	125	143	184	8.1	7.6	7.3	7.8	2.5	2.4	2.1	2.3
France	7,360	9,818	9,102	12,250	142	189	175	233	19.0	18.3	18.4	19.1	3.9	3.7	3.5	3.4
Germany, West*	8,975	13,295	14,048	16,260	146	215	226	260	25.9	26.2	27.0	24.7	3.3	3.4	3.4	3.6
Greece	574	664	807	1,300	65	74	90	144	20.8	21.7	25.2	28.5	4.7	4.6	4.1	4.3
Italy	3,715	4,131	4,142	4,220	68	75	75	76	11.3	10.1	10.3	8.6	2.9	3.1	3.0	2.8
Luxembourg	12	17	18	22	34	49	50	61	3.1	3.5	3.4	3.1	0.8	0.9	0.8	0.9
Netherlands	1,559	2,102	2,411	2,936	117	157	179	215	12.9	11.9	12.0	11.4	3.4	3.4	3.3	3.4
Norway	498	669	749	900	127	169	187	223	9.9	9.4	9.2	8.4	3.4	3.3	3.2	3.2
Portugal	594	734	833	880	65	80	91	95	39.3	34.2	39.4	29.1	7.3	6.9	6.2	6.8
Turkey	703	892	1,173	2,200	19	23	30	55	21.1	21.1	20.5	26.6	4.4	4.2	4.1	3.7
United States	77,639	78,473	84,332	92,800	372	372	395	430	31.5	29.2	26.9	26.6	7.1	6.7	6.1	6.0
Other Europe																
Austria	205	295	323	410	27	39	43	54	3.7	3.6	3.7	3.7	1.0	1.0	0.9	1.0
Eire	72	85	75[f]	107	24	28	25	35	3.2	2.9	3.0	2.9	1.2	1.3	1.2	1.1
Finland	196	255	313	342	42	55	67	73	5.8	5.5	5.3	5.5	1.4	1.5	1.4	1.4
Spain	860	1,071	1,372	n.a.	25	31	39	n.a.	13.0	12.9	14.3	n.a.	1.8	1.8	1.8	1.9
Sweden	1,557	2,012	2,023	2,475	192	246	246	298	12.1	11.4	10.5	10.5	3.5	3.7	3.7	3.6
Switzerland	588	808	832	1,041	92	124	126	125	21.3	20.1	19.2	19.5	2.0	1.9	1.8	1.8
Yugoslavia[g]	709	1,045	1,295	1,705	34	50	61	80	46.6	48.1	49.5	49.9	4.4	4.8	5.3	5.1
Middle East																
Algeria[g]	239	376	404	285	16	24	25	17	12.1	13.2	11.3	4.7	4.0	3.9	4.7	4.6
Egypt	1,512	2,757	4,071	6,103	43	77	111	163	n.a.	34.4	26.8	42.0	21.1	19.9	31.0	22.8
Iran	1,189	2,096	3,224	10,405	39	67	99	314	24.5	29.1	23.1	28.3	8.3	7.7	9.3	9.0
Iraq	473	815	803	n.a.	47	78	75	n.a.	44.3	17.9	8.1	n.a.	12.7	11.3	16.4	14.2
Israel	1,435	4,153	3,688	3,503	466	1,310	1,131	1,043	35.2	50.4	43.9	37.6	23.6	21.1	46.3	32.0
Jordan	117	147	142	155	47	58	54	57	39.6	29.6	26.7	22.0	14.8	16.0	16.4	14.2
Libya	121	145	402	203	58	67	179	88	5.9	5.8	11.7	n.a.	2.3	3.0	2.8	6.8
Morocco	142	196	190	n.a.	9	12	11	n.a.	12.5	13.3	8.6	n.a.	2.9	3.2	3.5	3.2
Saudi Arabia	941	1,478	1,808	6,343	115	175	209	712	29.9	23.7	25.6	20.0	15.6	19.2	18.3	15.0
Sudan	120	114	118	97	7	7	7	5	25.5	18.6	14.9	n.a.	5.1	5.2	4.6	4.3
Syria	249	405	460	668	37	59	65	91	33.9	34.8	25.0	24.0	11.8	12.1	16.0	15.7
Africa																
Ethiopia	53	70	80	n.a.	2	3	3	n.a.	19.7	16.9	17.6	n.a.	2.6	2.6	2.8	3.0
Nigeria[g]	1,009	562	652	1,786	17	9	11	29	25.8	19.9	15.2	n.a.	6.3	4.4	3.9	2.9
Rhodesia	31	59	80	102	5	10	13	16	8.9	12.2	11.5	n.a.	1.7	1.9	2.7	2.6
South Africa	414	702	1,052	1,332	18	30	43	53	11.6	13.3	16.0	18.5	2.4	2.2	2.6	3.2
Asia																
Australia	1,530	1,906	2,331	n.a.	119	147	179	n.a.	14.2	13.2	12.8	n.a.	3.8	3.6	3.3	3.2
China (Taiwan)	713	878	1,000	n.a.	47	56	63	n.a.	58.3	61.7	40.3	n.a.	10.0	9.8	9.4	7.5
India	2,135	2,418	2,443	2,660	4	4	4	4	21.1	21.1	22.1	21.1	3.9	3.9	3.4	2.8
Indonesia	350	452	n.a.	1,108	3	4	n.a.	9	19.7	21.8	n.a.	n.a.	3.2	3.3	3.6	n.a.
Japan	2,728	3,769	4,300	4,484	25	35	39	41	7.2	7.0	6.4	6.2	0.9	0.9	0.9	0.9
Korea, South	435	473	742	719	13	14	22	21	21.2	22.1	25.3	20.8	4.3	4.5	3.7	4.2
Malaysia	212	287	311	445	19	25	26	36	14.5	14.7	13.8	14.5	4.5	4.5	4.7	4.9
New Zealand	155	187	242	233	53	63	80	75	5.1	4.7	4.5	4.1	1.9	1.8	1.8	1.7
Pakistan	386	435	577	722	7	8	10	12	31.4	25.0	29.0	n.a.	6.8	8.0	6.8	7.6
Philippines	136	172	312	407	3	4	8	10	22.1	22.6	24.2	19.3	1.6	1.7	2.1	3.6
Singapore	168	210	225	269	78	96	101	118	20.8	15.4	16.5	14.1	6.6	5.8	4.9	4.4
Thailand	289	332	364	371	8	9	9	9	19.7	18.9	18.5	n.a.	3.9	3.8	3.6	3.2
Latin America																
Argentina	695	958	1,609	1,031	29	40	65	41	8.0	n.a.	8.5	9.7	1.6	1.5	1.3	1.9
Brazil	1,362	956	1,154	1,283	14	9	11	12	20.9	11.0	11.0	9.3	2.4	2.3	1.2	1.3
Colombia	98	93	102	n.a.	4	4	4	n.a.	11.1	8.9	8.0	n.a.	1.2	1.2	0.9	0.8
Mexico	281	352	423	n.a.	5	6	8	n.a.	n.a.	2.2	2.2	n.a.	0.7	0.7	0.7	0.7
Peru	215	238	226	n.a.	15	16	15	n.a.	14.6	13.6	9.9	n.a.	3.7	3.3	2.9	2.4
Uruguay	77	68	n.a.	n.a.	26	23	n.a.	n.a.	22.4	15.7	n.a.	n.a.	3.0	3.6	3.1	n.a.
Venezuela	305	325	406	494	28	29	35	41	8.8	9.8	8.9	5.1	2.2	2.3	2.0	2.1

* Financial assistance to West Berlin, if included, would make the entry read:
10,812 16,012 16,793 19,658 175 259 270 314 31.3 31.6 32.2 29.9 4.0 4.1 4.1 4.3

[a] This particular series is primarily designed to show recent national trends. It is only of limited use for international comparisons, because the size of the government sector varies widely between countries.

[b] Percentages calculated in local currency. Where official GNP figures are not available estimates have been made.

[c] This section is not directly comparable with the others, since the figures cannot be adjusted with any precision to conform to concepts in market economies.

[d] See p. 5.

[e] The defence expenditures of NATO countries conform to the NATO definition. For 1975 some of the figures are estimates derived from national definitions.

[f] Nine month figure only.

[g] Gross domestic product (GDP) at market prices, not GNP.

3. Comparisons of Military Manpower (in thousands)

Country	1971–75					1975					
	Numbers in armed forces					Armed forces				Estimated reservists[a]	Para-military forces
	1971	1972	1973	1974	1975	Army	Navy	Air	% of men 18–45		
Warsaw Pact											
Bulgaria	148.0	146.0	152.0	152.0	152.0	120.0	10.0	22.0	8.5	285.0	20.0
Czechoslovakia	185.0	185.0	190.0	200.0	200.0	155.0	—	45.0	6.7	350.0	20.0
Germany, East	126.0	131.0	132 0	145.0	143.0	98.0	17.0	28.0	4.3	260.0	80.0
Hungary	103.0	103.0	103.0	103.0	105.0	90.0	—	15.0	4.8	163.0	20.0
Poland	265.0	274.0	280.0	303.0	293.0	210.0	25.0	58.0	4.0	550.0	80.0
Romania	160.0	179.0	170.0	171.0	171.0	141.0	9.0	21.0	3.9	485.0	45.0
Soviet Union[b]	3,375.0	3,375.0	3,425.0	3,525.0	3,575.0	1,825.0	500.0	400.0	6.9	5,700.0	430.0
NATO											
Belgium	96.5	90.2	89.6	89.7	87.0	62.7	4.2	20.1	4.6	37.6	15.0
Britain[c]	380.9	372.3	361.5	354.6	345.1	174.9	76.1	94.1	3.4	242.4	—
Canada	85.0	84.0	83.0	83.0	77.0	28.0	14.0	35.0	1.7	18.4	—
Denmark	40.5	43.4	39.8	37.1	34.4	21.5	5.8	7.1	3.4	58.0	—
France	501.5	500.6	503.6	502.5	502.5	331.5	69.0	102.0	4.8	450.0	73.0
Germany, West	467.0	467.0	475.0	490.0	495.0	345.0	39.0	111.0	4.0	1,183.0	20.0
Greece	159.0	157.0	160.0	161.2	161.2	121.0	17.5	22.7	9.4	275.0	99.0
Italy	414.0	427.6	427.5	421.0	421.0	306.5	44.5	70.0	3.9	645.0	80.0
Luxembourg	0.6	0.6	0.6	0.6	0.6	0.6	—	—	0.8	n.a.	0.4
Netherlands	116.5	122.2	112.2	113.9	112.5	75.0	18.5	19.0	4.0	183.3	3.7
Norway	35.9	35.9	35.4	34.9	35.0	18.0	8.0	9.0	4.7	170.0	—
Portugal	218.0	218.0	204.0	217.0	217.0	179.0	19.5	18.5	14.0	562.0	9.7
Turkey	508.5	449.0	455.0	453.0	453.0	365.0	40.0	48.0	4.9	775.0	750.0
United States	2,699.0	2,391.0	2,252.9	2,174.0	2,130.0	785.0	733.0	612.0	5.1	926.0	—
Other European											
Austria	48.4	43.0	52.0	37.3	38.0	33.7	—	4.3	2.9	133.0	11.3
Eire	10.0	9.9	10.6	12.3	12.1	11.0	0.5	0.6	2.2	17.2	—
Finland	39.5	39.5	39.5	35.8	36.3	30.3	3.0	3.0	3.6	664.0	4.0
Spain	301.0	301.0	293.0	284.0	302.3	220.0	46.6	35.7	4.4	n.a.	65.0
Sweden	73.3	72.5	74.8	72.2	69.8	46.7	12.1	11.0	4.4	566.8	—
Switzerland	29.5	29.5	33.5	42.5	42.5	33.5	—	9.0	3.4	582.5	—
Yugoslavia	233.0	229.0	240.0	230.0	230.0	190.0	20.0	20.0	5.0	500.0	20.0
Middle East											
Algeria	60.3	60.2	63.0	63.0	63.0	55.0	3.5	4.5	2.2	50.0	10.0
Egypt	318.0	325.0	323.0	323.0	322.5	275.0	17.5	30.0	4.4	535.0	120.0
Iran	181.0	191.0	211.5	238.0	250.0	175.0	15.0	60.0	4.0	300.0	70.0
Iraq	95.3	101.8	101.8	112.5	135.0	120.0	3.0	12.0	7.3	250.0	20.0
Israel	75.0	77.0	115.0	145.5	156.0	135.0	5.0	16.0	24.4	244.0	9.0
Jordan	60.3	69.3	72.9	74.9	80.2	75.0	0.2	5.0	17.2	30.0	10.0
Libya	22.0	25.0	25.0	32.0	32.0	25.0	2.0	5.0	n.a.	n.a.	n.a.
Morocco	57.5	53.5	56.0	56.0	61.0	55.0	2.0	4.0	n.a.	n.a.	30.0
Saudi Arabia	41.0	40.5	42.5	43.0	47.0	40.0	1.5	5.5	n.a.	n.a.	16.0
Sudan	37.1	36.3	38.6	43.6	48.6	45.0	0.6	3.0	n.a.	n.a.	3.5
Syria	111.8	111.8	132.0	137.5	177.5	150.0	2.5	25.0	15.1	102.5	9.5
Africa											
Ethiopia	42.8	44.6	44.6	44.6	44.8	41.0	1.5	2.3	0.8	8.0	11.2
Nigeria	252.0	274.0	157.0	210.0	208.0	200.0	3.0	5.0	n.a.	12.0	—
Rhodesia	4.6	4.7	4.7	4.7	5.7	4.5	—	1.2	0.5[d]	10.0	43.0
South Africa	44.3	44.3	46.0	47.5	50.5	38.0	4.0	8.5	1.1[e]	151.4	75.0
Asia											
Australia	88.3	88.1	73.3	68.9	69.1	31.3	16.2	21.6	2.6	27.0	—
China	2,880.0	2,880.0	2,900.0	3,000.0	3,250.0	2,800.0	230.0	220.0	1.9	n.a.	10,300.0
China (Taiwan)	540.0	500.0	503.0	491.0	494.0	340.0	72.0	82.0	n.a.	1,005.0	175.0
India	980.0	960.0	948.0	956.0	956.0	826.0	30.0	100.0	0.8	200.0	150.0
Indonesia	319.0	317.0	322.0	270.0	266.0	200.0	38.0	28.0	1.1	n.a.	112.0
Japan	259.0	260.0	266.0	233.0	236.0	155.0	39.0	42.0	0.9	39.6	—
Korea, South	634.3	634.8	633.5	625.0	625.0	560.0	40.0	25.0	9.0	1,128.0	2,000.0
Malaysia	50.0	50.5	56.0	66.2	61.1	51.0	4.8	5.3	1.8	26 4	75.0
New Zealand	12.8	12.6	12.8	12.6	12.7	5.5	2 9	4.3	2.2	6.1	—
Pakistan	392.0	395.0	402.0	392.0	392.0	365.0	10.0	17.0	3.8	513.0	55.0
Philippines	34.6	31.0	42.7	55.0	67.0	39.0	14.0	14.0	0.9	218.5	59.9
Singapore	16.0	17.1	20.6	21.7	30.0	25.0	2.0	3.0	6.1	25.0	37.5
Thailand	175.0	150.0	180.0	195.5	204.0	135.0	27.0	42.0	2.7	200.0	63.0
Latin America											
Argentina	135.0	135.0	135.0	135.0	133.5	83.5	33.0	17.0	2.7	250.0	21.0
Brazil	195.0	198.0	208.0	208.0	254.5	170.0	49.5	35.0	1.3	n.a.	200.0
Colombia	63.2	63.2	63.2	63.2	64.3	50.0	8.0	6.3	n.a.	250.0	5.0
Mexico	320.0	323.2	321.0	332.0	332.5	315.0	11.5	6.0	3.4	n.a.	n.a.
Peru	54.0	54.0	54.0	54.0	56.0	39.0	8.0	9.0	1.9	n.a.	20.0
Uruguay	15.8	15.8	21.0	21.0	22.0	17.0	3.0	2.0	3.7	n.a.	22.0
Venezuela	31.0	33.5	37.5	39.5	44.0	28.0	8 0	8.0	2.0	n.a.	11.5

[a] Reservists with recent training.
[b] The service breakdown excludes *PVO-Strany* (500,000) and Strategic Rocket Forces (350,000).
[c] Includes men enlisted outside Britain.
[d] Or approximately 8.6 per cent of white males of 18–45.
[e] Or approximately 6.4 per cent of white males of 18–45.

4. Indices of NATO Defence Expenditure, Current and *Constant* Prices [a]
(in local currency, 1970=100)

Country	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	% growth 1960–74[b]
Belgium	53.9	55.0	59.6	62.9	70.0	70.9	75.1	81.1	87.1	90.4	100.0	105.8	117.7	130.5	152.8	7.7
	72.5	*73.3*	*78.3*	*81.0*	*86.4*	*84.2*	*85.6*	*89.8*	*93.9*	*94.0*	*100.0*	*101.3*	*107.0*	*110.9*	*115.2*	*3.4*
Britain	67.7	69.9	74.2	76.5	81.8	85.6	88.1	93.1	95.4	94.2	100.0	115.2	133.3	143.4	169.7	6.8
	100.6	*100.6*	*102.3*	*103.5*	*107.2*	*107.0*	*106.0*	*109.3*	*106.9*	*100.2*	*100.0*	*105.2*	*113.7*	*112.0*	*114.3*	*0.9*
Canada	80.3	83.3	87.8	83.1	88.0	80.5	85.7	95.3	93.5	92.1	100.0	103.4	108.6	116.7	134.4	3.7
	105.3	*108.0*	*112.6*	*104.6*	*109.0*	*97.2*	*99.8*	*107.2*	*101.1*	*95.2*	*100.0*	*100.6*	*100.8*	*100.6*	*104.5*	*0*
Denmark	40.4	42.8	56.3	59.9	64.0	71.6	75.4	81.6	94.0	95.8	100.0	115.9	122.8	127.7	157.5	10.2
	71.4	*73.0*	*89.6*	*89.8*	*93.0*	*98.7*	*97.0*	*97.3*	*103.7*	*102.0*	*100.0*	*109.4*	*108.9*	*103.6*	*110.8*	*3.2*
France	57.7	61.4	66.8	68.8	73.1	76.2	80.5	87.1	91.0	95.5	100.0	105.4	110.8	121.2	132.4	6.1
	85.7	*89.1*	*92.1*	*90.3*	*93.0*	*94.4*	*97.1*	*102.3*	*102.3*	*101.1*	*100.0*	*99.8*	*99.2*	*101.1*	*97.1*	*0.9*
Germany	53.7	58.4	76.3	88.3	86.6	88.2	89.7	94.8	85.5	95.6	100.0	112.7	127.2	141.4	159.3	8.1
	70.2	*74.6*	*94.5*	*106.4*	*101.8*	*100.7*	*98.7*	*102.6*	*91.1*	*99.2*	*100.0*	*107.2*	*114.6*	*119.0*	*125.3*	*4.2*
Greece	36.0	35.4	35.9	37.9	39.7	44.3	50.5	66.1	77.4	89.8	100.0	109.0	121.1	139.8	169.9	11.7
	44.2	*42.7*	*43.5*	*44.5*	*46.3*	*50.2*	*54.3*	*70.0*	*81.7*	*92.6*	*100.0*	*105.8*	*112.6*	*112.9*	*108.1*	*6.6*
Italy	45.5	48.0	55.1	66.0	71.6	77.6	85.9	87.0	89.8	90.4	100.0	118.6	138.4	153.1	171.3	9.9
	67.0	*69.3*	*76.0*	*84.6*	*86.7*	*89.9*	*97.1*	*95.0*	*96.8*	*94.8*	*100.0*	*113.1*	*125.0*	*124.7*	*117.1*	*4.1*
Luxembourg	63.2	69.7	85.3	83.7	111.1	114.7	119.5	99.3	89.9	94.0	100.0	106.3	124.3	144.5	162.7	7.0
	81.5	*89.5*	*108.4*	*103.6*	*133.2*	*133.1*	*134.1*	*109.1*	*96.3*	*98.5*	*100.0*	*101.6*	*112.9*	*124.1*	*128.7*	*3.3*
Netherlands	43.5	50.7	55.1	58.1	67.1	68.4	70.3	80.6	82.7	92.8	100.0	112.6	125.4	137.7	162.2	9.9
	65.6	*75.2*	*80.2*	*81.5*	*89.1*	*87.5*	*84.0*	*93.1*	*92.0*	*96.1*	*100.0*	*104.7*	*108.2*	*110.0*	*118.1*	*4.3*
Norway	38.1	42.5	49.4	52.8	56.6	68.4	70.2	75.6	82.9	90.2	100.0	108.9	116.8	126.4	147.1	10.1
	59.2	*64.4*	*71.1*	*74.1*	*75.1*	*87.0*	*86.5*	*89.3*	*94.5*	*99.8*	*100.0*	*102.5*	*102.6*	*103.5*	*109.9*	*4.5*
Portugal	24.1	39.3	45.8	45.7	51.5	53.3	59.0	76.4	85.3	86.0	100.0	117.2	128.0	133.5	166.8	14.7
	37.3	*59.9*	*68.0*	*66.5*	*72.5*	*72.5*	*76.4*	*93.7*	*98.7*	*91.0*	*100.0*	*104.7*	*103.3*	*95.4*	*94.8*	*6.9*
Turkey	38.6	43.6	47.8	50.6	55.2	61.3	64.1	73.7	82.7	86.5	100.0	136.1	159.7	195.5	253.8	14.4
	68.4	*75.4*	*79.3*	*78.7*	*85.2*	*90.5*	*87.9*	*87.7*	*93.0*	*92.6*	*100.0*	*114.3*	*123.6*	*131.1*	*147.0*	*5.6*
United States	58.3	61.4	67.3	67.2	65.8	66.6	81.7	96.9	103.7	104.6	100.0	96.2	99.7	100.8	108.3	4.5
	76.5	*79.6*	*86.4*	*85.1*	*82.4*	*82.1*	*97.6*	*112.7*	*115.7*	*110.8*	*100.0*	*92.3*	*92.6*	*88.1*	*85.3*	*0.8*

[a] To produce constant price series (in italics) defence expenditures are deflated by consumer price indices. These reflect general rates of inflation, not rates in the defence sector.
[b] Average annual compound growth rate between 1960 and 1974.

