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AIR FORCE

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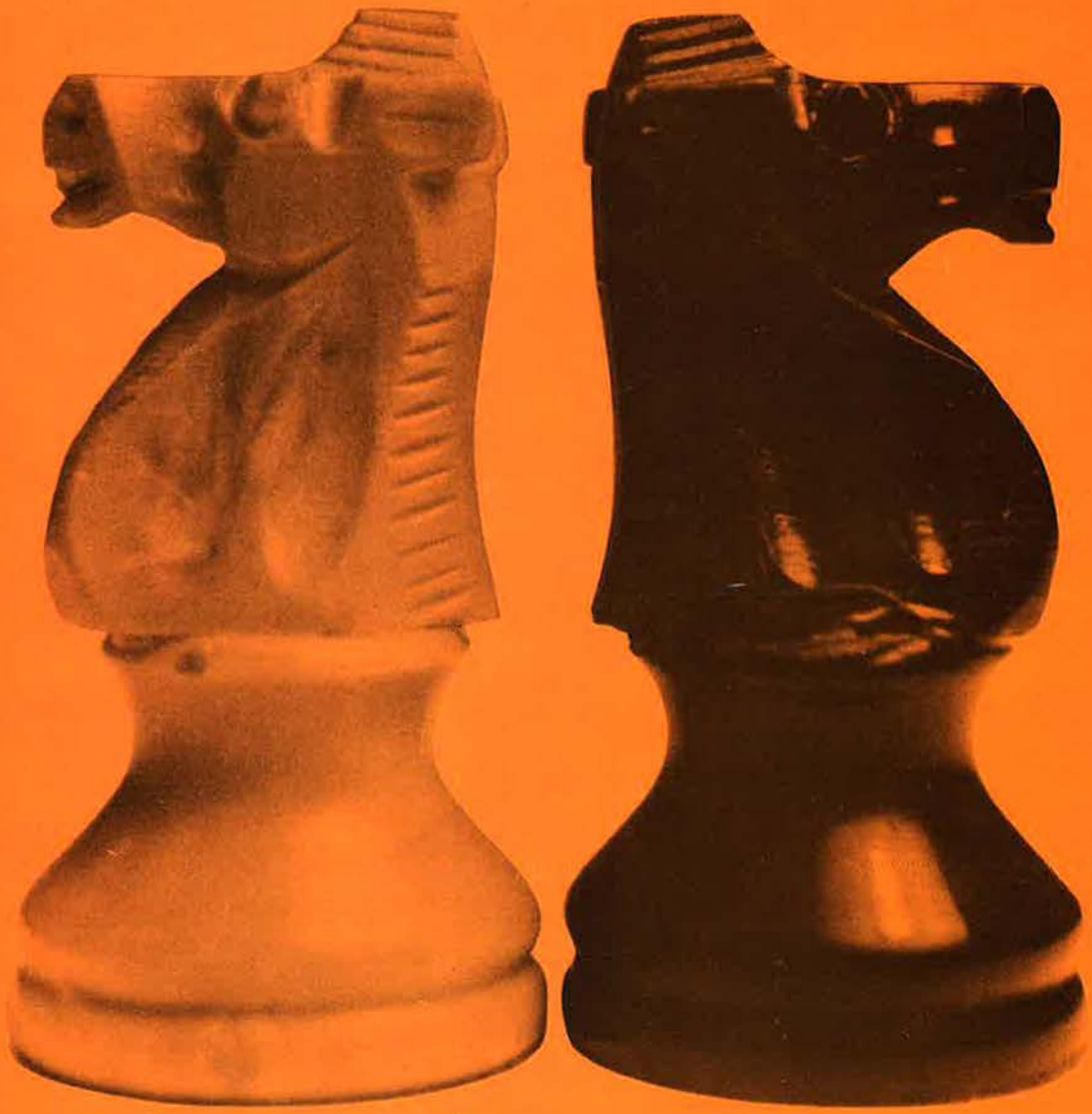
MAGAZINE

THE MILITARY BALANCE 1974/75



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VOUGHT
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AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

DECEMBER 1974
VOLUME 57, NUMBER 12

This Month

The Military Balance 1974/75

A Publication of The International Institute for Strategic Studies, London

ABOUT THE COVER

Chessmen—an age-old symbol of military strategy and relative strength in a hostile world. AIR FORCE Magazine once again proudly presents "The Military Balance," beginning on p. 41. Cover photo by Bill Ford.