5. Comparative Strengths of Armed Forces 1954-1974 (in thousands)

Year	USA	Japan	W. Germany	France	Britain[a]	USSR
1954	3,350	146[b]	15	600	840	4,750
1955	3,049	178	20	568	800	5,000
1956	2,857	188	66	785	760	4,500
1957	2,800	202	122	836	700	4,200
1958	2,637	214	175	797	615	4,000
1959	2,552	215	249	770	565	3,900
1960	2,514	206	270	781	520	3,623
1961	2,572	209	325	778	455	3,800
1962	2,827	216	389	742	445	3,600
1963	2,737	213	403	632	430	3,300
1964	2,687	216	435	555	425	3,300
1965	2,723	225	441	510	424	3,150
1966	3,123	227	455	500	418	3,165
1967	3,446	231	452	500	417	3,220
1968	3,547	235	440	505	405	3,220
1969	3,454	236	465	503	383	3,300
1970	3,066	259	466	506	373	3,305
1971	2,699	259	467	502	365	3,375
1972	2,391	260	467	501	363	3,375
1973	2,253	266	475	504	352	3,425
1974	2,174	233	490	503	345	3,525

[a] Excluding forces enlisted outside Britain.
[b] Self-Defence Forces.

6. Strength of Military Formations (in thousands)

	Division (in men)			Brigade (in men)	Squadron (in aircraft)		
Country	Mechanized	Armoured	Airborne	Mechanized	Bomber/ fighter-bomber	Fighter	Transport
United States	16,300[a]	16,500	13,000	4–5,000	12–18	18–24	16
Soviet Union	12,000	9,500	7,000	2,000[b]	9–12	12	8–10
China	12–14,000	10,000	6,000	3,000[b]	9–10	10–12	8–10
Britain[c]	12,500	12,500	—	4–5,000	8–12	12	9–12
France	16,000	—	12,000	5,000	4–15	12–15	16–30
Germany (West)	15,500	14,500	8–9,000	4–5,000	15–21	15–21	12–18
India	17,500	12,000	—	4,500	12–20	20	12–20
Israel	—	—	—	3,500	10–12	20–24	12
Egypt	11,800	11,200	—	3,500	10–12	12–20	8–10

[a] Army divisions only; a Marine Corps division has 18,000 men.
[b] Strength of a regiment, which is the equivalent formation in the Soviet and Chinese command structure. (The term 'regiment' is, however, often employed, particularly in West European countries, to describe a battalion-size unit, and it is so used in *The Military Balance*.)
[c] Britain is proposing to eliminate the brigade as a formation and have armoured divisions and some mechanized formations smaller than the divisional figures indicate.

Divisional strengths cover organic units only and exclude support units or services outside the divisional structure. Warsaw Pact formations and squadrons have strengths similar to those of the Soviet Union. NATO formations and squadrons not included in the table have similar totals to those of Germany unless otherwise mentioned in the text. Iran, Pakistan, the Philippines, Thailand, Japan, South Korea and Taiwan have tended to adopt American military organization, while Australia, New Zealand, Malaysia and Singapore generally follow British practice.

The Theatre Balance Between NATO And the Warsaw Pact

Any assessment of the military balance between NATO and the Warsaw Pact involves comparison of the strengths of both men and equipment, consideration of qualitative characteristics, factors such as geographical advantages, deployment, training, and logistic support, and differences in doctrine and philosophy.

Certain elements in the equation are of special importance. For a variety of reasons, the Soviet Union has within the theatre, or nearby, forces which closely reflect her doctrine and strategy; on the other hand, NATO, bound as it is by a multi-national political process and by public pressures that do not exist in the Soviet Union, has tended to compromise on its military requirements. Warsaw Pact equipment, though often inferior to that of NATO, is standardized, whereas that of NATO is not, and is therefore subject to limitations on interoperability and thus flexibility. NATO has certain strengths, such as the striking power of its tactical air forces but there is little depth in the NATO central sector, which presents problems in its defence. On the other hand, the Warsaw Pact has its own vulnerabilities, notably in logistics, in addition to which there may be doubts about the reliability of some of its members and the value of their forces.

The appraisal which follows should therefore be regarded as primarily a quantitative guide, since there are difficulties in giving, in so short a space, values to qualitative factors and deciding on their relevance. It is military only, and thus one-dimensional. Furthermore, any single, static comparison of opposing forces can only give a limited insight into what might happen under the dynamic conditions of conflict. The two sides do not have the same military requirements: Soviet forces are designed for an offensive, NATO forces for defence, for creating at least a reasonable Soviet doubt about the possibility of the speedy success of a conventional attack and the nuclear consequences that might follow. This presentation necessarily oversimplifies what is by its nature a complex problem, not easily responsive to analysis.

The characteristics of the military balance are central to any consideration of Mutual Force Reductions (MFR), but the geographical area being considered in the MFR negotiations covers, for the moment at least, only part of the NATO area. A section at the end of this appraisal notes some special factors with which MFR discussions may be concerned.

LAND AND AIR FORCES

The three major NATO subordinate commands, Northern, Central, and Southern Europe, at first seem to offer a convenient basis for making a direct comparison with the opposing forces of the Warsaw Pact, but there are problems. The Northern European Command covers not only Norway but also the Baltic area, including Denmark, Schleswig-Holstein, and the Baltic Approaches. It is not possible to make precise calculations as to the Warsaw Pact formations that would be committed to the Baltic area rather than towards the NATO Central European Command, since in both land and air forces there is a considerable degree of flexibility to do either. For the Warsaw Pact this sector is a coherent front, though a number of Soviet divisions, discussed later, are undoubtedly directed towards Norway. Northern and Central Europe are therefore grouped together in the tables which follow. Southern Europe is shown separately.

GROUND FORMATIONS

A traditional basis of comparison is the number of combat divisions that the two sides have (shown in the table below). This is far from an adequate guide by itself, since not only do divisions vary greatly in their organization, size, and equipment, but there are many combat units outside divisional structures. As a very broad indication of the front-line combat resources on the ground in peacetime a divisional count has some utility if taken in conjunction with the various tables which follow, but to read too much into it could be misleading.

Ground Forces Available in Peacetime (division equivalents)	Northern and Central Europe			Southern Europe		
	NATO	Warsaw Pact	(of which USSR)	NATO	Warsaw Pact	(of which USSR)
Armoured	12	31	19	6	7	3
Infantry, mechanized, and airborne	15	37	21	33	24	5

In this table (and the ones that follow in this section), the portion headed 'Northern and Central Europe' includes (on the NATO side) the commands for which AFCENT and AFNORTH commanders have responsibility. France is not included, nor are any allied ground forces in Portugal or Britain. On the Warsaw Pact side it includes the command for which the Pact High Commander has responsibility, but excludes the armed forces of Bulgaria, Hungary, and Romania. Certain Soviet units normally stationed in western USSR and such troops as might be committed to the Baltic and Norwegian theatre of operations have, however, been included on the Warsaw Pact side. The entries under the heading 'Southern Europe' include, on the NATO side, the Italian, Greek, and Turkish land forces (including those in Asian Turkey) and such American and British units as would be committed to the Mediterranean theatre of operations, and on the Warsaw Pact side, the land forces of Bulgaria, Hungary, and Romania and such Soviet units normally stationed in Hungary and the southern USSR as might be committed to the Mediterranean theatre. (In the table, all divisions, brigades, and similar formations are aggregated on the basis of three brigades per division.)

Greek forces are included in the table. French formations are not; if included they would add two mechanized divisions to the NATO totals. These are the two divisions stationed in Germany. There are four more in France, outside the NATO area. Though these divisions are stationed in Germany, and there has been some joint planning with NATO military commanders, they are not committed to NATO and have no operational sectors, and there has been far from full agreement on the military strategy under which they might be employed. All the appropriate forces of the Warsaw Pact countries are included, though the military value of some of them might be suspect for political reasons, dependent on circumstances. An offsetting advantage to NATO in the central sector is the fact that most of the NATO strength is in West Germany, where it is wanted, while about a third of the Soviet divisions shown here are some distance away in the western military districts of the Soviet Union. The figures for Northern and Central Europe therefore show what is, from a NATO viewpoint, the worst case; those for Southern Europe show the best.

The table conceals a marked imbalance in North Norway. In Norway there are only Norwegian forces, a brigade group being located in the north. There are strong Soviet forces in the Kola peninsula, some two divisions and a marine brigade, and at least five divisions in the Leningrad Military District with more to the south in the Baltic states. While many of these formations may have other missions, it is clear that large forces could be brought against Norway (and indeed Denmark) and could be rapidly reinforced. The Soviet naval strength in the region is massive, and sea power, including amphibious capacity, is an important element in the balance. The wide disparity highlights the problem of the defence of North Norway against surprise attack. To meet this difficulty a system of self-defence, based on a powerful Home Guard and rapid mobilization, has been designed to take maximum advantage of the ruggedness of the country and the poor road and rail communications, but it is clear that defence against attack of any size depends on timely external assistance, including naval support.

Two further imbalances are worth noting. The first is that the whole of the Italian land forces, included in the table under Southern Europe, are stationed in Italy and are thus at some distance from the areas of potential confrontation both in the South-East and the Centre. The second, a legacy from the post-war occupation zones, is a certain

maldeployment in the Central European Command, where the strong American formations are stationed in the Southern sector, an area which for the most part lends itself to defence, while in the north German plain, across which the routes to allied capitals run and where there are few major obstacles, certain of the forces are less powerful. (This pattern of deployment also leaves US forces reliant on logistic communications running north/south, since they can no longer use French territory.) In wartime, lateral movement of forces might have to be made and, in particular, reinforcements would have to be directed to the sector where they were most needed rather than to existing national sectors. In peacetime, however, adjustment would be very costly, involving problems of barracks and logistics, and the money is perhaps better spent on equipment instead, unless change is made possible by other factors such as redeployment through MFR.

MANPOWER

A comparison of front-line combat manpower deployed on the ground in normal peacetime circumstances (as distinct from total manpower, which is referred to later) fills out the picture further. The figures shown reflect the variations in divisional establishments mentioned above but also include combat troops in formations higher than divisions and those men who directly support them. They take account of undermanning as well—many NATO and Warsaw Pact divisions are kept well below strength in peacetime. Figures calculated on this basis, which can only be very approximate, give the following comparison:

	Northern and Central Europe			Southern Europe		
	NATO	Warsaw Pact	(of which USSR)	NATO	Warsaw Pact	(of which USSR)
Combat and direct support troops available (000)	625	895	595	575	345	115

The figures do not include French forces; if those stationed in Germany are counted the NATO figure for Northern and Central Europe might be increased by perhaps 50,000. Again, they include Greece.

The table still reveals a marked advantage to the Warsaw Pact in Northern and Central Europe (subject to the caveat about the value to be placed on the forces of the East European countries). It does not, of course, include the men in the American dual-based brigades, because they are not physically present in Europe, but does include on the Warsaw Pact side some 185,000 in, or in direct support of, divisions in the western Soviet Union, since these formations are clearly designed for operations in Central Europe, though they are at some distance in time and space from the area.

In Southern Europe the figures favour NATO but conceal the fact that the forces are widely separated, with Italian troops deployed at a very considerable distance from those of Greece and Turkey.

REINFORCEMENTS

The movement of reinforcements to the theatre and the mobilization of first-line reserves would materially alter the above figures. Indeed there are severe limitations in comparing purely peacetime strengths, since in crisis or conflict the total combat manpower that can be brought to bear in time becomes the key indicator. There are, however, acute difficulties in making a numerical comparison of anything other than the numbers of reinforcements potentially available, since there are so many variables and a good many unknowns affecting the speed with which reinforcements and reserves could or would be deployed operationally.

Implicit in NATO defence plans is the concept of political warning time: that there will be enough warning of a possible attack to enable forces to be brought to a higher state of readiness, and reinforcement and mobilization to take place. This does, of course, assume the willingness—which applies to both sides—to reinforce in a crisis situation, at the risk of

heightening tension by doing so. Advantage here will generally lie with an attacker, who can start mobilization first, hope to conceal his intentions, and finally achieve some degree of tactical surprise. The point of attack can be chosen and a significant local superiority built up. The defender is likely to start more slowly and will have to remain on guard at all points.

	Divs			Indep bdes/regts			Marines	
	Armd	Mech	Other	Armd	Mech	Other	Divs	Bdes
Active Forces								
United States	1	1	5	—	2	—	2	—
Belgium	—	—	—	—	1	1	—	—
Britain	—	—	1	—	—	4	—	1
Canada	—	—	—	—	—	3	—	—
Netherlands	—	—	—	1	4	—	—	—
West Germany	—	—	—	—	—	5	—	—
France	—	3	1	—	—	—	—	—
Totals	1	4	7	1	7	13	2	1
Reserve Forces								
United States	2	1	5	3	7	6	1	—
Belgium	—	—	—	—	1	1	—	—
Britain	—	—	—	—	—	—	—	—
Canada	—	—	—	—	—	—	—	—
Netherlands	—	—	1	—	—	1	—	—
West Germany	—	—	—	—	—	—	—	—
Totals	2	1	6	3	8	8	1	—
Grand Totals	3	5	13	4	15	21	3	1

In this table, two brigades, one each from the US armoured and mechanized divisions, are to be deployed to Europe, dual based. British active forces are to be reduced by 1979 to one army and one marine brigade. West Germany's forces are Home Defence Groups of brigade size which could have limited defensive combat tasks. Concerning Reserve Forces, some countries, particularly Britain, Canada, the Netherlands, and France, may have plans to mobilize battalion-sized units in some numbers in addition to the formations shown here.

NATO forces would be built up from two sources: the mobilization of reserves to strengthen or increase the number of existing formations, and the movement into the theatre of active army formations stationed elsewhere in peacetime.

Potentially the most rapid build-up of any size would be that from the mobilization of reserves in Europe, occurring within days. This applies particularly to Germany, where reserves would bring units up to war-time strength (but not increase their number) and mobilize the Territorial Army of some 220,000 men, designed to assist with home defence. Other European nations could also use mobilized reserves to strengthen units and, in certain cases, augment them with others. Formations from outside the immediate area would come from Canada, Britain, Belgium, the Netherlands, and possibly France, but principally from the United States. There are two dual-based brigades and two divisions in the United States, all with their equipment stockpiled in Germany, and their personnel could be moved quickly, using the very considerable airlift capacity available. (One brigade from each of these two divisions is shortly to be based in Germany in peacetime.) There are in the United States at least another 7 divisions (one with heavy equipment) plus several brigades also available for use in Europe, but, though they might be available very early, much of their equipment would have to be moved by sea. The same would apply to the 8 divisions and some 16 independent brigades in the National Guard; these could nominally be ready perhaps five weeks after mobilization but might need further training (as might Soviet reserves). The table above summarizes the formations that NATO countries have available to provide reinforcements for the critical central sector.

Warsaw Pact reinforcement plans follow a rather different pattern. There are a large number of active Soviet divisions, but they are kept at three different manning levels, and other Warsaw Pact formations at two. Reinforcement depends on filling out these divisions by mobilization and on moving some forward from the Soviet Union. All Soviet divisions stationed in East Germany, Poland, or Czechoslovakia are in Category 1 and would need little reinforcement, but some of those of the East European countries in the central sector are at a lower level. The divisions in the Soviet Union which would move forward first would be those in the western part of the country, of which up to a third are normally in Category 1.

With more time and risk, reinforcing divisions could also be deployed from as far away as the Sino-Soviet border area. The total number and state of readiness of Soviet and East European divisions (which, it will be remembered, are smaller than those of NATO) is shown in the following table:

	Armd divs			Mech divs			Other divs			Indep bdes		
	Category			Category			Category			Category		
	1	2	3	1	2	3	1	2	3	1	2	3
Czechoslovakia	5	—	—	3	2	—	—	—	—	1	—	—
East Germany	2	—	—	4	—	—	—	—	—	—	—	—
Poland	5	—	—	6	2	—	2	—	—	—	—	—
Soviet divs												
In above area	14	—	—	13	—	—	—	—	—	—	—	—
Elsewhere	12	12	11	28	32	37	2	4	1	—	—	—
Soviet totals	26	12	11	41	32	37	2	4	1	—	—	—

Included among the divisions deployed 'elsewhere' are 4 Category 1 divisions in Hungary and a number of divisions that might reinforce Southern Europe rather than the central sector. Soviet naval infantry are not included.

As far as can be judged, mobilization by the Soviet Union in particular could be very speedy, and it has been estimated that the 27 Soviet divisions in Eastern Europe could be increased to between 70 and 80 in a few weeks—if mobilization were unimpeded. Of course it might not be. If hostilities had already started, movement by rail and road could be interdicted and the build-up be slowed down considerably. Nonetheless, the Soviet Union, a European power operating on interior lines, has geographical advantages and in the early weeks should be able to move reinforcements with heavy equipment faster overland than the United States could by sea, and she could also use heavy airlift. American ability to bring back the men of the dual-based brigades in days by air has been demonstrated on exercises, and for the two divisions with equipment in Germany the airlift of personnel would be a matter of another week or so. As with Soviet Forces, this would depend on movement not being hindered, on a secure air environment, and safe airfields to fly into; and quick dispersal from airfields could be difficult once fighting had started. The increase of manpower strengths in combatant units could take place rapidly, both from the United States and from the European NATO countries, but the real problem for a fast build-up of the number of combat divisions lies in the inevitable time lag before the American follow-up formations, dependent on sealift for their heavy weapons, could be ready for operations.

A fair summary of the initial reinforcement position might be that the Warsaw Pact is intrinsically capable of a faster build-up of formations in the early weeks, particularly if local surprise is achieved, and has a large pool on which to draw; that NATO can only match such a build-up if it has, and takes advantage of, sufficient warning time; that the subsequent rate of build-up of formations also favours the Warsaw Pact unless the crisis develops slowly enough to permit full reinforcement; in this last case the West could eventually reach an advantageous position. Alliance countries maintain rather more men under arms than the Warsaw Pact. For Army/Marines the figures (in thousands) are: NATO 2,690 (3,021 including France); Warsaw Pact 2,666. And the Soviet Union has a large proportion of her forces on her border with China. Clearly, Soviet plans will put a premium on exploiting a fast build-up of forces, and NATO's on having adequate standing forces to meet any attack and on augmenting them in good time.

COMPARISON OF EQUIPMENT

In a comparison of equipment one point stands out: the Warsaw Pact is armed almost completely with Soviet or Soviet-designed material and enjoys the flexibility, simplicity of training, and economy that standardization brings. NATO forces have a wide variety of everything from weapons systems to vehicles, with consequent duplication of supply systems and some difficulties of inter-operability; they do, however, have many weapons qualitatively superior. As to numbers of weapons, there are some notable differences, of which that in tanks is perhaps the most significant. The relative strengths are:

	Northern and Central Europe			Southern Europe		
	NATO	Warsaw Pact	(of which USSR)	NATO	Warsaw Pact	(of which USSR)
Main battle tanks in operational service in peacetime	7,000	19,000	11,500	3,500	7,250	2,250

These are tanks with formations, or which are earmarked for the use of dual-based or immediate reinforcing formations (some 750). They do not include those in reserve, or small stocks held to replace tanks damaged or destroyed. In this latter category NATO has perhaps 1,750 tanks in Europe. There are tanks in reserve in the Warsaw Pact area, but the figures are difficult to establish. The total tank holdings are, however, materially higher than the formation totals in the table.

Again, French forces are not included in the above figures. If the two divisions stationed in Germany are taken into account, 325 should be added to the NATO total; if the three divisions in eastern France are counted, a further 485 should be added.

It will be seen that in Northern and Central Europe NATO has little more than a third as many operational tanks as the Warsaw Pact, though NATO tanks are generally superior (even to the T-62, now increasingly coming into service in the Pact forces). This numerical weakness in tanks (and in other armoured fighting vehicles) reflects NATO's essentially defensive role and is offset to some extent by a superiority in heavy anti-tank weapons, a field in which new missiles rapidly coming into service in NATO forces will increasingly give more strength to the defence. NATO probably also has more effective airborne anti-tank weapons carried by fighter aircraft and helicopters.

The Warsaw Pact is also significantly stronger in conventional artillery in Northern and Central Europe: counting field, medium, and heavy guns, mortars and rocket launchers with formations, NATO has some 2,700 against a Warsaw Pact total of 5,600. In Southern Europe the position reverses, NATO having 3,300 against 2,500 in the Warsaw Pact, though about one-third of the NATO total is in Italy. To some extent the imbalance is redressed by the greater lethality of NATO ammunition and a greater logistic capacity to sustain higher rates of fire, stemming from a much higher transport lift. Soviet forces are, however, augmenting their logistics, and new self-propelled guns are being introduced. NATO is also modernizing its artillery, in which it has achieved a fair degree of standardization, and in particular is developing a precision-guided shell which would give artillery, *inter alia,* a much improved anti-tank capability.

LOGISTICS

NATO has an inflexible logistic system, based almost entirely on national supply lines with little central co-ordination. It cannot now use French territory and has many lines of communication running north to south near the area of forward deployment. Certain NATO countries are, furthermore, short of supplies for sustained combat, but Warsaw Pact countries may well be no better off.

AIRCRAFT

If NATO ground formations are to be able to exploit the mobility they possess by day as well as by night, they must have a greater degree of air cover over the battlefield than they now have. Such cover is provided by a combination of rapid warning and communications systems, fighter aircraft, and air defence weapons. In numbers of aircraft NATO is inferior but has, however, a higher proportion of multi-purpose aircraft of good performance over their full mission profiles, especially in range and payload; considerable power can be deployed in the ground-attack role in particular. Many of the Warsaw Pact aircraft are rather elderly, but both sides are modernizing their inventories, and the US forces in Europe in particular can now be assumed to have available very advanced air-delivered weapons, such as laser-guided bombs and other precision-guided munitions. The two air forces have rather different roles: long range and payload have had lower priority for the Warsaw Pact. NATO, for example, has maintained a long-range deep-strike tactical aircraft capability; the Soviet Union has chosen to build an MRBM force which could, under certain circumstances, perform analogous missions, though not in a conventional phase of any battle, for which a new fighter has been designed.

Tactical Aircraft in Operational Service	Northern and Central Europe			Southern Europe		
	NATO	Warsaw Pact	(of which USSR)	NATO	Warsaw Pact	(of which USSR)
Light bombers	150	225	200	8	30	30
Fighter/ground-attack	1,250	1,325	900	450	200	50
Interceptors	350	2,000	950	275	625	200
Reconnaissance	300	475	350	125	75	30

The area of Northern and Central Europe in the table above is slightly wider than for ground troops described previously. Many aircraft have a long-range capability and in any case can be re-deployed very quickly. Accordingly, the figures here include the appropriate British and American aircraft in Britain, American aircraft in Spain, and Soviet aircraft in the Western USSR. They do not, however, include the American dual-based squadrons, which would add about 100 fighter-type aircraft to the NATO totals, nor French squadrons with perhaps another 400 fighters. Carrier-borne aircraft of the US Navy are excluded, but so are the medium bombers in the Soviet Air Force, which could operate in a tactical role.

The Warsaw Pact enjoys the advantage of interior lines of communication, which makes for ease of command and control and logistics. It has a relatively high capability to operate from dispersed natural airfields serviced by mobile systems, far from airfields, and the great advantage of standard ground support equipment which stems from having only Soviet-designed aircraft. These factors make for greater flexibility than NATO has, with its wide variety of aircraft and support equipment. NATO suffers from having too few airfields, which are thus liable to be crowded. It undoubtedly has superiority in sophistication of equipment, the capability of its air crews (which in general have higher training standards and fly more hours), and the versatility of its aircraft, which gives operational flexibility of a different kind. NATO's real advantage, however, is that it has more reinforcement aircraft. Since squadrons can be moved quickly, the NATO numerical inferiority shown above could rapidly be turned into superiority if enough airfields were available. The total American tactical aircraft inventory, for example (excluding training or home air defence), is 5,000, and there are other allied aircraft as well; that for the Soviet Union is 4,500.

The Soviet Union has always placed heavy emphasis on air defence, evident not only from the large number of interceptor aircraft in the table but from the strength of its deployment of surface-to-air missiles and air defence artillery both in the Soviet Union and with units in the field. These defences would pose severe problems for NATO attack aircraft, drawing off much effort into defence suppression. NATO territory and forces are much less well provided with air defences, but much expenditure is now going into new systems of many sorts, both low and high level, missiles and artillery.

THEATRE NUCLEAR WEAPONS

NATO has some 7,000 nuclear warheads, deliverable by a variety of vehicles, over 2,000 in all, aircraft, short-range missiles, and artillery of the types listed in Table I, p. 92. These nuclear weapons are in general designed for use against targets within the battlefield area or directly connected with the manoeuvre of combatant forces—which could be described as a 'tactical' use. The figure of 7,000 warheads includes, however, a substantial number carried by aircraft such as the F-4 or F-104, which could be delivered on targets outside the battlefield area or unconnected with the manoeuvre of combatant forces, and thus be put to 'strategic' use. There is inevitably some overlap when describing delivery vehicles, aircraft and missiles capable of delivering conventional or nuclear warheads as 'tactical' or 'strategic'. The total of 7,000 also includes nuclear warheads for certain air-defence missiles and nuclear mines. Yields are variable but are mainly in the low kiloton range. The ground-based missile launchers and guns are in formations down to divisions and are operated both by American and allied troops, but in the latter case warheads are under double key. The figure for Soviet warheads is probably about 3,500, similarly delivered by aircraft and missile systems (see Table I). Soviet warheads are thought to be somewhat larger, on average, than those of NATO. Some of the delivery vehicles, but not the warheads, are in the hands of non-Soviet Warsaw Pact forces.

This comparison of nuclear warheads must not be looked at in quite the same light as the conventional comparisions preceding it, since on the NATO side the strategic doctrine is not, and cannot be, based on the use of such weapons on this sort of scale. These numbers were accumulated to implement an earlier, predominantly nuclear, strategy, and an inventory of this size now has the chief merit of affording a wide range of choice of weapons, yield, and delivery system if controlled escalation has to be contemplated. A point that does emerge

from the comparison, however, is that the Soviet Union has the ability to launch a battlefield nuclear offensive on a massive scale if she chooses, or to match any NATO escalation with broadly similar options.

CHANGES OVER TIME

The comparisons above are not very different from those of a few years ago, but over a longer period the effect of small and slow changes can be marked, and the balance can alter. In 1962 the American land, sea, and air forces in Europe totalled 434,000; now the figure is around 300,000. There were 26 Soviet divisions in Eastern Europe in 1967; now there are 31. The United States is now in the course of increasing the formations in Europe by two brigades (not increasing numbers of men; savings are being made in noncombat troops), but the numerical pattern over the years so far has been a gradual shift in favour of the East; qualitatively NATO has more than held its own. In future the advent of new weapon systems, particularly precision-guided munitions and anti-tank and air defence missiles, may cut into the Warsaw Pact's advantage in tank and aircraft numbers. The extent to which negotiated force reductions may affect the balance also remains to be seen.

SUMMARY

It will be clear from the foregoing analysis that a balance between NATO and the Warsaw Pact cannot be struck by a mere comparison of manpower, combat units, or equipment. In the first place, the Pact has numerical superiority by some measures, and NATO by others, and there is no fully satisfactory way to compare these asymmetrical advantages. Secondly, qualitative factors that cannot be reduced to numbers, such as training, morale, leadership, tactical initiative, and geographical positions could prove dominant in warfare. However, three observations can be made by way of a summary:

First, the overall balance is such as to make military aggression appear unattractive. The defences are of such a size and quality that any attempt to breach them would require major attack. The consequences for an attacker would be incalculable, and the risks, including that of nuclear escalation, must impose caution. Nor can the theatre be seen in isolation: the central strategic balance and the maritime forces (not least because they are concerned to keep open sea lanes for reinforcements and supplies, and because of their obvious role in the North and in the Mediterranean) play a vital part in the equation as well.

Second, NATO has emphasized quality, particularly in equipment and training, to offset numbers, but this could be eroded. New technology has strengthened the defence, but it will become increasingly expensive in the future. If defence budgets in the West shrink and manpower costs continue to rise, the Warsaw Pact may be able to buy more of the new systems than NATO. Furthermore, technology cannot be counted on to offset numerical advantages entirely.

Third, while an overall balance can be said to exist today, the Warsaw Pact appears more content with it than NATO. It is NATO that seeks to alter the numerical balance through Mutual Force Reductions while the Pact seeks to maintain the existing correlation.

MUTUAL FORCE REDUCTIONS

Negotiations on the mutual reduction of forces and armaments and associated measures in Central Europe have been under way since 30 October 1973. 'Central Europe' was not defined in the communiqué agreed in the preparatory consultations, but, for the moment at least, the talks have been concerned with forces and armaments in Poland, Czechoslovakia, East Germany, West Germany, the Netherlands, Belgium, and Luxembourg. France is taking no part in the discussions, so her forces are presumably excluded (except, perhaps, under certain circumstances, the two divisions in Germany), as are any Soviet or NATO troops not stationed in the area described. Forces stationed in Berlin under quadripartite jurisdiction are unlikely to be covered *per se*.

Since the area is a narrower one than that with which this appraisal has largely been concerned, and total manpower rather than combat strength is a main yardstick, the next table has been constructed to show the basic figures from which NATO negotiators will have started. The manpower figures are for ground forces and marines, in thousands. The tanks represent those in formations and exclude reserve stocks.

NATO	Manpower		Equipment		Warsaw Pact	Manpower		Equipment	
	Ground	Air	Tanks	Air-craft		Ground	Air	Tanks	Air-craft
United States	198	41	2,100	280	Soviet Union	460	45	8,000	1,200
Britain	55	9	650	130	Czechoslovakia	155	45	2,600	450
Canada	3	2	30	50	East Germany	100	28	1,650	325
Belgium	63	20	375	140	Poland	210	60	3,200	825
Netherlands	78	21	525	160					
West Germany	345	117	2,650	550					
	742	210	6,330	1,310					
France	58		325						
Total	800	210	6,655	1,310	Total	925	178	15,450	2,800

The two sides each made initial proposals. NATO suggested reductions in two phases. The first phase would involve a 15 per cent cut in American and Soviet ground troops in the MFR area, which would, on the above figures, leave 168,000 American troops (a reduction of 30,000) and 391,000 Soviet troops (a reduction of 69,000). In the second phase there would be a reduction of all NATO and Warsaw Pact ground forces to a common ceiling of 700,000, involving further cuts by NATO of 70,000 and by the Warsaw Pact of 166,000. No doubt a reason for proposing that cuts should start with ground forces is that this could be a simple matter, free from the complexities that would be introduced by including other services (and their equipment?). The problem is somewhat complicated, however, by the fact that some countries have surface-to-air forces in their armies, others in their air forces.

The Warsaw Pact proposal covered both ground and air forces in the area. The base figures from which it might start would be: NATO 1,010,000; Warsaw Pact 1,100,000. The proposal envisaged cuts in three stages: an initial reduction of 20,000 by both sides by 1975, leaving figures of 990,000 and 1,079,000; a second reduction of 5 per cent by 1976, leaving 940,000 and 1,025,000; and a third and final reduction of 10 per cent by 1977. The figures would then be 845,000 air and ground forces for NATO and 925,000 for the Warsaw Pact.

The Warsaw Pact negotiators have also proposed that aircraft in the area should be included in MFR (see table above), as should nuclear forces (see Table I, p. 92, for details of types and some numbers). NATO has an interest in reducing the considerable disparity in tanks that the table above shows.

A NOTE ON COMPARING COSTS OF VOLUNTEER AND CONSCRIPT FORCES

Manpower costs now constitute a significant proportion of all defence budgets, irrespective of the way they are costed, but the fact that they can be costed in different ways greatly inhibits comparison between them. In a conscript system men are unlikely to be paid market wages; they are obliged by law to serve in the armed forces and so there is little compelling reason for their employer, the taxpayer, to offer them market rates: with an all-volunteer force, on the other hand, such wages must be paid in order to attract enough men. Under the conscript system the taxpayer is, in effect, subsidized by the conscript, who, in addition to his normal taxes, bears an extra implicit 'tax' in unrequited labour (about equal to the difference between the money that would just induce him to serve freely and what he actually receives). The budgetary costs of manpower are thus distributed differently under the two systems. With a voluntary system the taxpayer is charged the full cost of manpower requirements and this is reflected in the defence budget; with conscription the costs are shared between taxpayer and conscript but only the taxpayer's contribution appears in the defence budget.

This difference means that the published defence budgets of countries operating different systems are not comparable. However, it is also hazardous to compare defence budgets between conscript countries, because there is no guarantee that the taxpayer's share of manpower costs will be the same. Adjustments will have to be made to improve comparability on both counts. One method which suggests itself is to calculate the implicit 'tax' on conscripts by establishing their national free-market cost, deducting all remunerations received, and adding the total to the stated defence budget. During the debate in the United States on the abolition of the draft, an official estimate of this tax was made: in Fiscal Year 1968 $8 billion would have been added to the $78 billion defence outlay had the tax been eliminated, increasing the defence share of GNP by 1 per cent.

An alternative minimal adjustment could be made by costing conscripts at the pay rates of career servicemen, taking account of the relevant service and rank distributions. Such an adjustment to France's 1973 defence budget would have raised it by Fr. 7.3 billion, or 0.6 per cent of GNP. This, however, grossly understates the implicit tax on conscripts, since substantially higher wages would have to be offered to attract the same number of volunteers. Such a valuation appears to underlie the recent West German official estimate that a volunteer system would raise the defence share of GNP in the Federal Republic by about 1.5 per cent.

It is probable that if 'fully adjusted' manpower costs had to be included in the defence budget, countries operating conscript systems would call up fewer men. Nonetheless the true cost of a conscript system must include the implicit tax as well as the budgetary costs in order to measure the real resources being devoted to defence. The assertion often made, that volunteer forces are more expensive than conscript forces, is true only in purely budgetary terms, or perhaps in special circumstances; it is unlikely to be true in real resource terms or in general.

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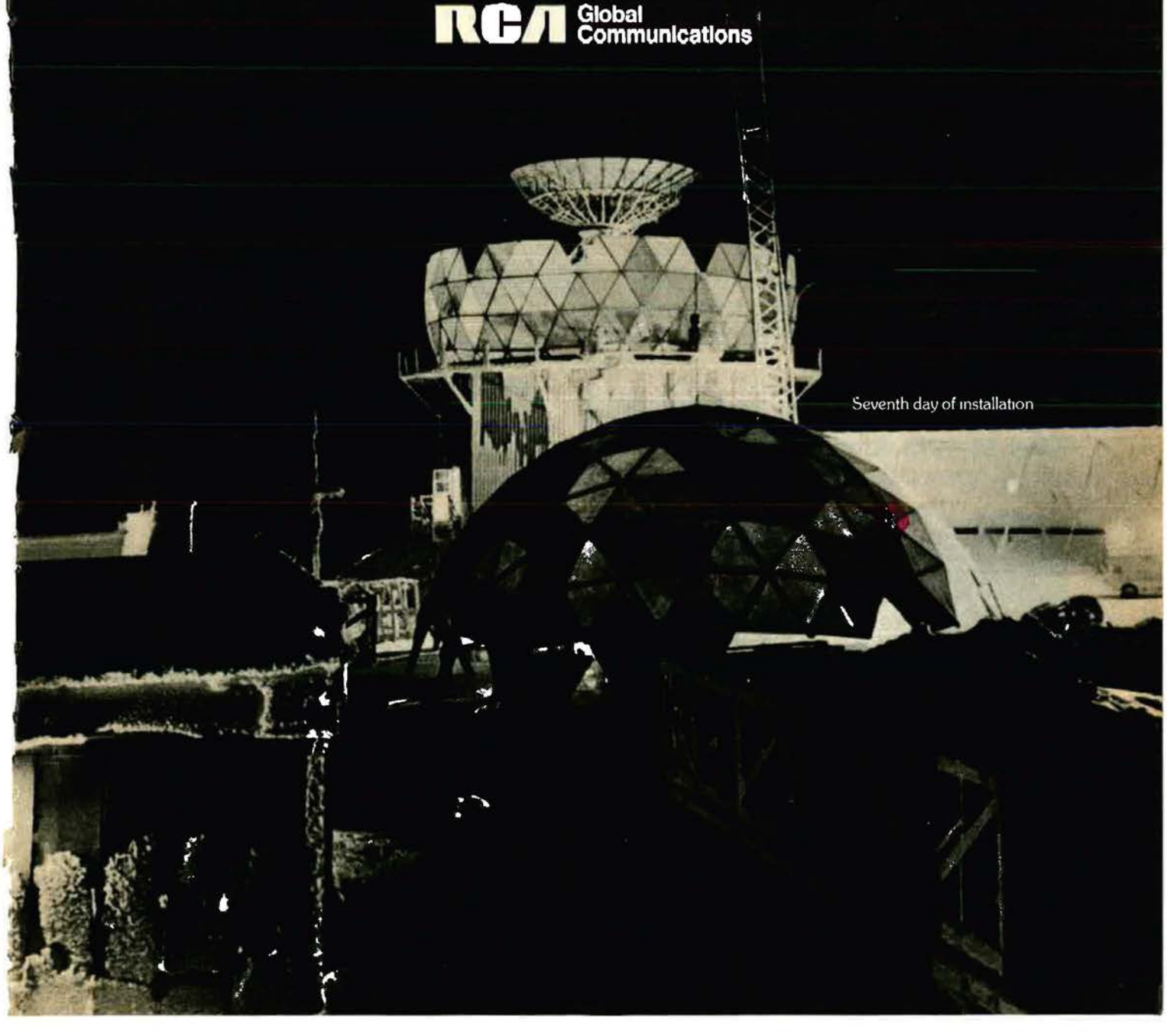

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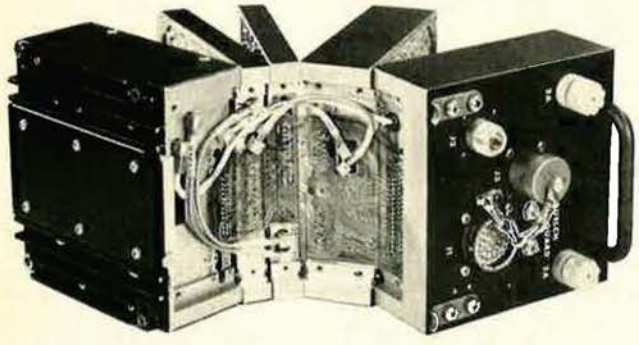
Slice construction lets us tailor your radio to your needs. The AN/ARC 164 isn't just a new aircraft radio. It's a whole new family. Standard wattage is 10 and 30. It has 7000 channels. Twenty of them can be preset. It's as simple as presetting a car radio. Turn a knob, push a button and an electronic memory takes over.



The AN/ARC 164 can be modified to meet your special requirements. And it can replace obsolete radios in an enormous range of aircraft. Fighters, close air support, trainers, reconnaissance, bombers, transport, cargo, helicopters. Even ground use applications.

The 3-minute installation. The entire radio can be installed in only three minutes. And with its high reliability your maintenance costs will virtually evaporate. When repair is necessary, you just plug in a new slice.

Commissioned by the U.S. Department of Defense. Available now. The AN/ARC 164 is standard equipment for both the U.S. Air Force and U.S. Army. It has undergone three years of flight and qualification testing. Orders are being accepted. Today. Demonstrations are available. Today. We suggest you get in the front of the line by contacting us immediately.

Magnavox

Magnavox Communications Products Operation, Marketing Department,
2131 S. Coliseum Blvd., Fort Wayne, Indiana 46805. Telephone 219/482-4411

JANE'S

ALL THE WORLD'S AIRCRAFT SUPPLEMENT

McDonnell Douglas YC-15, flight photograph of first prototype

MCDONNELL DOUGLAS
DOUGLAS AIRCRAFT COMPANY DIVISION OF MCDONNELL DOUGLAS CORPORATION; Headquarters: 3855 Lakewood Boulevard, Long Beach, California 90801, USA

MCDONNELL DOUGLAS YC-15

An $85.9 million contract for two prototypes of the YC-15 was awarded to McDonnell Douglas on 10 November 1972, under the USAF's Advanced Medium STOL Transport (AMST) programme. With the aim of finding a potential replacement for the Air Force's current fleet of Lockheed C-130 Hercules transports, the YC-15s will take part in a competitive evaluation with two prototypes of the Boeing YC-14. The emphasis is on performance and cost goals rather than rigid adherence to specification requirements, and the two designs represent very different aerodynamic approaches to STOL capability.

First to fly, on 26 August 1975, was a YC-15 (01875). Tests conducted during its 2 hr 26 min in the air, between Long Beach Municipal Airport and Edwards AFB, California, included checks on handling characteristics, response to flight controls, landing gear operation, flap and slat extension and retraction, systems functional checks, slow-speed flight evaluation, and speed advance to 300 knots (345 mph; 555 km/h) IAS. Maximum altitude attained was 20,000 ft (6,100 m), and a simulated landing approach and overshoot manoeuvre was carried out before landing.

Seven test flights, totalling approx 14 hr, were made from Edwards before, on 12 September, the YC-15 made a 3 hr flight to the McDonnell Douglas Flight Development facility at Yuma, Arizona, where the scheduled 13-month flight test programme is being completed by joint company and USAF flight and ground crews. They have at their disposal at Yuma the advanced equipment which McDonnell Douglas has installed for the flight development of its commercial transport aircraft. This includes a microwave link which is able to feed data from the YC-15, during its test flights, to a computer at Douglas Long Beach, allowing almost instantaneous readout. In addition, there is a ground-based laser system to provide precise take-off and landing data. The second YC-15 was expected to join the flight programme in late 1975.