Departments

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WHILE YOU'VE GOT RUNWAYS, DOES TH

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ARRIER MAKE SENSE?

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THE SYNERGY OF CRISIS

By John L. Frisbee
EXECUTIVE EDITOR, AIR FORCE MAGAZINE

It is now traditional that our December issue be devoted largely to "The Military Balance," published under an exclusive arrangement with The International Institute for Strategic Studies in London. It is the single most important unclassified study available to those interested in defense affairs.

"The Balance" provides a foundation on which intelligent assessment of US defense needs must be based. It is, as the Institute makes clear, a *quantitative* report on the military forces and defense expenditures of nearly 100 countries as they were in July 1974. There is no attempt to judge the quality of forces or the implications of the balance between potential opponents in any specific area, or worldwide. Where comparisons are drawn, as in the case of the theater balance between NATO and the Warsaw Pact, "The Balance" carefully notes that its analysis is "military only, and thus one-dimensional." But the military dimension is a critical one, often ignored or misunderstood by journalists, commentators, and politicians. Thus "The Balance" fills an important need.

If one accepts the frequent statements of Soviet spokesmen that Russia's goal remains world domination, the quantitative information presented in "The Balance" provides plenty of cause for concern. The Soviet Union's enormous investment in military R&D and procurement has enabled it to embark on what Secretary of Defense James R. Schlesinger calls "one of the most dramatic strategic deployments in the history of arms."

But quantitative shifts to the advantage of the USSR assume even more ominous proportions when set in an economic and political context. The NATO situation is a prime example.

In the last few months, we have seen Greek forces withdraw from the Alliance, a rift develop between the US and Turkey, Italy stagger into virtual bankruptcy, a left-wing government installed in Portugal, continued decay of the British economy and spirit, and a decline in the defense budgets of several NATO nations—budgets already low compared in percentage of GNP to that of the US. Meanwhile, several disillusioned Soviet economists have revealed that the USSR invests between thirty and forty percent of its GNP in arms, contrasted to about six percent for the US and an average of less than three percent for our NATO partners.

Much, but not all, of the disarray in NATO is a result of economic reverses caused by exorbitant oil prices set by the Oil Producing and Exporting Countries (OPEC). Largely as a result of the oil cartel's actions, the industrial nations had a combined trade deficit at the rate of $51 billion in the second quarter of this year, compared to $10 billion a year ago. It is almost inevitable that this economic adversity will be reflected in even tighter future defense budgets. In effect, the OPEC nations have become—in some cases perhaps unwittingly and in others unwillingly—allies of the oil-rich, largely inflation-proof, and politically unresponsive USSR in weakening the non-Communist world on which cartel members ultimately depend for their own survival.

Our allies and friends will be hard put to muster the courage and unity to face up to a combination of political and economic warfare if they lack confidence in the ability and willingness of the US to help them defend their institutions and interests. Surely their confidence will not be bolstered by the sight of the US withdrawing equipment from its combat units to supply the Israelis, while the USSR ships vast quantities of stored equipment to its Mideast clients.

History may not repeat itself in detail. But there are worrisome similarities between the world situation in the 1930s and today. The economic depression of those times seemed as intractable as does today's energy crisis, which portends disaster for the western industrial world. Preoccupied with internal problems and lacking the leadership needed for a united front against Hitler, the democracies drifted so nearly to the point of no return that a shrewder, more analytical enemy could have won it all.

Today, the only free nation capable of providing leadership is the US, and its capacity to lead is directly related to its military capability. We have the resources and technology to match the Soviets. We are not doing so, because of national preoccupation with bread-and-butter problems. The Kremlin must be jubilant at the prospect of induced economic collapse which it could exploit through military superiority—and quite probably without firing a shot.