First large jet transport to fly with a supercritical wing and externally blown flap (EBF) powered-lift system, the YC-15 is designed to operate into fields half as long as those required by the majority of current USAF tactical transports, carrying twice the payload.

In the EBF system, the large double-slotted titanium trailing-edge flaps are lowered directly into the exhaust from the four turbofan engines, which are mounted forward of the wing leading-edge and positioned

First McDonnell Douglas YC-15 AMST prototype, photographed at its rollout, 5 August 1975

so that their exhaust flow skims the undersurface of the wings. To reduce gas velocities, temperatures, and load intensities on the flaps, daisy-type nozzles on the engines mix the exhaust with ambient air.

Blowing the exhaust on to the extended flaps increases local static pressure on their lower surface. A large proportion of the jet exhaust passes through the wide slots between the flap segments and is diverted downward by the Coanda effect; passing over the upper surface of the flaps, it creates considerable additional lift. As the curtain of air leaves the trailing-edge of the flaps, it acts as a physical extension of the flaps. Tests have shown that in the maximum lift configuration the YC-15 will derive approximately 55% of its lift from the wing and leading-edge slats which operate in conjunction with the flaps, 20% from the downward deflected thrust from the engines, and 25% from the accelerated circulation of air over the upper surface of the wing and flaps.

Providing 67% more cargo space than any of the medium transport aircraft in current USAF use, the YC-15 can accommodate the US Army's standard self-propelled artillery weapons, the latest air defence vehicles, and construction equipment. In addition, it can carry 40 fully-equipped troops simultaneously with six pallets of cargo.

McDonnell Douglas believes that there will also be a commercial requirement for an aircraft in this category, and expects that the YC-15 design will be commercially acceptable without significant changes. At the termination of the fly-off programme, one of the YC-15 prototypes is expected to be made available to the company for development and evaluation in a commercial role.

TYPE: Advanced military STOL transport aircraft.

WINGS: Cantilever high-wing monoplane. All-metal structure. Sweepback at quarter-chord 5° 54′. Lateral control provided by a combination of aileron and triple inboard fly-by-wire spoilers on each wing. For STOL landings the spoilers are used also as direct-lift controls, speed brakes, and ground lift spoilers. Wide-span double-slotted externally-blown trailing-edge flaps of titanium basic construction. Full-span leading-edge slats.

FUSELAGE: Conventional semi-monocoque all-metal structure, the prototype utilising the flight deck of a DC-10.

TAIL UNIT: Cantilever all-metal structure, with T-tail and swept vertical surfaces.

LANDING GEAR: Retractable tricycle type. Twin wheels on nose unit. Each main unit comprises a four-wheel bogie, made up of twin-wheel units in tandem. Long-stroke main units to allow for high sink rates.

POWER PLANT: Four Pratt & Whitney JT8D-17 turbofan engines, each of 16,000 lb (7,257 kg) st. Total fuel capacity 8,030 US gallons (30,396 litres). Flight refuelling system.

ACCOMMODATION: Flight deck layout allows for operation by a crew of two, with a third seat on the flight deck for a loadmaster. Main cabin will accommodate about 150 fully-equipped troops or a wide variety of freight and vehicles. Passenger door on each side of fuselage, aft of wing. Crew door, with airstairs, on port side of fuselage just aft of nosewheel. Cargo loading ramp in undersurface of rear fuselage.

SYSTEM: Fully-powered control system, boosted by a stability and control augmentation system.

DIMENSIONS, EXTERNAL:

Wing span	110 ft 4 in	(33.63 m)
Length overall	124 ft 3 in	(37.87 m)
Height overall	43 ft 4 in	(13.21 m)
Fuselage width	18 ft 0 in	(5.49 m)
Wheel track	19 ft 10 in	(6.05 m)
Wheelbase	39 ft 11 in	(12.17 m)

DIMENSIONS, INTERNAL:

Cargo compartment:		
Length	47 ft 0 in	(14.33 m)
Max width	11 ft 8 in	(3.56 m)
Max height	11 ft 4 in	(3.45 m)
Volume, excl ramp	6,214 cu ft	(175.96 m³)

AREA:

Wings, gross	1,740 sq ft	(161.66 m²)

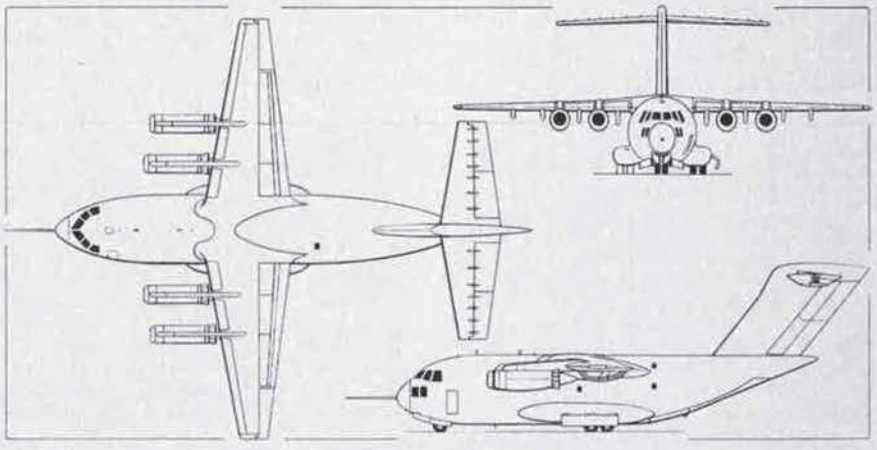
WEIGHTS (estimated):

Max T-O weight and design gross weight	216,680 lb (98,280 kg)
Max weight-limited payload	62,000 lb (28,122 kg)
Design landing weight (STOL)	150,000 lb (68,040 kg)

PERFORMANCE (estimated):

Max level speed	434 knots (500 mph; 805 km/h)
Approach speed	85 knots (98 mph; 158 km/h)
T-O field length with payload of 27,000 lb (12,247 kg)	2,000 ft (610 m)
Landing field length at design landing weight	2,000 ft (610 m)
Design operational radius, with 27,000 lb (12,247 kg) payload and 2,000 ft (610 m) midpoint field length, or 62,000 lb (28,122 kg) payload and runway of conventional length	400 nm (461 miles; 742 km)
Design ferry range	2,600 nm (2,994 miles; 4,818 km)

McDonnell Douglas YC-15 AMST (four Pratt & Whitney JT8D-17 turbofan engines) (Pilot Press)



GENERAL AVIA

COSTRUZIONI AERONAUTICHE GENERAL AVIA; Address: Via Trieste 24, 20096 Pioltello, Milan, Italy

General Avia is currently building a prototype of the F15F Delfino, derived from the Procaer F15E Picchio (see 1974–75 *Jane's*), which was expected to fly for the first time in 1975; and of the F.600 Canguro, which is due to fly in 1976.

GENERAL AVIA F.600 CANGURO (KANGAROO)

A prototype of the Canguro is under construction, and the fuselage had been completed by April 1975. First flight is scheduled for the Spring of 1976.

TYPE: Twin-engined freight, ambulance, and general utility transport.

WINGS: Cantilever high-wing monoplane. Wing section GAW-1, with 17% thickness/chord ratio. Dihedral 2°. Incidence 1° 30′. All-metal single-spar structure in light alloy, with stressed skin. All-metal ailerons and electrically-operated double-slotted flaps.

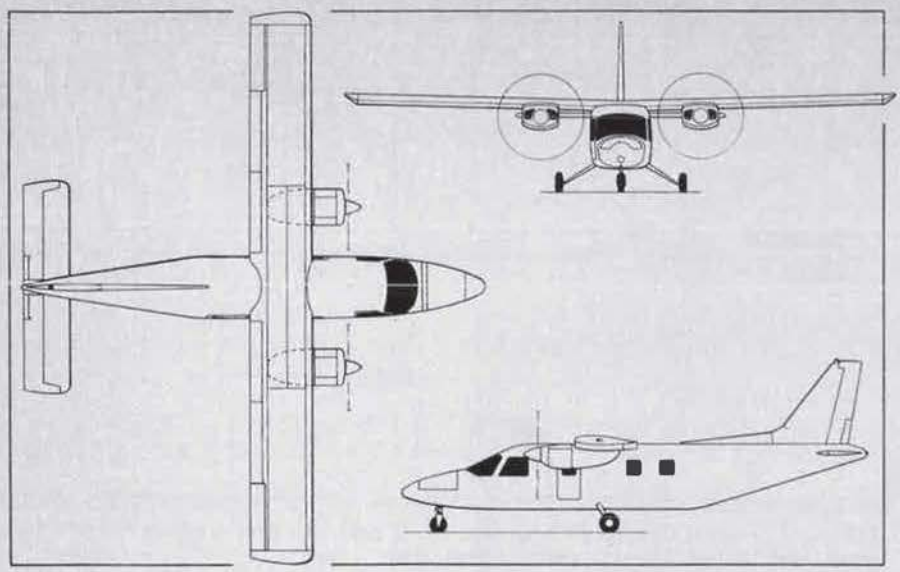
FUSELAGE: All-metal semi-monocoque structure, with stressed skin.

TAIL UNIT: Cantilever all-metal stressed-skin structure. Trim tabs in rudder and each elevator.

LANDING GEAR: Non-retractable tricycle type. Cantilever spring steel main legs. Nosewheel unit has steel spring shock-absorption.

POWER PLANT: Two 300 hp Lycoming IO-540-K six-cylinder horizontally-opposed aircooled engines, each driving a Hartzell fully-feathering constant-speed propeller. Fuel in four wing tanks, each of 49.5 Imp gallons (225 litres) capacity. Total capacity 198 Imp gallons (900 litres).

ACCOMMODATION: Crew of one or two. Cabin accommodates up to 10 passengers or paratroops, or four stretcher patients and two medical attendants, or 2,000 lb (907



General Avia F.600 Canguro twin-engined multi-purpose utility transport (Roy J. Grainge)

kg) of freight. Forward door on each side for crew and passengers, and a third, wider door at rear on starboard side for freight loading.

DIMENSIONS, EXTERNAL:

Wing span	43 ft 9¼ in (13.34 m)
Wing chord, constant	4 ft 11 in (1.50 m)
Wing aspect ratio	8.9
Length overall	36 ft 9 in (11.20 m)
Tailplane span	16 ft 7¼ in (5.06 m)
Rear cargo door width	4 ft 8¾ in (1.44 m)

AREAS:

Wings, gross	215.3 sq ft (20.00 m²)
Ailerons (total)	13.78 sq ft (1.28 m²)
Trailing-edge flaps (total)	24.97 sq ft (2.32 m²)
Fin	15.72 sq ft (1.46 m²)
Rudder, incl tab	9.69 sq ft (0.90 m²)
Tailplane	32.94 sq ft (3.06 m²)
Elevators (total, incl tabs)	26.91 sq ft (2.50 m²)

WEIGHTS AND LOADINGS:

Weight empty	3,527 lb (1,600 kg)
Max T-O weight	5,952 lb (2,700 kg)
Max wing loading	27.65 lb/sq ft (135 kg/m²)
Max power loading	9.9 lb/hp (4.5 kg/hp)

PERFORMANCE (estimated, at max T-O weight):

Max level speed at S/L	167 knots (193 mph; 310 km/h)
Max cruising speed (75% power)	146 knots (168 mph; 270 km/h)
Econ cruising speed (55% power)	129 knots (149 mph; 240 km/h)
Stalling speed, flaps down	57 knots (65.5 mph; 105 km/h)
Max rate of climb at S/L	1,319 ft (402 m)/min
Rate of climb at S/L, one engine out	374 ft (114 m)/min
Service ceiling	17,400 ft (5,300 m)
Service ceiling, one engine out	5,900 ft (1,800 m)
T-O run	902 ft (275 m)
Landing run	935 ft (285 m)

CESSNA

CESSNA AIRCRAFT COMPANY; Head Office and Works: Wichita, Kansas 67201, USA

CESSNA MODEL 441

On 15 November 1974, Cessna announced that it was developing a twin-turboprop business aircraft designated Model 441, with first deliveries scheduled for 1977. Designed to fit into the market between existing piston-engined twins and turbofan-powered business aircraft, the Model 441 will carry 10 people, including the pilot.

Cessna is tooling for production of 15 Model 441s per month.

Following the first flight of the prototype (N441CC) on 26 August 1975, Cessna released the following details of the aircraft:

TYPE: Eight/ten-seat pressurised executive transport.

WINGS: Cantilever low-wing monoplane, with constant-chord centre-section and tapered outer panels. Wing section NACA 23018 on centre-section, NACA 23012 at tip. Dihedral 3° 30′ on constant-chord section, 4° 55′ on outer panels. Incidence 2° at root, −1° at tip. Bonded construction. Large Fowler-type flaps. Tab in port aileron.

TAIL UNIT: Cantilever structure with swept-back vertical surfaces. Dihedral of 12° on horizontal surfaces. Large tab in each elevator and rudder.

LANDING GEAR: Retractable tricycle type, with single wheel on each unit. Hydraulic actuation, with retraction time of less than 5 sec. Main units retract inward, into wings, nose unit rearward. Main legs of articulated (trailing-link) type. Steerable nosewheel. Tyres size 7.75-10 on main wheels, 6.00-6 on nosewheel.

POWER PLANT: Two Garrett-AiResearch TPE 331-8-401 turboprop engines, each flat rated at 620 shp to 16,000 ft (4,875 m). Hartzell constant-speed fully-feathering and reversible-pitch three-blade propellers. Total usable fuel capacity 450 US gallons (1,703 litres).

ACCOMMODATION: Seats for eight to ten persons, including pilot, in pressurised and air-conditioned cabin. Door aft of wing on port side, with upward-hinged top portion and downward-hinged lower portion with integral airstairs. Emergency exit over wing on starboard side. Baggage door on each side of nose. Optional items include aft cabin divider, refreshment centre, toilet, writing tables, and stereo system.

SYSTEMS: Max cabin pressure differential 6.3 lb/sq in (0.44 kg/cm²). Electronic fuel control system.

DIMENSIONS, EXTERNAL:

Wing span	46 ft 4 in (14.12 m)
Wing chord at root	5 ft 10 in (1.78 m)
Wing chord at tip	4 ft 0¼ in (1.23 m)
Wing aspect ratio	8.7
Length overall	39 ft 0¼ in (11.89 m)
Height overall	13 ft 1¼ in (3.99 m)
Tailplane span	19 ft 1 in (5.81 m)
Wheel track	14 ft 0¾ in (4.28 m)
Wheelbase	12 ft 4½ in (3.77 m)

DIMENSIONS, INTERNAL:

Cabin:	
Length	18 ft 9 in (5.71 m)
Max width	4 ft 7 in (1.40 m)
Max height	4 ft 3 in (1.29 m)

AREAS:

Wings, gross	242 sq ft (22.48 m²)
Vertical tail surfaces	43.6 sq ft (4.05 m²)
Horizontal tail surfaces	63.38 sq ft (5.89 m²)

WEIGHTS:

Weight empty	5,045 lb (2,288 kg)
Max ramp weight	9,575 lb (4,343 kg)
Max T-O weight	9,500 lb (4,309 kg)

Cessna Model 441 eight/ten-seat pressurised executive transport (two 620 shp Garrett-AiResearch TPE 331-8-401 turboprop engines)

Max landing weight 9,300 lb (4,218 kg)

PERFORMANCE (estimated, at max T-O weight except where indicated):

Max level speed at 16,000 ft (4,875 m)
282 knots (325 mph; 523 km/h)

Max cruising speed at 17,000 ft (5,180 m)
280 knots (322 mph; 519 km/h)

Max rate of climb at S/L
2,405 ft (733 m)/min

Rate of climb at S/L, one engine out
700 ft (213 m)/min

Service ceiling 33,200 ft (10,120 m)

Service ceiling, one engine out
18,350 ft (5,600 m)

T-O to 50 ft (15 m) 2,455 ft (748 m)

Landing from 50 ft (15 m) at max landing weight 2,425 ft (739 m)

Range with max payload at max cruise power, with allowances for starting, taxying, take-off, climb, and 45 min reserve:

at 17,000 ft (5,180 m)
755 nm (869 miles; 1,398 km)

at 25,000 ft (7,620 m)
940 nm (1,082 miles; 1,741 km)

at 33,000 ft (10,060 m)
1,160 nm (1,335 miles; 2,148 km)

Range with max fuel and 5 people at max cruise power, allowances as above:

at 17,000 ft (5,180 m)
1,160 nm (1,335 miles; 2,148 km)

at 25,000 ft (7,620 m)
1,460 nm (1,680 miles; 2,704 km)

at 33,000 ft (10,060 m)
1,830 nm (2,106 miles; 3,390 km)

FOKKER-VFW

FOKKER-VFW BV; Head Office and Main Factory: PO Box 7600, Schiphol-Oost (Amsterdam Airport), The Netherlands

FOKKER-VFW F27MPA

Under this designation, which signifies Maritime Patrol Aircraft, Fokker-VFW is converting an ex-airline F27 Friendship to serve as a prototype/demonstrator for a low-cost patrol aircraft aimed at air forces needing a less sophisticated type than the Atlantic, Nimrod, or Orion. The prototype is scheduled for rollout on 2 January 1976, with first flight about a week later.

The F27MPA, in which Fokker-VFW claims much interest has already been shown, is not intended for anti-submarine duties, but rather for patrol of fishery areas, coastal shipping lanes, and general maritime surveillance. Endurance will be extended to 11 hours, and range to 1,740 nm (2,003 miles; 3,224 km), by the addition of new centre-section internal fuel tanks and provision for carrying two auxiliary underwing fuel tanks. Bulged windows on each side of the main cabin will be provided to enhance visual observation.

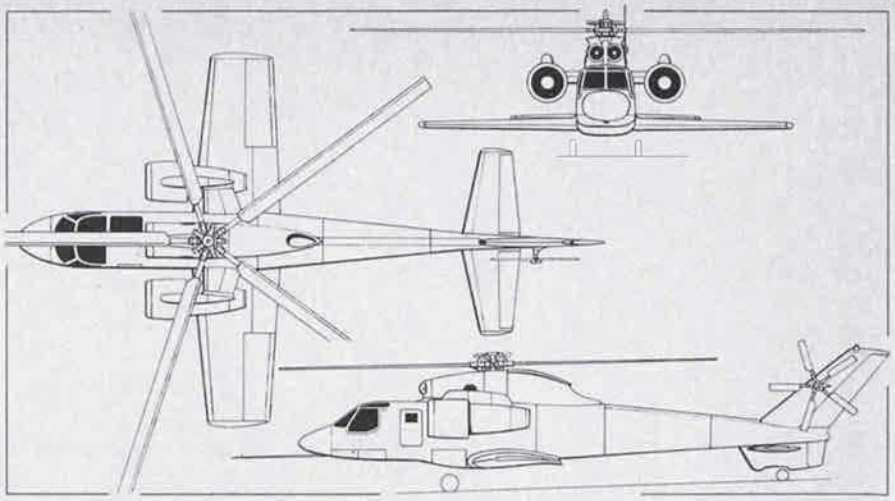
On-board equipment specified up to the time of closing for press included Litton AN/APS-503F search radar, Litton LTN-72 inertial navigation system, Smiths autopilots and radio altimeters, Collins UHF/VHF D/F equipment, and Alcan flare dispensers. Other subcontractors include Crouzet of France and Marconi-Elliott of the UK; other surveillance equipment will be to individual customers' requirements.

SIKORSKY

SIKORSKY AIRCRAFT, DIVISION OF UNITED TECHNOLOGIES CORPORATION; Head Office and Works: Stratford, Connecticut 06602, USA

SIKORSKY S-72 (RSRA)

Sikorsky announced in October 1973 that, following a design competition in which Bell Helicopter Company also took part, it had been selected by NASA as prime contractor for a high-speed multi-purpose research helicopter which has since received the company designation S-72. A $25 million contract for the construction of two prototypes, one set of removable wings, and a pair of podded turbofan engines was awarded to Sikorsky by NASA in January 1974. Known officially as Rotor Systems Research Aircraft (RSRA), these prototypes will be used by NASA and the US Army to develop and test a wide variety of rotor systems and integrated propulsion systems. They will provide test facilities that cannot be met in existing aircraft or wind tunnels, and will serve as a standardised base for comparing the various rotor systems.



Sikorsky S-72 Rotor Systems Research Aircraft, in fully developed configuration with fixed wings and TF34 turbofan cruise engines (Pilot Press)

Rollout of the first S-72 was scheduled for October 1975, with first flight planned for March 1976. Sikorsky will test both aircraft for approximately 80 hours before turning them over to NASA and the Army. The aircraft will have a potential service life of 12 years, and will be able to fly as pure helicopters, compound helicopters, or fixed-wing aircraft, as required.

The fuselage of the S-72 resembles that of the Sikorsky S-70, with retractable tailwheel landing gear from a Northrop F-5E and tail surfaces like those of a fixed-wing aircraft. The vertical surfaces are swept; conventional rudder and elevators are fitted, and there is a large ventral fin which carries the horizontal surfaces and the tailwheel. The five-blade anti-torque tail rotor is mounted on the port side of the fin.

Initially each S-72 will be equipped with a Sikorsky S-61 rotor system and two 1,500 shp General Electric T58-GE-5 turboshaft engines.

In addition to flying with a variety of rotor systems, the S-72s will be able to operate without any rotor at all, using full-length cantilever low-wing monoplane wings and two 9,275 lb (4,207 kg) st General Electric TF34-GE-2 turbofan cruise engines in Lockheed S-3A Viking pods. The wings will be fitted with conventional ailerons and flaps, and will have adjustable incidence, over the range of −9° to +15°.