Our national leadership continues to hack at the elements of the crisis piece by piece. It won't work that way. The pieces have to be put together in a *coherent* picture of the entire danger that lies ahead. If this is done, the American people will respond positively. They always have. But if the picture is not soon made coherent, in all its ominous proportions, it may be too late. Unlike the 1930s, the competition is not an erratic megalomaniac. It is a cold, calculating, and patient corporate structure that knows what it wants, is willing to do what has to be done to achieve it, and recognizes that fear, panic, disarray, and time all are on its side. ■


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205-90
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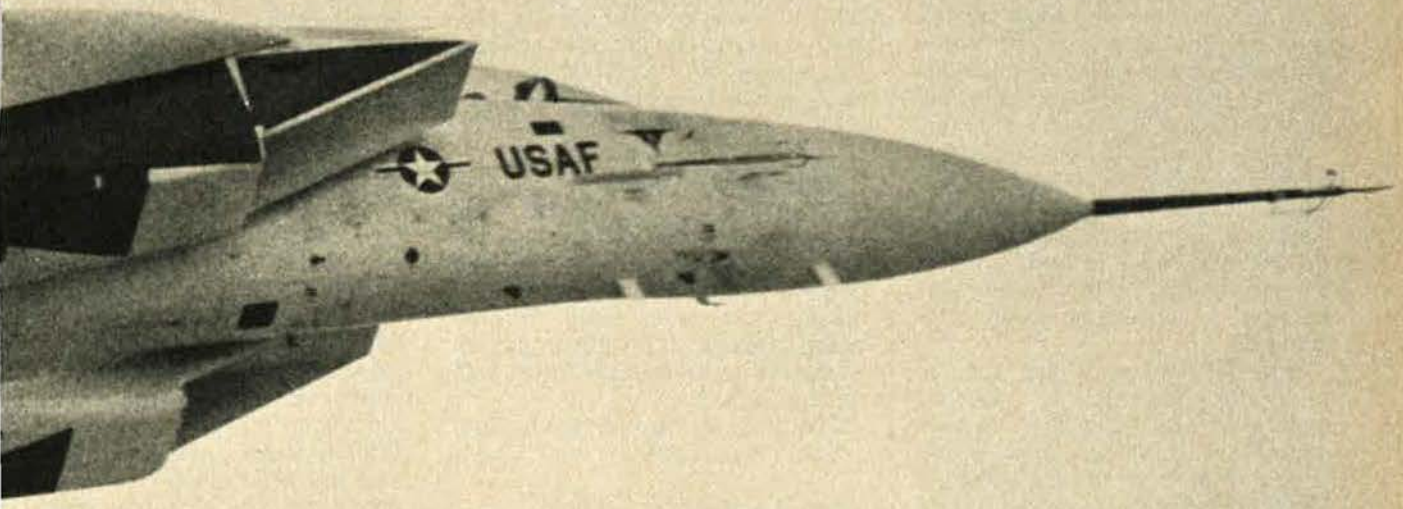
Pratt & Whitney Aircraft, Division of United Aircraft Corporation, East Hartford, Conn. 06108.



Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

Dependability that pays off on the bottom line.

Airmail

Tragedy of Pacifism

Gentlemen: Reference your editorials of July (". . . inaction by one side can . . . well lead to action by the other.") and September ("Weakness invites war . . ."); these are such fundamental and historically reaffirmed truths that one wonders at any citizen of the twentieth century who is unable, or worse, unwilling to understand them. Yet it took no less an intellect than the late Albert Einstein most of his life and three changes of allegiance to arrive at the conclusion that pacifism and survival are irreconcilable.

From a practical standpoint, there is a more subtle, and more significant, specific truth included in the general truth you have enunciated—one for which we need look no further back than the time of Hitler.

Let me first rephrase the general truth: Weakness invites *attack*. Consider France, whose combat with Germany began with "une drôle de guerre" and ended in rout. To paraphrase another quote, "This was not war . . . it was not even magnificent."