The wings and auxiliary engines will permit the S-72 to test rotor systems that might be too small to support the aircraft, and will provide an extra margin of safety for the crew, comprising two pilots, side by side, and a flight engineer. In the event of trouble with a rotor system, the crew will be able to jettison the main blades by means of explosives and return to base by flying the S-72 as a conventional aircraft.

The S-72 will also be equipped with a crew escape system that first severs the rotor blades and then extracts the three crewmen by igniting rockets on the backs of their Stanley Aviation ejection seats. This is an independent system that does not rely upon the aircraft for power.

Other features of the S-72 include a fly-by-wire control system that operates through a mechanical backup system, an adjustable force augmentation system to provide fixed-wing stick feel, and a stability augmentation system to improve high-speed flight characteristics.

DIMENSIONS, EXTERNAL:

Diameter of main rotor
62 ft 0 in (18.90 m)

Diameter of tail rotor 10 ft 8 in (3.25 m)

Wing span 41 ft 10 in (12.75 m)

AREAS:

Main rotor disc 3,019 sq ft (280.5 m²)

Tail rotor disc 89.2 sq ft (8.29 m²)

Wings, gross 370 sq ft (34.37 m²)

WEIGHTS (estimated):

Weight empty, helicopter configuration
14,490 lb (6,572 kg)

Weight empty, compound configuration
21,022 lb (9,535 kg)

Max T-O weight, helicopter configuration
18,400 lb (8,346 kg)

Max T-O weight, compound configuration
26,200 lb (11,884 kg)

PERFORMANCE (estimated):

Max level speed
300 knots (345 mph; 555 km/h)

POLIGRAT

POLIGRAT-DEVELOPMENT GmbH & Co KG; Address: 8000 München 90, Pfälzer-Wald-Strasse 70 (Postfach 900 566), German Federal Republic

In early 1974 this company, which was formed in 1971, announced details of its first aircraft programmes, involving two twin-engined cargo and passenger transports known as the PD-01 Master Porter and the PC-10 Twin Porter.

POLIGRAT PD-01 MASTER PORTER

The Master Porter is a twin-turboprop Q/STOL transport aircraft, intended for third-level passenger and/or cargo operations. It has been designed to meet FAR and CAB Pt 298 standards, and Poligrat's ultimate objective is to market it as a product for assembly by approved foreign licensees.

Under contract to Poligrat, Pilatus in Switzerland (assisted by Eidgenössische

Flugzeugwerke, Emmen, the Flug- & Fahrzeugwerke Altenrhein, and others) is building two prototypes and a static test airframe. The first prototype is scheduled to fly in early 1976, with certification anticipated in time for production to begin in late 1976.

TYPE: Twin-turboprop transport aircraft.

WINGS: Cantilever high-wing monoplane of light alloy construction, built in three sections. Constant-chord wings, without dihedral. Wing section NACA 23015. Incidence 2°. Electrically-operated double-slotted trailing-edge flaps of light alloy construction. Ailerons of similar construction. Balance tab in starboard aileron; trim and balance tab in port aileron. Pneumatic de-icing boots on wing leading-edges.

FUSELAGE: Conventional all-metal semi-monocoque fail-safe structure of basically rectangular section. Fuselage normally unpressurised, but flight deck pressurisation available at customer's option.

TAIL UNIT: Cantilever light alloy two-spar structure with dorsal fairing forward of fin. Electrical or manual adjustment of variable-incidence tailplane. Trim and balance tab in rudder; balance tab in each elevator. Pneumatic de-icing boots on leading-edges of fin and tailplane.

Artist's impression of Poligrat PD-01 Master Porter in flight

LANDING GEAR: Hydraulically-retractable twin-wheel nose unit, retracting forward. Non-retractable single main wheels, mounted in stub fairings attached to base of fuselage. Menasco oleo-pneumatic shock-struts. Dunlop tyres, size 11.00-12 on main wheels, 7.00-6 on steerable nosewheels. Menasco hydraulic brakes. Optional float installation.

POWER PLANT: Two 1,120 shp Pratt & Whitney Aircraft of Canada PT6A-45 turboprop engines, each driving a Hartzell five-blade metal propeller. Integral fuel tanks in wings, with standard capacity of 264 Imp gallons (1,200 litres) and max optional capacity of 418 Imp gallons (1,900 litres). Refuelling points in upper surface of wings. Military versions can carry optional underwing fuel tanks.

ACCOMMODATION: Crew of two on flight deck. Three-abreast cabin seating for 21 passengers, or four-abreast for up to 26 passengers in high-density layout, with provision for toilet at front and baggage compartments. Quick-change (30 min) conversion capability to all-cargo configuration, including provision for folding and stowing passenger seats if required. Intermediate combined passenger/cargo and paratroop layouts also available. Ambulance version can accommodate 16 stretcher patients and two attendants. Passenger door, with integral steps, ahead of wing on port side. Large rear-loading door, which can be lowered to serve as a ramp or opened upward and inward. Fuselage cross-section can accept standard 88 x 88 in (2.24 x 2.24 m) pallets or LD-1, -3, or -7 containers. Roller conveyor system and crash net available as options. Cabin heated and ventilated.

Poligrat PD-01 Master Porter cabin mockup

SYSTEMS: Electrical system supplied by two 28V DC engine-driven generators. Two 25Ah batteries. Inverters for AC supply. Hydraulic system for nosewheel steering and retraction, with duplicated system for brakes. Heating and ventilation system of Poligrat design. Installed oxygen system for flight crew. De-icing system uses electrical heating for engine air intakes, propellers, and pitot heads, and engine bleed air for wing and tail unit de-icing boots.

EQUIPMENT: Standard equipment includes communications radio and cockpit and voice recorders. Blind-flying instrumentation standard.

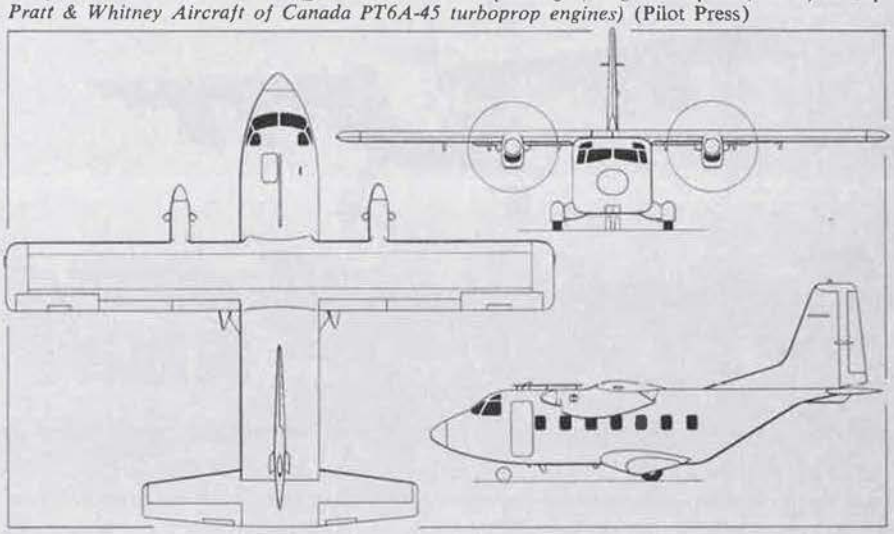
DIMENSIONS, EXTERNAL:

Wing span	57 ft 1 in (17.40 m)
Wing chord, constant	7 ft 1¾ in (2.18 m)
Wing aspect ratio	7.98
Length overall	46 ft 11¾ in (14.32 m)
Height overall	20 ft 8 in (6.30 m)
Tailplane span	28 ft 6½ in (8.70 m)
Wheel track	11 ft 4¾ in (3.50 m)
Wheelbase	15 ft 6½ in (4.74 m)
Propeller diameter	9 ft 3 in (2.82 m)
Propeller ground clearance	3 ft 7¼ in (1.10 m)
Passenger door (port, fwd):	
Height	5 ft 9¼ in (1.76 m)
Width	2 ft 2¾ in (0.68 m)
Height to sill	2 ft 4¾ in (0.73 m)
Rear loading door:	
Height	6 ft 6¾ in (2.00 m)
Width	7 ft 5 in (2.26 m)
Height to sill	2 ft 4¾ in (0.73 m)
Emergency exits (3):	
Height	3 ft 0¼ in (0.92 m)
Width	1 ft 8 in (0.51 m)

DIMENSIONS, INTERNAL:

Cabin: Length	21 ft 0 in (6.40 m)
Max width	7 ft 6½ in (2.30 m)
Max height	6 ft 7½ in (2.02 m)
Floor area	153.9 sq ft (14.3 m²)

Poligrat PD-01 Master Porter Q/STOL third-level passenger/cargo transport (two 1,120 shp Pratt & Whitney Aircraft of Canada PT6A-45 turboprop engines) (Pilot Press)



Volume 1,049 cu ft (29.7 m³)
Baggage holds (2), each 61.8 cu ft (1.75 m³)

AREAS:
Wings, gross 408.4 sq ft (37.94 m²)
Ailerons (total) 36.92 sq ft (3.43 m²)
Trailing-edge flaps (total) 63.83 sq ft (5.93 m²)
Fin 83.96 sq ft (7.80 m²)
Rudder, incl tab 27.99 sq ft (2.60 m²)
Tailplane 145.3 sq ft (13.5 m²)
Elevators, incl tabs 33.58 sq ft (3.12 m²)

WEIGHTS AND LOADINGS (A: civil; B: military overload):
Basic operating weight:
A 9,848 lb (4,467 kg)
B 9,920 lb (4,500 kg)
Max T-O weight:
A 16,534 lb (7,500 kg)
B 18,298 lb (8,300 kg)
Max zero-fuel weight:
A 15,432 lb (7,000 kg)
B 16,534 lb (7,500 kg)
Max landing weight:
A, B 16,534 lb (7,500 kg)
Max wing loading:
A 40.70 lb/sq ft (198.73 kg/m²)
B 44.81 lb/sq ft (218.76 kg/m²)
Max power loading:
A 7.39 lb/shp (3.35 kg/shp)
B 8.16 lb/shp (3.70 kg/shp)

PERFORMANCE (estimated, at max civil T-O weight):
Max never-exceed speed 274 knots (316 mph; 510 km/h)
Max cruising speed at 10,000 ft (3,050 m) 215 knots (248 mph; 400 km/h)
Econ cruising speed at 10,000 ft (3,050 m) 190 knots (219 mph; 353 km/h)
Stalling speed, flaps down 70.5 knots (81 mph; 130 km/h)
Max rate of climb at S/L 2,126 ft (648 m)/min
Service ceiling 24,600 ft (7,500 m)
Service ceiling, one engine out 13,275 ft (4,050 m)
T-O run 950 ft (290 m)
T-O to 50 ft (15 m) 1,475 ft (450 m)
Landing from 50 ft (15 m) 1,690 ft (515 m)
Landing run 870 ft (265 m)
Range with max fuel, 45 min reserve 701 nm (808 miles; 1,300 km)
Range with max payload, 45 min reserve 107 nm (124 miles; 200 km)

OPERATIONAL NOISE CHARACTERISTICS (FAR Pt 36, estimated):
T-O noise level 93 EPNdB
Approach noise level 102 EPNdB

POLIGRAT PC-10 TWIN PORTER

Poligrat has assumed responsibility for development of the Twin Porter transport aircraft, a project originally undertaken by Pilatus (see 1969–70 *Jane's*) and later shelved.

As now envisaged, the current Twin Porter is virtually a new design compared with the original proposal, but it is not intended for production until after the Master Porter is established on the market. Powered by two 680 shp Pratt & Whitney Aircraft of Canada PT6A-27 turboprop engines, it is designed to FAR 25 standards and will have accommodation for 15–18 passengers or 3,527 lb (1,600 kg) of cargo. The PC-10 will have a wing span of 62 ft 4 in (19.00 m) and empty and max T-O weights of 5,390 lb (2,445 kg) and 10,360 lb (4,700 kg) respectively.

SAAB-SCANIA

SAAB-SCANIA AKTIEBOLAG; Head Office: S-581 88 Linköping, Sweden

SAAB SAFARI

The Safari (formerly Saab-MFI 15) is intended as a civil trainer and utility aircraft. The prototype (SE-301) flew for the first time on 11 July 1969 with a 160 hp engine. Subsequently, its original low-mounted horizontal tail surfaces were replaced by new ones mounted at the top of the fin to prevent interference or damage by snow and debris when operating in Winter from rough airfields. After being re-engined with a 200 hp Lycoming, it resumed flying on 26 February 1971.

The Safari conforms to FAR Pt 23 in the Normal, Utility, and Aerobatic categories, and can be adapted to carry up to 660 lb (300 kg) of external stores, such as relief supplies of food or medicines for delivery to disaster areas. Three were used in this role, for famine relief, in Ethiopia in 1974. Approx 13,230 lb (6,000 kg) of sorghum seed per day was air-dropped in underwing packages, the aircraft flying at about 59 knots (68 mph; 110 km/h) at heights from 3 to 15 ft (1–5 m) above the ground, each with a 551 lb (250 kg) load. Other typical missions include rescue operations (with two 24-person life rafts underwing); ambulance role (with internally-stowed stretcher); forest fire or border patrol; road traffic control; and a wide range of basic flying training roles.

A tricycle landing gear is standard, but a tailwheel gear is available optionally, and conversion from one to the other can be accomplished quickly.

A military version, equipped with a weapon delivery system, is known as the Supporter; this is described separately. A pre-series batch of 12 Safari/Supporters was built; of these, two Safaris were delivered to Sierra Leone and five Supporters to Pakistan.

TYPE: Two/three-seat light aircraft.

WINGS: Braced shoulder-wing monoplane, with single bracing strut each side. Thickness/chord ratio 10%. Dihedral 1° 30'. All-metal structure, swept forward 5° from roots. Mass-balanced all-metal ailerons. Electrically-operated all-metal plain sealed flaps. Servo tab in starboard aileron.

FUSELAGE: Metal box structure. Glassfibre tailcone, engine cowling panels, and wing strut/landing gear attachment fairings.

TAIL UNIT: Cantilever metal T-tail comprising swept fin and rudder and one-piece mass-balanced horizontal "stabilator" with large anti-servo and trimming tab. Glassfibre fin tip. Trim tab in rudder.

LANDING GEAR: Non-retractable tricycle (standard) or tailwheel type. Cantilever composite spring main legs. Goodyear 6.00-6 main wheels and either a 5.00-5 steerable nosewheel or a tailwheel. Cleveland disc brakes on main units. Landes or Finncraft skis, or Edo floats, optional.

POWER PLANT: One 200 hp Lycoming IO-360-A1B6 four-cylinder horizontally-opposed aircooled engine, driving a Hartzell HC-C2YK-4F/FC7666A-2 two-blade constant-speed metal propeller with spinner. Two integral wing fuel tanks, total capacity 41.8 Imp gallons (190 litres). Oil capacity 1.6 Imp gallons (7.5 litres). From 10–20 sec inverted flight (limited by oil system) permitted.

ACCOMMODATION: Side-by-side adjustable seats, with provision for back-type or seat-type parachutes, for two persons beneath

Three Saab Supporters in the insignia of the Pakistan Air Force

One of the Saab Safaris used for famine relief in Ethiopia, with droppable underwing load

fully-transparent upward-hinged canopy. Space aft of front seats for 220 lb (100 kg) of baggage (with external access on port side) or, optionally, a rearward-facing third seat. Upward-hinged door, with window, beneath wing on port side. Cabin heated and ventilated.

SYSTEM: 28V 50A DC electrical system.

ELECTRONICS AND EQUIPMENT: Dual controls standard. Provision for full blind-flying instrumentation and radio. Six underwing attachments for up to 660 lb (300 kg) of external stores. Landing light in nose.

DIMENSIONS, EXTERNAL:

Wing span	29 ft 0½ in (8.85 m)
Wing chord (outer panels, constant)	4 ft 5½ in (1.36 m)
Length overall:	
nosewheel	22 ft 11½ in (7.00 m)
tailwheel	22 ft 5¾ in (6.85 m)
Height overall:	
nosewheel	8 ft 6½ in (2.60 m)
tailwheel (tail down)	6 ft 2¾ in (1.90 m)
Tailplane span	9 ft 2¼ in (2.80 m)
Wheel track:	
nosewheel	7 ft 6½ in (2.30 m)
tailwheel	6 ft 7¾ in (2.025 m)
Wheelbase:	
nosewheel	5 ft 2¾ in (1.59 m)
tailwheel	15 ft 7 in (4.75 m)
Propeller diameter	6 ft 2 in (1.88 m)
Cabin door (port):	
Height	2 ft 6¾ in (0.78 m)
Width	1 ft 8½ in (0.52 m)

DIMENSIONS, INTERNAL:

Cabin: Max width	3 ft 7¼ in (1.10 m)
Max height (from seat squab)	3 ft 3¼ in (1.00 m)

AREAS:

Wings, gross	128.1 sq ft (11.90 m²)
Ailerons (total)	10.55 sq ft (0.98 m²)
Flaps (total)	16.68 sq ft (1.55 m²)
Fin	8.29 sq ft (0.77 m²)
Rudder, incl tab	7.86 sq ft (0.73 m²)
Horizontal tail surfaces (total)	22.6 sq ft (2.10 m²)

WEIGHTS:

Weight empty, equipped	1,424 lb (646 kg)
Max T-O weight:	
Normal	2,645 lb (1,200 kg)
Utility	2,480 lb (1,125 kg)
Aerobatic	1,984 lb (900 kg)

PERFORMANCE (at max T-O weight, Utility category, nosewheel version):

Max never-exceed speed	197 knots (227 mph; 365 km/h)
Max level speed at S/L	127 knots (146 mph; 236 km/h)
Cruising speed	112 knots (129 mph; 208 km/h)
Stalling speed, flaps down, power off	58 knots (67 mph; 107 km/h)
Max rate of climb at S/L	807 ft (246 m)/min
Time to 6,000 ft (1,830 m)	9 min 18 sec
Service ceiling	13,450 ft (4,100 m)
T-O run	672 ft (205 m)
T-O to 50 ft (15 m)	1,263 ft (385 m)
Landing from 50 ft (15 m)	1,280 ft (390 m)
Landing run	509 ft (155 m)
Max endurance (65% power) at S/L, 10% reserve	5 hr 10 min
g limits:	
Utility	+4.4; −1.76
Aerobatic	+6.0; −3.0

SAAB SUPPORTER

The basic configuration of the Safari (which see) is retained in the Supporter (formerly Saab-MFI 17), which has the added capability to deliver weapons carried on the six underwing stations.

The second Safari was modified to Supporter standard, making its first flight in the new form on 6 July 1972.

Saab Supporter light multi-purpose military aircraft, with six Bofors Bantam anti-tank guided missiles in underwing containers

The airframe and power plant are the same in each aircraft, but the Supporter can undertake military operations with up to 660 lb (300 kg) of air-to-ground rockets, two pods each housing two machine-guns, or six Bantam wire-guided anti-tank missiles. It is also suitable for use as a military trainer, or for forward air control, reconnaissance, artillery observation, liaison, target towing, or other military duties.

Supporters have been ordered by the Pakistan Air Force and Army (45) and Royal Danish Air Force (32). The latter, for delivery by the end of 1976, are for training and observation duties and are designated T-17 in service. Deliveries to Pakistan began in 1974 with five of the 12 pre-production Safari/Supporters, and were to be followed by 40 of the initial production run of 65 aircraft.

AIRFRAME, POWER PLANT, AND ACCOMMODATION: As for Safari

ARMAMENT: Six underwing hardpoints, the inner two stressed to carry up to 220 lb (100 kg) each and the outer four up to 110 lb (50 kg) each. Typical loads may include two 7.62 mm machine-gun pods, two Abel pods each with seven 75 mm air-to-surface rockets, four Abel pods each with seven 68 mm rockets, eighteen 75 mm Bofors rockets, or six Bofors Bantam wire-guided anti-tank missiles.

DIMENSIONS, WEIGHTS, AND PERFORMANCE: As for Safari

SOKO

"SOKO" METALOPRERADIVACKA INDUSTRIJA BEZ OGRANICENE ODGOVORNOSTI; Address: Mostar, Yugoslavia

SOKO TJ-1 JASTREB TRAINER

This two-seat operational conversion and pilot proficiency training version of the Jastreb is designed for maximum commonality with the J-1, retaining the full operational capability of the ground attack version. The prototype TJ-1 flew for the first time in mid-1974. Deliveries of production aircraft began in January 1975, to fulfil Yugoslav and export orders.

The details given for the J-1 Jastreb in the current edition of *Jane's* apply equally to the TJ-1 Jastreb Trainer, with the following exceptions:

TYPE: Two-seat operational conversion trainer.

ACCOMMODATION: Crew of two in tandem on HSA (Folland) Type 1-B ejection seats. Separate sideways-hinged (to starboard) jettisonable canopy over each cockpit.

ELECTRONICS AND EQUIPMENT: Same as for J-1 Jastreb, plus intercom and Iskra 75R4 marker beacon receiver. Only two cameras, in tip-tank nosecones.

WEIGHTS:

Weight empty, equipped	6,570 lb (2,980 kg)
Typical training mission T-O weight	9,590 lb (4,350 kg)
Max landing weight	8,708 lb (3,950 kg)

MCDONNELL DOUGLAS

MCDONNELL DOUGLAS CORPORATION; Head Office and Works: Box 516, St Louis, Missouri 63166, USA

MCDONNELL DOUGLAS/ NORTHROP F-18

In the Spring of 1974 the US Department of Defense accepted a proposal from the US Navy to study a low-cost lightweight multi-mission fighter, then identified as the VFAX. In June 1974 the USN approached the US aircraft industry to submit critiques and comments on such an aircraft. Six companies responded, including the McDonnell Aircraft Company; but in August of that year Congress terminated the VFAX concept, directing instead that the Navy should investigate versions of the General Dynamics YF-16 and Northrop YF-17 lightweight fighter prototypes then under evaluation for the USAF.

McDonnell Douglas made a study of the configuration of these two aircraft and concluded that Northrop's contender not only met most nearly the Navy's requirements, but would also prove the easiest to convert to a combat fighter suitable for operation from aircraft carriers.

As a result of this review, McDonnell Douglas teamed with Northrop to propose a derivative of the YF-17 to meet the Navy's

Artist's impression of the McDonnell Douglas/Northrop F-18 carrier-based air combat fighter

requirement, with McDonnell Aircraft Corp as the prime contractor. Identified as the Navy Air Combat Fighter (NACF), this received the designation F-18 when selected for further development. The initial short-term contracts, announced on 2 May 1975, allocated $4.4 million to McDonnell Douglas/Northrop and $2.0 million to General Electric, for continued engineering studies and refinement of the projected airframe and power plant, pending Congressional action on full-scale development in FY 1976. It is hoped to procure 11 R&D aircraft in FY 1977 and an initial batch of 15 production F-18s in FY 1979, building up to a rate of 108 aircraft annually by FY 1982.

The F-18 derives from development work carried out by Northrop during recent years to evolve an advanced tactical fighter, and stems from the P-530 Cobra concept of 1968–73, which formed the basis of the company's YF-17 prototype. The F-18 airframe differs from that of the latter aircraft by having increased wing area, a wider and longer fuselage to provide greater internal fuel capacity, an enlarged nose to accommodate the 28 in (0.71 m) radar dish to meet the Navy's search radar range requirement of over 30 nm (35 miles; 56 km), and strengthening of the airframe structure to cater for the increased loads caused by catapult launches and arrested landings. The foregoing modifications, plus avionics, will result in an increase of approximately 6,000 lb (2,720 kg) in take-off weight, allocated as 3,000 lb (1,360 kg) to structure, 2,400 lb (1,088 kg) for additional fuel, and 600 lb (272 kg) for avionics.

Subject to a decision to proceed with full-scale development of the NACF, a team of Northrop engineers will be established at the St Louis headquarters of McDonnell Douglas, responsible for some 30% of the development engineering. Northrop's share of the production would be about 40%, with responsibility for developing and building the centre and aft fuselage. McDonnell Aircraft would build the rest of the airframe and carry out final assembly.

Costing is being calculated on an estimated production run of 800 aircraft, as the F-18 is intended to replace both USN and US Marine Corps F-4 Phantoms for the primary missions of fighter escort and interdiction. There would be a proportion of two-seat trainers. Additionally, an attack version of the F-18 might be developed to replace the United States Navy's A-7 Corsair II aircraft in the mid-1980s, under the designation **A-18**.

TYPE: Single-seat carrier-based air combat fighter.

WINGS: Cantilever mid-wing monoplane. Multi-spar structure, primarily of light alloy. Boundary layer control achieved by wing-root slots. Leading-edge manoeuvring flaps have a maximum extension angle of 35°. Trailing-edge flaps deploy to a maximum of 45°. Ailerons can be drooped to 45°, providing the advantages of full-span flaps for low approach speeds. Notched sections on outer wing leading-edges to enhance aileron effectiveness. Wings fold at the inboard end of each aileron.

FUSELAGE: Semi-monocoque basic structure. Airbrake in upper surface of fuselage between tail fins. Pressurised cockpit section of fail-safe construction.

TAIL UNIT: Cantilever structure with swept vertical and horizontal surfaces. Twin outward-canted fins and rudders, mounted forward of all-moving tailplane.

LANDING GEAR: Retractable tricycle type, with twin-wheel nose and single-wheel main units. Nose unit retracts forward, main wheels aft, the latter turning 90° to stow horizontally inside the lower surface of the engine air ducts.

POWER PLANT: Two General Electric F404-GE-400 low bypass turbojet engines, each producing approx 16,000 lb (7,257 kg) thrust and developed from the YJ101 turbojets that power the YF-17. Provision for in-flight refuelling.

ACCOMMODATION: Pilot only, on ejection seat in pressurised, heated, and air-conditioned cockpit. Upward-opening canopy, hinged at rear.

SYSTEMS: Fly-by-wire flight control system, with mechanical backup. An APU will provide self-contained start and maintenance facilities.

AVIONICS: Will include an Automatic Carrier Landing System (ACLS) for all-weather carrier operations.

ARMAMENT: Nine weapon stations with a combined capacity in excess of 13,000 lb (5,900 kg) of mixed ordnance. These comprise two wingtip stations for AIM-9 Sidewinder air-to-air missiles; two outboard wing stations for an assortment of air-to-ground weapons; two inboard wing stations for external fuel tanks, AIM-7 Sparrows, or air-to-ground weapons; two nacelle fuselage stations for Sparrows; and a centreline fuselage station for external fuel, sensor pods, or weapons. In addition, an M61 20 mm multi-barrel gun is mounted in the nose.

DIMENSIONS, EXTERNAL:

Wing span	37 ft 6 in (11.43 m)
Width, wings folded	25 ft 0 in (7.62 m)
Length overall	55 ft 7 in (16.94 m)
Height overall	14 ft 9½ in (4.51 m)
Tailplane span	22 ft 8½ in (6.92 m)
Wheel track	10 ft 2½ in (3.11 m)
Wheelbase	17 ft 2½ in (5.25 m)

AREA:

Wings, gross	400 sq ft (37.16 m²)

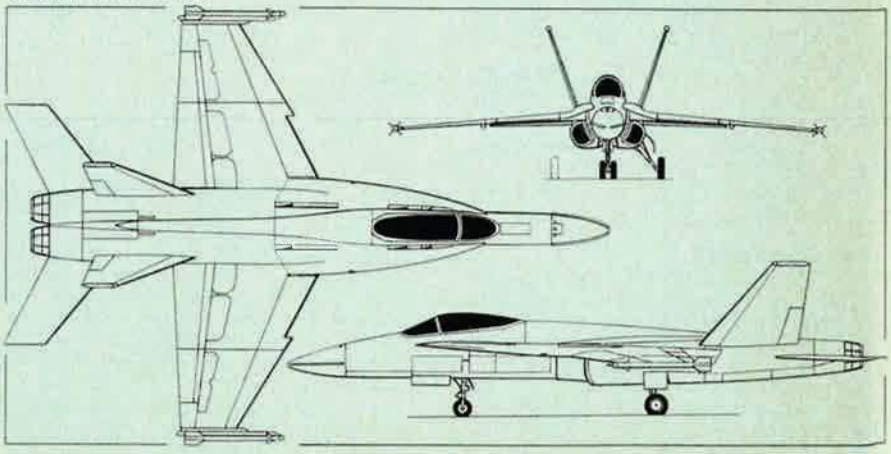
WEIGHT:

Fighter mission T-O weight	33,000 lb (14,970 kg)
Max T-O weight	more than 44,000 lb (19,960 kg)

PERFORMANCE (estimated):

Max level speed	more than Mach 1.8
Max speed, intermediate power	Mach 1.0
Approach speed	130 knots (150 mph; 240 km/h)
Combat ceiling	above 48,000 ft (14,630 m)
Combat radius (internal fuel)	over 400 nm (460 miles; 740 km)
Ferry range, unrefuelled	more than 2,000 nm (2,303 miles; 3,706 km)

McDonnell Douglas/Northrop F-18 (two General Electric F404-GE-400 bypass turbojet engines) (Pilot Press)



Amid few lamentations, the remaining members of the Southeast Asia Treaty Organization (SEATO) have decided to end the Alliance. Although SEATO never lived up to early expectations, it should not pass into history unhonored and unsung . . .

Requiem for an Alliance

By Gen. T. R. Milton, USAF (Ret.)

The decision of the SEATO Council of Ministers to put an end to their shaky alliance came as no surprise to anyone. Unless, that is, someone was surprised that there was still such a thing as the Southeast Asia Treaty Organization.

SEATO began with the French withdrawal from Indochina, and it ends on a similar note—the US withdrawal from Indochina. One way or another, SEATO has lasted twenty-one years, a remarkable life span for an alliance that was such an unlikely one to begin with.

In case you have forgotten, the original members were, in addition to the United States, the United Kingdom, France, Australia, New Zealand, Pakistan, Thailand, and the Philippines. From the outset there were difficulties and clear signs that it was not going to be an easy relationship.

Early in SEATO's existence, France adopted an observer role with no military commitment. Pakistan was bitterly resentful of its SEATO allies' attitudes in the first Pakistan-India conflict. At the meeting of the SEATO military representatives in 1963, Pakistan's Air Marshal Khan denounced the whole lot. It was a memorable speech, and it was a clear signal of what lay down the road for this curious assemblage of Europe, Asia, America, and the Antipodes.

SEATO, as has been widely reported, never really amounted to much. The very objective of the alliance, Red China, became increasingly indistinct as a menace. As China's respectability grew, SEATO's credibility diminished. Nevertheless, SEATO was by no means a dead loss. It is easy to forget the way things were not too many years ago.

In 1961 there was insurrection in Borneo, and the Indonesia of Sukarno was becoming an increasing problem to the whole area. With the threat of a hostile, Communist Indonesia lying just to the north, Australia and New Zealand maintained a lively interest in their SEATO commitments.

While it would be stretching things to claim Indonesia's turnaround as a SEATO success, the fact that there was this alliance had some part to play in the result. The Australians were, as SEATO members, highly visible in Malaya, where they based a fighter wing. They also kept, during those volatile years in the early sixties, a fighter squadron in Thailand, not for combat in the Vietnam War, but as evidence of their SEATO responsibilities.

However, the main thing to remember about SEATO was the era it encompassed. It was an era that began with the United States the trusted friend as well as the dominant factor in Southeast Asia, and ended with our credentials suspect. The end of our Vietnam engagement brought with it a certain disillusion to our other Asian friends. We will never again have the easy camaraderie, the acceptance, that we enjoyed during the early and middle years of SEATO.

Before the Vietnam War became the all-consuming purpose of our presence in Southeast Asia, there were, from time to time, some splendid lighter occasions. There was, for instance, Flying Brothers, held at Clark Air Base in the Philippines every couple of years. It was a great clambake, an occasion that brought the Thais, the Aussies, the New Zealanders, the Phils as well as ourselves, from SEATO, and the Chinese—in those days our China—from Taiwan.

It was at the 1961 Flying Brothers that Bob Hoover, the fellow who flies upside down these days in the yellow P-51, confounded the Philippine Air Force and brought great joy to tire-kickers in the crowd. After removing his silk jacket and entrusting it to, as luck would have it, a beautiful girl in the stands, he walked out to the F-86 the Philippine Air Force had prepared for him to use in his show. It glistened in the sun as only an airplane with ten coats of wax and hours of hand rubbing can glisten. His name was on the canopy. The crew chief was immaculate as he stood proudly by Hoover's bird. After a tentative tug or two on the leading-edge slats, Hoover wandered down the flight line, testing slats. Finally he stopped at a disreputable looking old F-86. These slats, he said, were fine. And then, without further inspection, not even a look at the form, he taxied out, did an aileron roll on takeoff, and went into his act.

Those were times of easy comradeship among the military in that vast part of the world. They were the years when the United States seemed clearly the best guarantee for the future independence and prosperity of the whole region. There was never any doubt, in those days, about the evils that would follow any Communist takeover. With the Vietnam debacle, the security blanket is gone. Our friends in Asia have begun to eye us with speculation as our aims in that part of the world become increasingly unclear.

SEATO was, we all agree, not much. However, it was something. It did have a purpose, and a lot of people subscribed to it.

Something, as the poker players say, beats nothing. ■

The Bulletin Board

By John O. Gray
MILITARY AFFAIRS EDITOR

DOPMA Moves, USAF Ready

The Air Force is ready to launch the Defense Officer Personnel Management Act. Its implementing plans, eighteen months in the making, will impact squarely on thousands of officers.

In late October, the DOPMA measure was getting close attention from both the House and Senate Armed Services Committees. Optimism was increasing that Congress would complete action by the end of the year. USAF authorities say they are prepared to proceed as follows when the measure becomes law:

• **The Single, or DOPMA, Grade.** An officer holding a temporary grade higher than his permanent grade, who has not failed of permanent promotion, will transition into DOPMA in his temporary grade. But officers once deferred for permanent promotion—there are nearly 2,000—will face a special board to meet within a year. Those chosen for promotion will convert their temporary grade to their DOPMA grade, while nonselectees will separate (retire if eligible).

What about the estimated 3,000 USAF officers in prior temporary passover status? DOPMA treats any number of such deferments prior to enactment as one nonselection. So, these officers will be considered by the next regularly scheduled promotion board, and if not chosen must depart by virtue of not having been selected the second time. This provision primarily affects Regular captains, for under present law they cannot be forced out until receiving two permanent passovers—at about their fourteenth year of service.

Under DOPMA, officers failing twice for major must exit at about the eleventh or twelfth year, the point where such non-Regulars leave today.

• **Selective Continuation, Tenure.** DOPMA allows the services to continue on active duty any number of the majors not selected for lieutenant colonel, to retirement at twenty years. It also allows them to forcibly retire annually up to thirty percent of the (1) LCs not chosen for colonel, and (2) colonels with four years in grade.

USAF plans to continue virtually all majors to retirement and, during the first year, screen out slightly more than 200 LCs and colonels. In later years, a token screening out of about three percent is planned. An amendment being built into DOPMA will give those majors not continued to retirement a $30,000 severance payment, double the present limit.

For Regular officers serving in or selected for permanent major, LC, or colonel, tenure acquired before DOPMA is carried forward. Permanent majors now have tenure until the twenty-first year, whereas under DOPMA a major not chosen for LC cannot acquire twenty years for retirement (unless continued to retirement under the provisions cited above).

Regulars in grades of permanent LC and colonel at time of enactment will still have tenure to the twenty-eighth and thirtieth years of service, but they will face the new selective continuation rules. For younger officers, LC tenure under DOPMA is reduced from twenty-eight to twenty-six years of service.

USAF further advised that any officer passed over twice to a higher permanent grade, at time of enactment, must separate or retire under preenactment rules.

• **All-Regular Force Beyond Eleventh Year.** DOPMA has a two-year transition feature, so that non-Regulars with nine or more years at time of enactment must make Regular—or separate—within that period. By using the entire transition span, the Air Force is also assuring that virtually all non-Regulars with sixteen years of service on enactment will gain the eighteen-year sanctuary and go on to a twenty-year retirement. Only token augmentation, as is the case today, is slated for the older year groups.

There are more than 5,000 non-Regular officers in the nine- through fifteen-year groups. USAF says it plans to integrate virtually all of the 3,000 not already suffering a temporary passover into the Regular force. The one-time deferrals will face the crucial board cited above.

Regular appointments for younger year groups will be handled by three annual boards: one linked with selections to captain and one each for the five- and seven-year groups.

• **Promotion Points, Opportunity.** Air Force has already brought promotion opportunity percentages in line with DOPMA. Promotion phase points are in proper alignment for hikes to captain (four years) and colonel (twenty-two years), but USAF still lags by at least a year to major and a lesser period to LC. On below-the-zone promotions, DOPMA allows a fifteen percent ceiling for each field grade. Air Force, however, plans to stick with its present ceilings of five percent to major, seven and one-half percent to LC, and fifteen percent to colonel.

During the legislative process, the massive DOPMA is undergoing some alterations, such as the $30,000 severance payment for O-4s cited above. There are minor changes affecting women officers. The rank of commodore for the Navy probably will be reinstated. In the all-important permanent grade tables, the authorizations for both O-5 and O-6 are being cut by three percent, but USAF officials say this will not create a serious problem.

Basically, the DOPMA package now emerging is similar to the proposal the Defense Department first prepared more than two years ago.

Early, Early Outs

Lieutenants who entered active duty as recently as last June will soon be eligible for early outs. New rules, generated by USAF's determination to keep the FY '76 officer RIF as small as possible, will allow nonrated line officers with an active federal commissioned service date of June 30, 1975, or earlier, to separate—when they have completed at least one year's service.

In addition, the Air Force is now encouraging AFROTC scholarship

officers to take the early-out options; until recently they had been barred. And, as reported in last month's "Bulletin Board," non-Regular captains once deferred for major will be separated with severance pay. These and other, previous early exit moves hopefully will ease the overall RIF situation.

Coming up in all probability, though not officially invoked at press time, are early outs for Air Force Academy graduates. Headquarters has long resisted giving them this option because of the large investment in Academy training. But the House of Representatives says that since it is even more costly to train new pilots, and Air Force is early-releasing them, the service must let Academy graduates depart early, too. Accordingly, the House (in the FY '76 military spending bill) "directed" the Air Force "to no longer consider the source of the commission as a criterion" for deciding who can take an early release.

And to keep up the pressure on USAF to minimize the RIF, the House cut from $28.6 million to $20 million the funds Air Force is seeking for RIF payments this fiscal year. Earlier, USAF authorities were talking of a late FY '76 RIF of close to 1,000 officers. The new efforts could reduce it.

Leave Selling, Per-Diem Bills

Important military personnel legislation dealing with "leave selling" and per-diem rates made progress on Capitol Hill this fall, and both bills were expected to become law by year's end.

The leave-selling measure, as reported earlier in this column, would limit payment for accrued leave to sixty days over a full career (up to that much is now countable at each reenlistment). AFA urged the House Armed Services Military Compensation Subcommittee, which held several days of hearings in late October, to ease the adverse impact the measure will have on career enlisted members. What appeared to be emerging was a plan to exempt anyone currently serving until completion of his present enlistment.

The per-diem bill, which came before the same subcommittee, would raise the standard per-diem ceiling from $25 to $35 and the special payment for high-cost areas from $40 to $50. Testifying in support of the measure was Vice Adm. John G. Finneran, the Deputy Assistant Secretary of Defense (Military Personnel Policy). Government civilian employees got the higher per-diem rates seven months ago.

First Black Supergrader

On his recent promotion to GS-16, Dr. George O. Wright, Chief of the Plans Division of the Civilian Personnel Directorate, Hq. USAF, became the first black supergrader (GS-16 through GS-18) among the Air Force civilian work force. He holds a doctorate from Harvard and began his Air Force career at Wright-Patterson AFB, Ohio, nearly thirty years ago. Dr. Wright has been assigned to Hq. USAF since 1962.

State Tax Withholding

It's no secret that some persons have avoided state income taxes during their years of military service. It's also true that on separation or retirement, some have gotten clobbered for years of back taxes plus interest.

Regardless, the pressures are building for an arrangement that requires military payroll deductions for state income taxes. The governors and an intergovernmental relations group, for obvious reasons, are pushing the idea. So is Rep. William A. Steiger (R-Wis.) who is sponsoring legislation to require such withholding.

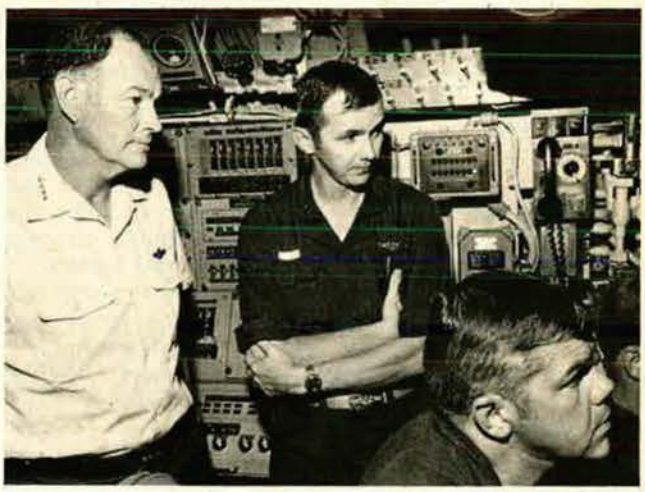
The General Accounting Office and the White House Office of Management and Budget have also thrown their influence behind the withholding idea. The Defense Department, opposed to mandatory withholding, has been working on a plan to let military people have their state taxes deducted via voluntary allotment.

But the states, claiming "lost revenue" from locally based service members, are unlikely to relax their demands. The eventual outcome, perhaps starting in 1976, could be a voluntary allotment scheme followed later on by a mandatory withholding program.

A separate early possibility, also based on increasing state pressure: a sales tax on items sold in military stores.

Recruiter Standards High

It's tough to become an Air Force recruiter; Headquarters is underscoring the same ultrahigh quality in its selection of them as it is for new recruits. Bases were recently told to run at least once a week for three months an item in their daily



Aboard the nuclear submarine USS Nathan Hale, *Air Force Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, watches technicians at work. The General was aboard to watch a Poseidon missile test launch off the coast of Florida.*

On the bridge of the USS Nathan Hale, *General Brown peers through binoculars to observe the missile launch. Here he's with the* Nathan Hale's *commanding officer, Cmdr. James N. Adkins, Jr., USN.*

bulletins soliciting recruiter applications from top-quality people. That's a lot of stress on the subject, and should bring rewarding assignments for the few who qualify. Most of the jobs are for E-5s and E-6s.

Air Force has about 3,250 enlisted recruiters out of a total military-civilian recruiting organization of 4,000. This compares with Army and Navy recruiting forces of 12,000 and 6,000 persons respectively. One result is that those two services spend the lion's share of the Defense Department's total recruiting budget of nearly $600 million, a figure Congress is in the process of slashing by fifteen percent overall. Army's share is being cut twenty-five percent, USAF's eight percent.

It costs the Army an average of $1,100–$1,200 to recruit one person, compared to $870 for the Air Force.

People Appropriations Cut

USAF's educational programs and a host of other popular personnel projects took a beating in the House of Representatives this fall. Senate action, due in November, was expected to uphold many of the House cuts.

There were two items of good news. Money was approved to pay commissary employee salaries, though Defense Secretary James R. Schlesinger was urging the Senate to transfer these funds to cover hardware and operations and maintenance programs. If the Senate declines, the commissaries' pricing structure will remain unchanged. The other favorable action came with approval of allowances for servicemen agreeing to move their own household goods at transfer time *(see "Speaking of People").*

On the bad news side, the lawmakers:

1. Rejected USAF's plea for money to reopen the Airman Education and Commissioning Program, saying it's too expensive and that the service already has more young officers than it can use. AECP was first closed to new entrants last year.

2. Issued a series of curbs on officer graduate education, such as insisting that many pilots receive sufficient in-service training and therefore don't need to be sent to civilian schools for graduate degrees.

3. Told the services to get tough with nonsponsored dependents overseas, by automatically extending tours to thirty-six months for members who bring nonsponsored kin into unaccompanied areas or who marry overseas and their wives use medical care, exchanges, etc.

4. Said they were studying the possibility of closing the two existing Defense graduate schools—the Air Force Institute of Technology and the Naval Postgraduate School. The House Committee told Defense to examine "the need for their continued operation" and report back next spring.

The appropriations bill also cuts the services' recruiting and recruit advertising budgets; reduces Defense's CHAMPUS spending plans by $34 million; deletes substantial amounts for PCS, quarters allowances, and enlisted separation pay; and urges more interservice training.

All told, the House reduced USAF's FY '76 personnel budget request of $7.4 billion by $138 million, and its O&M budget of $7.95 billion, which supports many people projects, by a whopping $519 million.

Three cadet members of the Class of 1976 at the Air Force Academy have formed an officially approved Continental Color Guard, which will make appearances throughout the Bicentennial Year. Shown at left are Cadets First Class Steve Boyd, fife; Peter Mapes, flag bearer; and Mike Byron, the drummer. The three researched and made their authentic Revolutionary War uniforms, representing Continental Army regiments from Maryland, Connecticut, and New York. The flag is a copy of the Betsy Ross original.

Problems in the Reserve?

Last summer, the Comptroller General issued a report titled "Need to Improve Efficiency of Reserve Training." It recommended specific changes—for example, that the services cut training for Reservists whose military jobs are easy to learn or similar to their civilian jobs, or who otherwise have the

When the Senior NCOs at the Chanute AFB, Ill., Tech Training Center challenged the Senior Officers to a softball game, they told their pitcher not to give the Center Commander anything good to hit. Maj. Gen. Lloyd Leavitt, Jr., took a mighty cut at the ball, which turned out to be a ripe melon. The Senior Officers won 36 to 9.

required skills. "Ineffective use of available time" was charged. The Comptroller also scored the services for swamping unit commanders with paperwork.

The report caused some concern in Congress and among the Reserve Forces. Rep. Charles A. Vanik (D-Ohio) introduced a bill to implement many of the Comptroller's recommendations. Vanik said two Ohio Reservists told him their professional skills weren't used and much of their drill time was wasted.

This fall, a House subcommittee brought Reserve Forces officials, several unit commanders, and others together to explore the charges. Subcommittee Chairman Rep. Lucien N. Nedzi (D-Mich.) labeled the hearings "Problems in Reserves."

Whether the "problems" are as bad as the critics indicate seems debatable. For example, AFRES's Maj. John H. Burris, Commander of the 75th Aerial Port Sq., Kelly AFB,

Ed Gates . . . Speaking of People

Do-It-Yourself Moves

Would you believe a new program that gives enterprising service members cash payoffs and, at the same time, saves the government money? Sounds unlikely, but it's true. Barring a last-minute hitch, personnel throughout the entire military community will soon be allowed to move their own baggage and household goods, by private or rental vehicle, at transfer time. And in the process collect an "allowance" for their trouble, while reducing the cost to the government.

This is a Stateside drive-it-yourself moving project. For USAF, it will involve ninety-six CONUS bases.

The Navy pioneered the idea, and for the past two years many sailors and their families have participated. Authorities say the results have been outstanding. The Army, meanwhile, has been testing the plan. And the Air Force launched its test program last May at six bases: Chanute, Ill.; Moody, Ga.; Patrick, Fla.; Wright-Patterson, Ohio; and Edwards and McClellan, Calif.

Where employed, costs to the government have been cut in half. "We're ready to go CONUS-wide," a USAF official told AIR FORCE Magazine.

Congress appears sympathetic to the idea. And with good reason: the combined services' annual PCS budget now exceeds $1.6 billion; USAF's share alone tops $600 million. TDY and other travel-associated costs run those figures even higher.

USAF's test has involved a pact with U-Haul International. Under it, participating members at the six sites contact their local traffic management office where arrangements for a rental vehicle are made. TMOs also help determine packing needs and advise on travel entitlements, personal responsibilities, and so on. U-Haul provides a fuel and oil allowance at the time of truck pickup. In addition, participants get help in loading and unloading their possessions and are reimbursed for the costs.

The program covers both PCS and TDY moves, moves to or from government quarters, and retirement and separation moves.

To speed implementation Defense-wide, the House of Representatives added an amendment to the FY '76 Military Appropriations Bill, giving the general plan the necessary legal planks to get rolling promptly. Senate approval appeared near at press time.

In October, the services were ironing out details of the expanded plan and preparing regulations. The allowance for the individual serviceman mover, the House of Representatives said, should amount to eighty or eighty-five percent of the cost the government would incur for a commercial move of equal distance and weight. Under the House amendment's language, the service member could collect his allowance before actually making the move.

The TMO, an Air Force source said, will estimate the cost of a participant's move. The latter then will be able to draw his allowance (the exact percentage had not been determined) from his finance office, rent his vehicle, and make the move. After paying for all expenses, he is expected to come out ahead.

This is a completely optional program; no member will be "forced, coerced, or otherwise unduly encouraged to use this method to make a PCS move." However, the attractions seem to far outweigh the shortcomings—particularly when it is remembered that shipping possessions via commercial carrier is not only frightfully expensive, but often means late delivery, damaged goods, lost furniture, spats over claims, and general unpleasantness.

The new scheme eliminates frequent exasperating delays until a moving company is available or shows up. Of course, for a family with mountains of possessions, U-hauling is tough work. In any event, the owner maintains complete, personal control of his goods during the move. They can be used right up to moving day, and, on arrival at the new site, they're in hand, ready for settling in.

According to the General Accounting Office, which examined the move-your-own-goods proposition for administrative and legal ramifications, the Navy's results showed "a marked reduction in claims for damaged goods." All in all, GAO reported, the plan gives each member a chance to "use his spare time to earn some extra income while reducing the cost to the taxpayer."

USAF's early experience with the test program also forecasts significant savings for Uncle Sam and tidy extra cash payments for individual movers. For example, in a recent Air Force test sample of 103 household goods moves, ranging from across town to more than 2,000 miles, the total costs came to slightly less than $30,000. This was about half what would have been paid to commercial shippers, one USAF transportation official said. On one move alone, the outlay was only $611, compared with $1,475 that would have been spent if handled commercially.

There is some question about how many people will be interested in driving a sizable load of possessions 1,000 or more miles. The House sees the new project as a particularly attractive option for the younger enlisteds and officers, who tend to have fewer household goods.

USAF's examination of the 103 sample moves reveals that seventy-three were made by E-7s and below, with E-4s predominating. Company grade officers made twenty-nine of the moves, while two were by lieutenant colonels and one by a full colonel.

What about the moving companies and their multimillion dollar business of hauling service members' household goods? "They obviously don't like the potential losses, and they've made some protests," an official said, though he doubted their pressure would stymie the new program. "But you never know," he added as a word of caution.

U-hauling is one of the better personnel policy changes to appear in recent years. It's not often that the government comes up with a change that pleases both the troops and the budget makers. ■

The Bulletin Board

Tex., said his unit's training program was effective and that it received strong support from the Regular Air Force. He said his outfit must continue to train as "a complete unit" at least one weekend a month plus fifteen active-duty days "to maintain high standards."

Deputy Assistant Defense Secretary (Reserve Affairs) Will Hill Tankersley outlined how some of the Comptroller's recommendations are being carried out or will be. He rejected the proposal to cut training for Reservists whose military jobs are easy to learn or similar to their peacetime positions, because unit integrity requires the training of all assigned personnel.

Legislation as a result of the hearings appears unlikely, sources indicated.

Distaff Mechanics

The Air Force has cut in half the number of women it is recruiting for airplane mechanics jobs and is toughening the physical requirements. In addition, the service has produced for recruiters a film showing some of the nonglamorous aspects of being in aircraft maintenance; it "depicts women working in various conditions from a rainy flight line at McGuire AFB, N. J., to snow-covered Minot AFB, N. D."

The film, USAF says, "will clarify many . . . misconceptions about women in aircraft maintenance."

In most AFSCs, the Air Force reserves fifteen percent of the recruiting quota for women, but this has been reduced to 7.5 percent for airplane mechanics. The new physical standards are expected to block out some female applicants also. The changes are designed to weed out potential lady recruits who are not really interested or qualified to become knucklebusters.

Employment of the Handicapped

The Civil Service Commission in a federal-wide report has lauded the Air Force for outstanding performance in the hire-the-handicapped campaign. The report shows USAF with a 7.1 percent handicapped enrollment among its civilian work force, compared to Army's 3.25 percent and Navy's 2.15 percent. Among the seventy-eight federal agencies, Air Force ranked fifth (none of the top four has more than 7,900 employees).

Conflict of Interest

The Pentagon's top executive officers have warned that conflict-of-interest regulations are being tightened and will be enforced. Defense Secretary James R. Schlesinger has ordered each service to review the "entire area of gratuities" and related activities between military officialdom and Defense Department contractors. His deputy, William P. Clements, Jr., is in charge of the overall probe.

Dr. Schlesinger's "get tough" actions came in the wake of allegations that a number of prominent military officials improperly accepted hospitality from the Northrop Corp. The Northrop case is "probably only the tip of the iceberg," Dr. Schlesinger said. He added that when other firms are found to have extended hospitality or other favors, "that will be made public." Clements said, "I am looking for that iceberg" and "will take disciplinary action if I find more wrongdoing."

Short Bursts

Under **Palace Furlough,** USAF is allowing young pilots to separate, but with an option to return in three or four years. It's designed, Headquarters says, "to provide the Air Force increased amortization of pilot and navigator training costs." But USAF has no plans to extend the idea to nonrated officers, saying that the only nonrateds with similarly extensive training are in highly technical skills. And these people are in "critically manned" jobs and can't be early-released at this time.

The Defense Department has been told by Congress to submit a plan, by next April, that would **cut Academy cadet pay.** The lawmakers recommended the plan be modeled after ROTC cadet pay and said they visualize it "could represent about a ten percent reduction in the current $90,000–$100,000 per graduate cost" of West Point, Annapolis, and the Air Force Academy. Much of this was forecast in the October issue ("Speaking of People").

A few years ago nearly one of every four persons retiring from the military was **labeled disabled to some degree.** It's been great for income tax purposes. Then came the crack-down; for the past three years disability retirements have become almost as rare as hen's teeth. Military medics now acknowledge that a number of people retiring with genuine disabilities are not getting even small ratings.

Headquarters is booming the opportunities in the **security police career field** (AFSC 811X0). One recent message to the field said that airmen who volunteer for retraining into this field "can expect stimulating duty with rewards and challenges unlike any other AFSC. . . ." Needed are E-5s and above. Those interested are encouraged to contact their local security policy commander for details.

Fourteen USAF flyers were chosen by a recent selection board to attend **test pilot schools** next year. Twelve are bound for Edwards AFB, Calif., and one for the Navy's test pilot school at Patuxent, Md. The other officer, Capt. Harry H. Heimple, Luke AFB, Ariz., will attend the French test pilot school at Istres, France. Test pilot boards meet twice a year. Details are in AFR 53-19, or interested persons can write the Commandant, USAFTPS, Edwards AFB, Calif. 93523. There is a "continuing need" for high-quality applicants, Headquarters advises.

An optional, **year-round-wear uniform** for Air Force men and women will make its appearance in exchange and commercial stores "between January and April," according to Hq. USAF. The new combination is described as a complete uniform when worn with or without the uniform coat. For the men, there is a long sleeve blue shirt in a new design, and for the women a new overblouse. Both feature shoulder mark insignia on epaulets for officers and sleeve chevrons for enlisteds.

Fifty-two **captains in the logistics career field** have been chosen for "career broadening" beginning next spring and summer. Their performance will be monitored closely. After two years their records will be checked to determine if they stay in their designated broadening area, return to their primary utilization field, or move to another logistics specialty.

Senior Staff Changes

RETIREMENT: B/G Raymond L. **Haupt.**

CHANGE: M/G Colin C. Hamilton, Jr., from C/S, Combined Mil. Planning Staff, CENTO, Ankara, Turkey, to Cmdr., Def. Industrial Supply Center, DSA, Philadelphia, Pa. ■

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AFA News

By Don Steele
AFA AFFAIRS EDITOR

Here, from the left, Martin M. Ostrow, then AFA Board Chairman; then AFA President Joe L. Shosid; Angie Anderson, first President of the San Mateo County Chapter, holding the new charter; and California State AFA President L. T. "Zack" Taylor.

Naomi "Tillie" Henion, California State AFA Secretary, accepts AFA Special Citation from then National President Joe L. Shosid.

AFA's new President, George M. Douglas, meets with USAF Chief of Staff Gen. David C. Jones, left, and Secretary of the Air Force John L. McLucas.

Enjoying their visit to the Air Force Museum are, from left, Lorna Rzepnicki, St. Stanislaus School, East Chicago; Judith Krupinski, Hurley School, Chicago; Dehn Johnson and Teresa Timm, Wadsworth School, Griffith, Ind.; Lt. Col. Victor Heurlin, Air Force Reserve escort officer and a member of AFA's Chicagoland Chapter; Terri-Rose Baker and Colleen Derow, Scott Middle School, Hammond, Ind.

Lt. Gen. Kenneth W. Schultz, winner of AFA's newly established General Bernard A. Schriever Award, is flanked by then AFA President Joe L. Shosid, left, and General Schriever.

At a luncheon held during a recent meeting of the **California State AFA's Executive Committee** at Lake Tahoe, **Joe L. Shosid,** then AFA National President and now Chairman of the Board, made two presentations *(see photos).* He first presented an AFA charter for the newly organized **San Mateo County Chapter** to **Angie Anderson,** founder and first President of the Chapter. Then, he presented an AFA Special Citation to **Naomi "Tillie" Henion,** California State AFA Secretary and a former AFA National Director, "for a lifetime devotion of her vast talent and energy to the cause of aerospace power as one of an elite group of American women whose lives have been involved in the initial development and continuous support of our nation's civilian and military roles in the air and in space, and while serving the Air Force Association as a National Director, State and Chapter officer, and a highly respected and admired leader."

As the first order of business on his first day in office, AFA's new National President, **George M. Douglas,** met with the **Hon. John L. McLucas,** Secretary of the Air Force, and **Gen. David C. Jones,** USAF Chief of Staff, to discuss AFA activities for the coming year (*see photo*). Also at the meeting were **Gen. William V. McBride,** USAF Vice Chief of Staff; **Lt. Gen. Marion L. Boswell,** Assistant Vice Chief of Staff; **Jack L. Stempler,** USAF General Counsel; **Maj. Gen. Guy E. Hairston, Jr.,** Director, Office of Information; **Col. Harry J. Dalton, Jr.,** Deputy Director, Office of Information; **Joe L. Shosid,** AFA's newly elected Board Chairman; and **James Straubel,** AFA Executive Director.

Last year, AFA's **Wright Memorial Chapter,** of Dayton, Ohio, presented a Jimmy Doolittle Fellow award to **Lt. Gen. James T. Stewart,** Commander of AFSC's Aeronautical Systems Division, in appreciation of his outstanding support of AFA and Wright Memorial Chapter activities. This year, at the annual meeting of the Aerospace Education Foundation's Board of Trustees, held during AFA's 1975 National Convention, the Chapter presented another Jimmy Doolittle Fellow award. This time the award went to **Charles L. Backus, Jr.,** Vice President, Aerospace and Electronics Operations, Dayton Office, Rockwell International, for his outstanding support of AFA and Wright Memorial Chapter activities *(see photo).*

Winners of Air Force awards at science fairs in Chicago and northern Indiana were recently guests on a special Air Force **tour of the Air Force Museum** and the research and development facilities at Wright-Patterson AFB, Dayton, Ohio. This was the first year the Air Force has awarded a tour to local winners of Air Force awards in science fair competition *(see photo).* The trip was cosponsored by the Air Force's Midwest Office of Information; AFA's Chicagoland Chapter; the Chicago Public Schools; Calumet Regional Science Fair; and the 9014th Air Reserve Information Squadron, and the 928th Tactical Airlift Group, O'Hare International Airport.

More than 800 leaders of the Air Force, AFA, the community, and aerospace industry attended the **Greater Los Angeles Airpower Chapter's Second Annual Salute to SAMSO Luncheon** in the Los Angeles Marriott Hotel. **Dr. Walter B. LaBerge,** Assistant Secretary of the Air Force (Research and Development), was the guest speaker. **Joe L. Shosid,** then AFA's National President and now Chairman of the Board, was the master of ceremonies and presented AFA's General Bernard A. Schriever Award to **Lt. Gen. Kenneth W. Schultz,** now retired, but then Commander, Space and Missile Systems Organization *(see photo).* Retired Air Force **Gen. Bernard A. Schriever,** the Air Force leader whose name the award bears, spoke briefly and helped Mr. Shosid present the award. General Schultz, the first recipient of this new award, was cited for outstanding achievements in support of the USAF's missile and space program. The luncheon program also featured the presentation of nine Chapter awards by Chapter President **George Harter.**

Charles Backus, Jr., at rostrum, accepts his Jimmy Doolittle Fellow award. Standing, from left, behind Mr. Backus, are, George D. Hardy, Chairman of the Foundation's Board of Trustees and an AFA Past National President and Board Chairman; Lt. Gen. James T. Stewart, ASD Commander; Chapter President Fred Orazio; and Ohio State AFA President Robert L. Hunter. Seated at left is the Foundation's President, Dr. William L. Ramsey, and, at right, James H. Straubel, Executive Director of both AFA and the Aerospace Education Foundation.

Elton Edwards, right, North Carolina State AFA President, presents the State AFA's "Outstanding Junior Officer for North Carolina" award to 1st Lt. Robert Scheer, Base Medical Services at Pope AFB—one of several awards presented to outstanding USAF personnel at the State AFA's 1975 Convention.

—OFFICIAL USAF PHOTO

In appreciation for his exceptional support of AFA on both the local and national levels, Gen. Lucius D. Clay, Jr., Commander in Chief, North American Air Defense Command and Aerospace Defense Command, received a Certificate of Appreciation from AFA's Colorado Springs Chapter on August 29, the day of his retirement. Here, General Clay, center, accepts the citation from Henry "Kort" Kortemeyer, left, and Kenneth Johnson, Chapter Vice President and President respectively.

Gen. David C. Jones, right, USAF Chief of Staff, guest speaker at a recent meeting of AFA's Albuquerque Chapter, N. M., receives a key to the city of Albuquerque from Jack Kolbert, center, a member of the City Council. At the left is Ken Sarason, Chapter President.

AFA's Columbus Chapter, Ohio, which was chartered in April 1947, recently changed its name to "Captain Eddie Rickenbacker Memorial Chapter." Here, Columbus Mayor Tom Moody, second from left, presents a proclamation recognizing the name change to Chapter President Dick Hoerle. David White, second from right, Chapter Treasurer, and Mike Harold, Chapter Vice President, also attended the ceremony.

—PHOTO BY CLARENCE A. MILES

For the third year, AFA's Spokane Chapter, Wash., has sponsored orientation flights for cadets from the AFJROTC unit at Medical Lake High School. Eight pilots contributed their time and airplanes to make a series of sixteen orientation flights. Here, Lt. Col. Richard R. Parks, USAF, briefs cadets Dianne Rupley, Faye Gilley, and Cathy Ritchey before their flight. Clyde Stricker, a Past President of both the Washington State AFA and the Spokane Chapter, was the project chairman.

AFA State Contacts

Following each state name, in parentheses, are the names of the localities in which AFA Chapters are located. Information regarding these Chapters, or any place of AFA's activities within the state, may be obtained from the state contact.

ALABAMA (Auburn, Birmingham, Huntsville, Mobile, Montgomery, Selma): **James B. Tipton,** 3032 Hill Hedge Dr., Montgomery, Ala. 36111 (phone 205-263-6944).

ALASKA (Anchorage, Fairbanks): **Edward J. Monaghan,** 2401 Telequana Dr., Anchorage, Alaska 99503 (phone 907-279-3287).

ARIZONA (Phoenix, Tucson): **Robert J. Borgmann,** 2431 E. Lincoln Cir., Phoenix, Ariz. 85016 (phone 602-955-7845).

ARKANSAS (Blytheville, Fort Smith, Little Rock): **Jack Kraras,** 120 Indian Trail, Little Rock, Ark. 72207 (phone 501-225-5575).

CALIFORNIA (Apple Valley, Edwards, Fairfield, Fresno, Hawthorne, Hermosa Beach, Long Beach, Los Angeles, Marysville, Merced, Monterey, Novato, Orange County, Palo Alto, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Mateo, Santa Barbara, Santa Monica, Tahoe City, Vandenberg AFB, Van Nuys, Ventura): **Liston T. Taylor,** 4173 Oakwood Road, Lompoc, Calif. 93436 (phone 805-733-2723).

COLORADO (Aurora, Boulder, Colorado Springs, Denver, Ft. Collins, Grand Junction, Greeley, Littleton, Pueblo): **James C. Hall,** P. O. Box 30185, Lowry AFB Station, Denver, Colo. 80230 (phone 303-366-5363, ext. 459).

CONNECTICUT (East Hartford, Stratford, Torrington): **Margaret E. McEnerney,** 1476 Broadbridge Ave., Stratford, Conn. 06497 (phone 203-377-3517).

DELAWARE (Dover, Wilmington): **George H. Chabbott,** 33 Mikell Dr., Dover, Del. 19901 (phone 302-421-2341).

DISTRICT OF COLUMBIA (Washington, D. C.): **James M. McGarry,** 2418 N. Ottawa St., Arlington, Va. 22205 (phone 703-534-2663).

FLORIDA (Bartow, Broward, Ft. Walton Beach, Gainesville, Jacksonville, Orlando, Panama City, Patrick AFB, Redington Beach, Sarasota, Tampa): **Jack Rose,** 5723 Imperial Key, Tampa, Fla. 33615 (phone 813-855-4046).

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Airman's Bookshelf

Soviet Aviation

Russian Aircraft Since 1940, by Jean Alexander. Putnam & Co., Ltd., London, England, 1975. Available in the US through Rowman and Littlefield, 81 Adams Drive, Totowa, N. J. 07512. 527 pages. $32.50.

Probably the most intriguing and enigmatic of all the world's aircraft industries is that of the Soviet Union. Shrouded in mystery, rarely viewed by Westerners, and ranked with the best of its kind in the world, it is of particular interest to many of the world's aircraft historians and most of the free world's opposing air forces.

Recent years have seen a controlled relaxing of security on information concerning pre-1960 Soviet aviation developments. Results of this have been carried from time to time in sporadic aviation magazine articles, but until this year only one English language book had attempted to chronicle the new data.

In *Russian Aircraft Since 1940,* Jean Alexander, somewhat of a rarity in that she is a female aviation historian, has succeeded in assembling an outstanding volume on Soviet aircraft that is almost without peer in today's WW II-oriented aviation book market. Some 527 pages of her large and very well done reference volume are devoted to describing every airplane and helicopter known to have been built in the Soviet Union from 1940 to the present. Included are such rarities as the NB(T) night bomber, photos of the prototype MiG-17 interceptor, the near-awesome MiG Ye-166 high-speed research vehicle, and the latest information available on the impressive and strategically important Tupolev "Backfire" bomber and the Mach 3 MiG-25 "Foxbat" recon-interceptor.

With few exceptions, each airplane is illustrated with a photograph (many of typical Soviet quality), a three-view drawing, and a specification table. Most of the information and data appear, to this reviewer, to be quite accurate. However, the Mach 2.1 maximum speed attributed to the Tupolev Tu-22 "Blinder" medium bomber is questionable (other sources give the more reasonable figure of Mach 1.5).

Besides describing Russia's aviation products, the book also contains a well researched and very readable twenty-one pages on the history of the Soviet aircraft industry. This covers involvement in WW II, design and construction techniques both past and present, research, postwar development and the jet age, and design bureau organization as it is today. The appendices cover code names (both Air Force and NATO) and various piston and jet engine types.

Perhaps the only major failing of the book is its total exclusion of Soviet missiles and spacecraft. It would have been both appropriate and interesting to see these impressive vehicles covered in detail along with their more conventional, winged, counterparts. Nevertheless, it will very likely be quite some time before a more definitive volume becomes available.

—Reviewed by Jay Miller, Curator, University of Texas History of Aviation Collection.

Tac Air in WW II

The History of the Hell Hawks, by Charles R. Johnson. Published by the author, 6 Helena Drive, Cromwell, Conn. 06416, 1975. 623 pages, hardcover. $20 in US; $23 foreign orders.

We have seen many histories of World War II units, but nothing to compare with Charles Johnson's massive volume on the 365th Fighter Bomber Group (The Hell Hawks) from its activation on May 15, 1943, through fifteen months of combat in Europe, to deactivation in September 1945.

The author was a young crew chief assigned to the Group's 386th Squadron. After the war, he completed his studies in mechanical engineering and began an avocation as a military historian. Five years ago, he located the detailed records of the 365th in the General Services Administration archives in Washington. Those records, supplemented by combat narratives and photographs contributed by many former members of the Group and by the author's own diary, provided the basis for this professionally done history.

Like all good historical writing, *The History of the Hell Hawks* is more than a chronology of events. The author has recaptured the spirit of a unique moment in history—its humor, tragedy, and high adventure—as he lived it and as it was experienced by several hundred officers and enlisted men of one AAF combat unit. The book contains 570 pages of carefully researched and well-written text, more than 500 photographs and maps, and some fifty pages of appendices.

Mr. Johnson has set his account of the Group's combat operations in the broader context of the European War; hence its appeal extends beyond former members of the 365th Fighter Bomber Group to all those interested in tactical air operations of World War II. Of the 2,000 copies printed by the author, about 1,000 are still available at this writing. We believe Mr. Johnson's history of the Hell Hawks is destined to become a classic among the unit histories that came out of World War II.

—Reviewed by John L. Frisbee, Executive Editor.

New Books in Brief

The Battles for Cassino, by E. D. Smith. Controversy surrounds the four costly battles for the tiny town of Cassino, Italy, in 1944. Were the battles necessary? The author, a young officer at the time, ponders this question and others in his analysis of one of the bloodiest encounters of the war. Photos, maps, bibliography. Charles Scribner's Sons, New York, N. Y., 1975. 192 pages. $8.95.

B-52 Stratofortress in Action, by Lou Drendel. The venerable B-52 remains, in the words of the author, an effective, if somewhat tired, weapon system. Here are all the details on the big bird, from her beginning in 1946, through Linebacker II, to the present. The developmental history outlines design variations in cockpits, armaments, and airframe with specifics on testing. More than 100 photos. Squadron/ Signal Publications, 3461 Ten Mile

Road, Warren, Mich., 1975. 50 pages. $3.95.

Détente: Promises and Pitfalls, by Gerald L. Steibel. An examination of the evolution of détente from 1920 to the present. The author probes the 1972 US-Soviet agreements in terms of arms control, trade, crisis management in the Middle East, change and nonchange within the USSR, and the collateral effects on US allies and others. The final chapter is a "how-to" negotiating manual drawn from the experiences of those who have negotiated with the USSR over the past twenty-five years. Crane, Russak & Co., New York, N. Y., 1975. 89 pages. $4.95 hardcover. $2.95 paperback.

Flying Know-How, by Robert N. Buck. Good, solid flying advice from a real pro, a recently retired senior TWA Captain with more than 30,000 incident-free hours. His book goes beyond basics to the tricks, traits, and skills that can improve technique, all aired in a lively, personal narrative. Delacorte Press/ Eleanor Friede, New York, N. Y., 1975. 264 pages. $12.95 hardcover. $7.95 paperback.

The Glider War, by James E. Mrazek. During World War II, the glider was used in combat for the first, and probably the last, time. Here is a moving account of the fighting glider's five-year history, beginning with Germany's surprise glider attack on the Belgian Fort Eben Emael and continuing through glider development projects in Germany, Britain, and America. The author, a participant in the glider war, brings back the spirit of the men and their fragile machines now forever lost to history. Combat photos, maps, tables, charts, bibliography, index. St. Martin's Press, New York, N. Y., 1975. 304 pages. $12.95.

Photo-Atlas of the United States, produced by Photo-Geographic International. This is the first atlas showing complete satellite photographic coverage of the United States. Includes 110 duotone maps made from Landsat photography, supplemented by ten full color "close-ups" of major cities taken from aircraft flying at 60,000 feet. Borders, boundaries, and names have been drawn in for easy reference, and accompanying text describes the terrain. The result is a fascinating view of America. Ward Ritchie Press, Pasadena, Calif., 1975. 127 pages. $9.95 hardcover. $5.95 paperback.

Project Cancelled, by Derek Wood. London Editor of *Interavia* since 1953 and an aviation and military editor for twenty-five years, the author discusses the wrong decisions, poor choices, and foot-dragging, as well as the prejudice, politics, and bureaucracy that wasted the British aircraft industry. The abandoned aviation projects that he analyzes have had far-reaching impact on the economic health of the nation. Cases discussed include the Miles M52 and the demise of the Avro 739 supersonic bomber. Photos, drawings, and appendices. Bobbs-Merrill Co., Inc., New York, N. Y., 1975. 253 pages. $12.50.

The Soviet Union: Yesterday, Today, Tomorrow, edited by Foy D. Kohler and Mose L. Harvey. The results of a conference on Soviet affairs involving leading Soviet experts whose collective experience spans fifty-five years since the Bolsheviks assumed power. Many topics are explored, including continuity and change since the Revolution, Soviet expansionism, determinants of Soviet behavior, the military factor, and the future. Of particular interest is an examination of the Soviet view of détente. The experts agree that Russia equates détente with the Soviet doctrine of peaceful coexistence, designed to obtain unilateral advantages for the USSR. In looking ahead, the scholars see no basic change in the domestic structure. They predict, however, a continuing buildup of Soviet might with the aim of making Russia the No. 1 power in the world. May be ordered from the Center for Advanced International Studies, University of Miami, 1730 Rhode Island Ave., N. W., Washington, D. C., 1975. 220 pages. $9.95 hardcover. $6.95 paperback.

US Policy and Strategic Interests in the Western Pacific, by Yuan-li-Wu. The book attempts to interpret US foreign and defense policy in the Western Pacific during Nixon's first term and the first eighteen months of his second term. One of its themes is that the internal and external impressions created by a nation's policies may be greatly at variance with the original intent of the policymakers. Crane, Russak & Co., New York, N. Y., 1975. 214 pages. $14.50 hardcover. $7.50 paperback.

—Reviewed by Robin Whittle

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35-39	50,000	40,000	12,500	10.00
40-44	35,000	25,000	12,500	10.00
45-49	20,000	15,000	12,500	10.00
50-54	12,500	10,000	12,500	10.00
55-59	10,000	10,000	12,500	10.00
60-64	7,500	7,500	12,500	10.00
65-69	4,000	4,000	12,500	10.00
70-75	2,500	2,500	12,500	10.00

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30-34	97,500	75,000	12,500	15.00
35-39	75,000	60,000	12,500	15.00
40-44	52,500	37,500	12,500	15.00
45-49	30,000	22,500	12,500	15.00
50-54	18,750	15,000	12,500	15.00
55-59	15,000	15,000	12,500	15.00
60-64	11,250	11,250	12,500	15.00
65-69	6,000	6,000	12,500	15.00
70-75	3,750	3,750	12,500	15.00

Optional Family Coverage
(May be added either to the Standard or High-Option Plans)

Insured's Age	Spouse Benefit New	Spouse Benefit Old	Benefit, Each Child**	Monthly Cost Family Coverage
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30-34	10,000	6,000	2,000	2.50
35-39	10,000	6,000	2,000	2.50
40-44	7,500	5,250	2,000	2.50
45-49	5,000	4,050	2,000	2.50
50-54	4,000	3,000	2,000	2.50
55-59	3,000	3,000	2,000	2.50
60-64	2,500	2,250	2,000	2.50
65-69	1,500	1,200	2,000	2.50
70-75	750	750	2,000	2.50

*In the event of an accidental death occuring within 13 weeks of the accident, the AFA plan pays a lump sum benefit of $12,500 **in addition** to your plan's regular coverage benefit, except as noted under AVIATION DEATH BENEFIT, below.

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The Accidental Death Benefit and Aviation Death Benefit shall not be effective if death results: (1) From injuries intentionally self-inflicted while sane or insane, or (2) From injuries sustained while committing a felony, or (3) Either directly or indirectly from bodily or mental infirmity, poisoning or asphyxiation from carbon monoxide, or (4) During any period a member's coverage is being continued under the waiver of premium provision, or (5) From an aviation accident, either military or civilian, in which the insured was acting as pilot or crew member of the aircraft involved, except as provided under AVIATION DEATH BENEFIT.

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Rank Last First Middle

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Date of birth Mo. Day Yr.	Height Weight	Social Security Number

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☐ $180.00	☐ $210.00	**Annually.** I enclose amount checked.	☐ $120.00	☐ $150.00

Names of Dependents To Be Insured	Relationship to Member	Dates of Birth Mo. Day Yr.	Height Weight

Have your or any dependents for whom you are requesting insurance ever had or received advice or treatment for: kidney disease, cancer, diabetes, respiratory disease, epilepsy, arteriosclerosis, high blood pressure, heart disease or disorder, stroke, venereal disease or tuberculosis? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance been confined to any hospital, sanitarium, asylum or similar institution in the past 5 years? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance received medical attention or surgical advice or treatment in the past 5 years or are now under treatment or using medications for any disease or disorder? Yes ☐ No ☐

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I hereby authorize any licensed physician, medical practitioner, hospital, clinic or other medical or medically related facility, insurance company, the Medical Information Bureau or other organization, institution or person, that has any records or knowledge of me or my health, to give to the United Benefit Life Insurance Company any such information. A photographic copy of this authorization shall be as valid as the original. I hereby acknowledge that I have a copy of the Medical Information Bureau's prenotification information.

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Bob Stevens'

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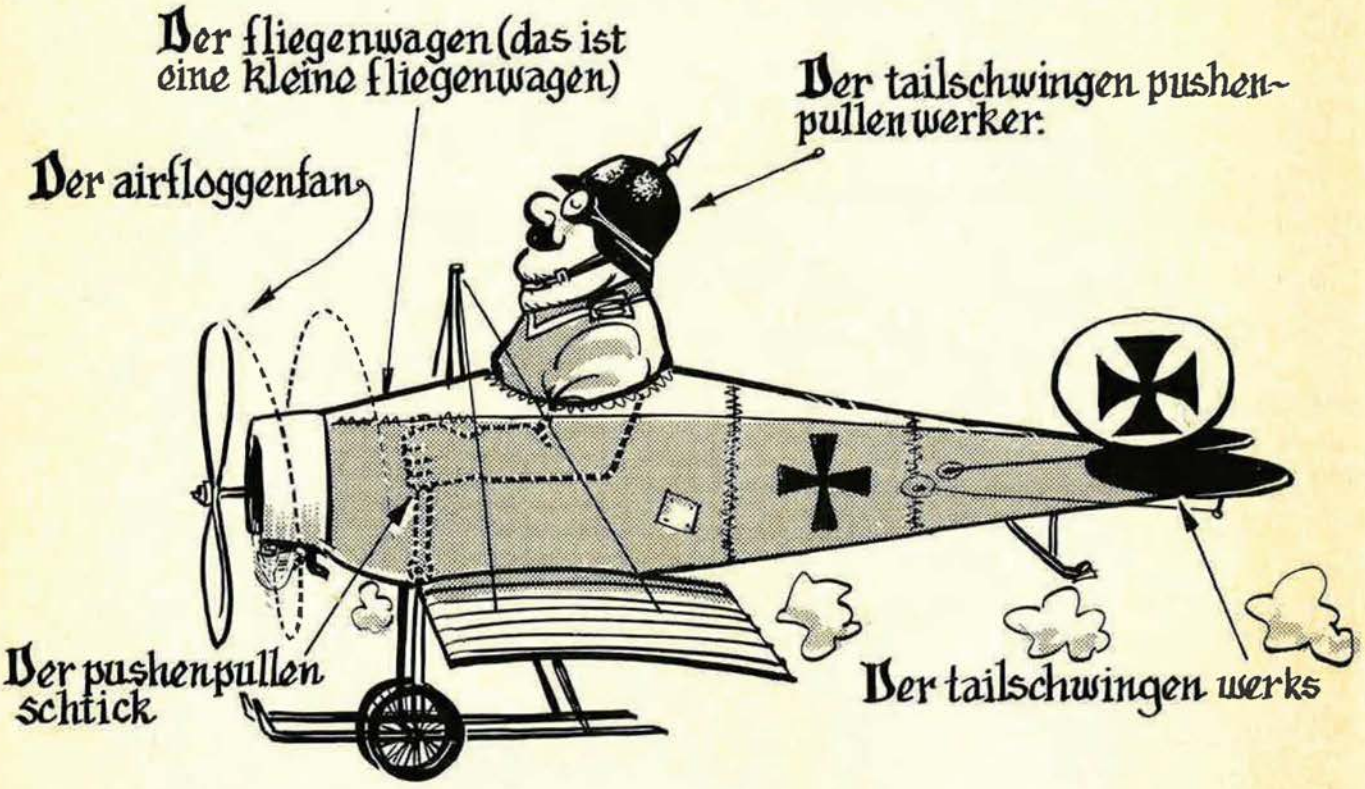
PART I



to be continued ~

Bob Stevens

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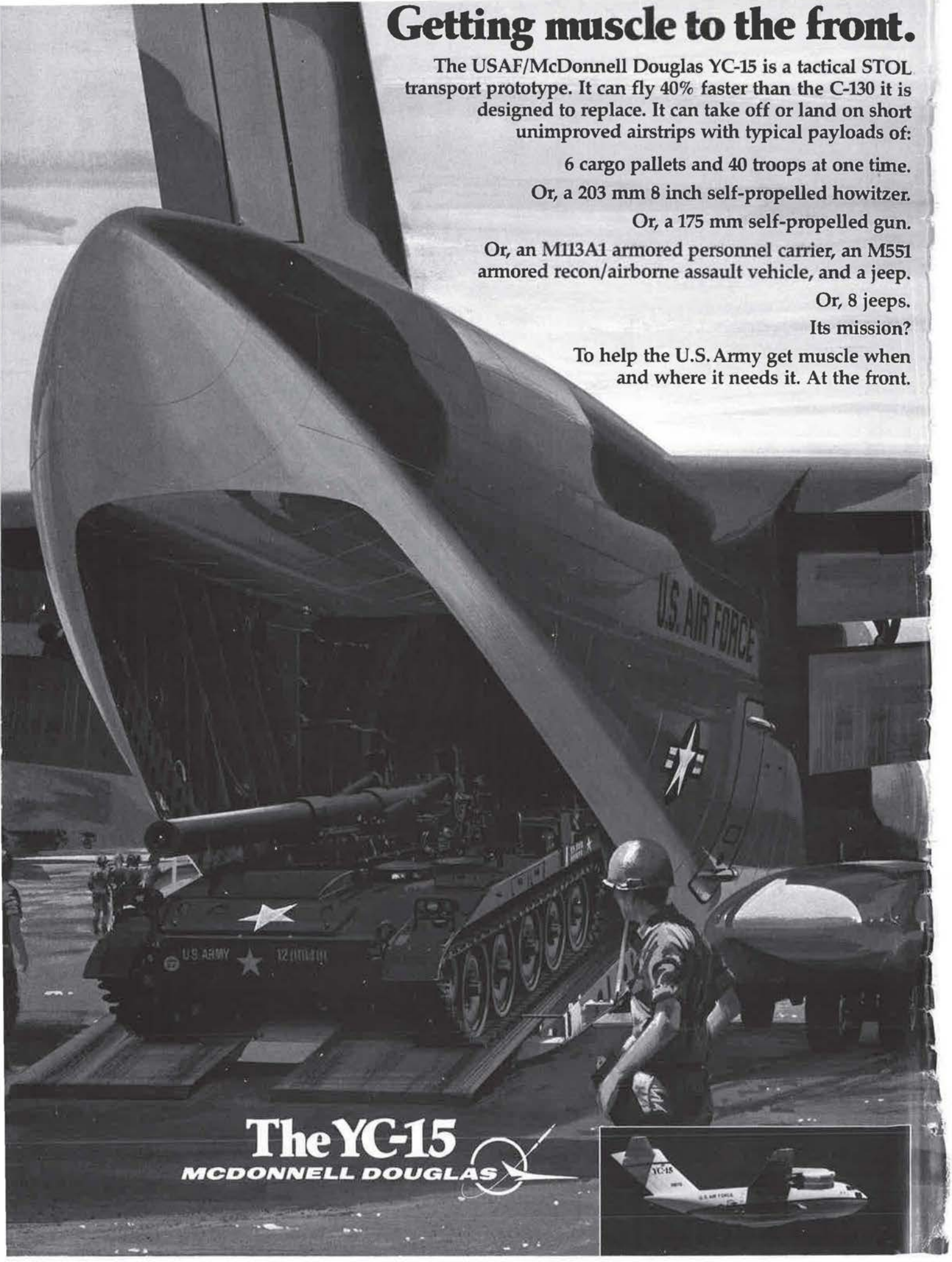

The YC-15

MCDONNELL DOUGLAS