Now let me state the specific truth: The *appearance* of weakness results in *war.* Consider Britain, thousands of whose best young people (which is to say potential officers) signed the so-called Oxford Manifesto, which declared to the world that *this* generation (the sons of the dead of World War I) would never again go forth to fight for King and Country ("Hell no, we won't go."—sound familiar?). It was this and similar manifestations of liberalism that led Hitler to the conclusion that Britain would not fight. What a disastrous miscalculation that was . . . not just for Hitler and Germany, but for the hapless millions who lost life, kin, health, and property thereby.

The brutal truth is this: The weak, like France, fall easily, and no great harm is done. In fact, the weak deserve their fate. The strong do not invite attack, and history provides no example of successfully concluded attack against a stronger adversary. But in between are what Churchill called the improvident, who appease the wicked, who "will not fight for the right when [they] can win without bloodshed"; who "will not fight when victory will be sure and not too costly"; but who "come [at last] to the moment when they have to fight with all the odds against them . . . even . . . when there is no hope of victory, because it is better to perish than live as slaves."

It is when people who have permitted themselves to be bullied finally turn and fight that you have *war* in the absolute meaning of that word. We tried the wrong defendants at Nuremberg. It was not Hitler and his crew who made World War II; it was the foolish, improvident liberals whose incompetence and lethargy deceived him and persuaded him that the peoples they spoke for were degenerate and cowardly.

Yes, the basic requirement is that America be strong; but we must also persuade our declared and potential enemies that we have not only the will but the means, and the means must be *in being.* For between nations, the *appearance* of weakness is more dangerous than weakness itself.

Col. John M. Verdi, USMCR (Ret.)
Santa Ana, Calif.

When Will We Ever Learn?

Gentlemen: We finally appeared to be on the brink of producing a few aircraft that could do what they were designed for and do it better than those they might meet in combat. However, according to the article "New Ways to Fly and Fight" by Edgar Ulsamer, in the September issue, it appears that we are going back to the old ways of building multipurpose aircraft that are pretty good at many things but not very good at any one thing. My specific reference is to General Stewart's comment that "There is no way we can live with the barebone avionics of the [ACF] prototype vehicles." Naturally, the avionics should be refined from prototype to production, but the purpose of the ACF was to build a cheap ($3 million instead of $5–15 million), highly maneuverable fighter that could handle the dogfight threat (*i.e.,* day, VFR, high subsonic to low supersonic flight).

We already have our F-15 and F-4 for the all-weather, ECM environment. Our problem is to counter the Soviet threat of mass numbers of small, more maneuverable fighters that have reduced our kill ratio of nearly fifteen to one in the Korean War to near parity in the war in SEA. The YF-16/17s appeared to have done just that and have done it so well that numerous foreign countries have expressed the desire to "buy American." I feel that we would not "prefer" capabilities approaching the F-15 but, instead, would prefer to be able to afford four ACFs for the price of one F-15, leaving us with a high/low mix instead of a high/not-so-high mix.

If we check the record of the two most recent wars in which fighter aircraft played a vital role (SEA and Yom Kippur), we find that the majority of the total kills were made by gun and infrared missiles. While the kill probability of Sparrow, when fired on a controlled range, may be close to that of Sidewinder, it is more difficult to fire in combat and suffers from the problem of visually identifying the victim prior to firing. Due to these limitations, the USN and the IAF (whose air-to-air records exceed ours), rely primarily on 'winders and guns. Therefore, we need not Sparrow, but more ACF and crews in them who are properly trained for the air-to-air role. And we certainly do not need to "squeeze as much air-to-ground capability into the aircraft as possible without unduly compromising the primary air-superiority mission." We have no need for air-to-ground capability until we have at least local air superiority, and we are not going to achieve that by hanging bombs on the ACF! At least we haven't suggested that the A-10 help in the air-superiority role—yet.

Squeezing additional mission capabilities into an aircraft affects far more than the results of the extra weight and drag would indicate. In the same article, reference is made to adding to the F-15's air-to-ground role (and how they plan to utilize pulse Doppler radar for air/ground

You can't miss when you put 'em through yourself.

I'm Bill Russell.

In basketball I tell my players when they have a sure shot, take it.

)on't pass off!

'he same holds true when it comes to saving money on Long Distance. If you dial your
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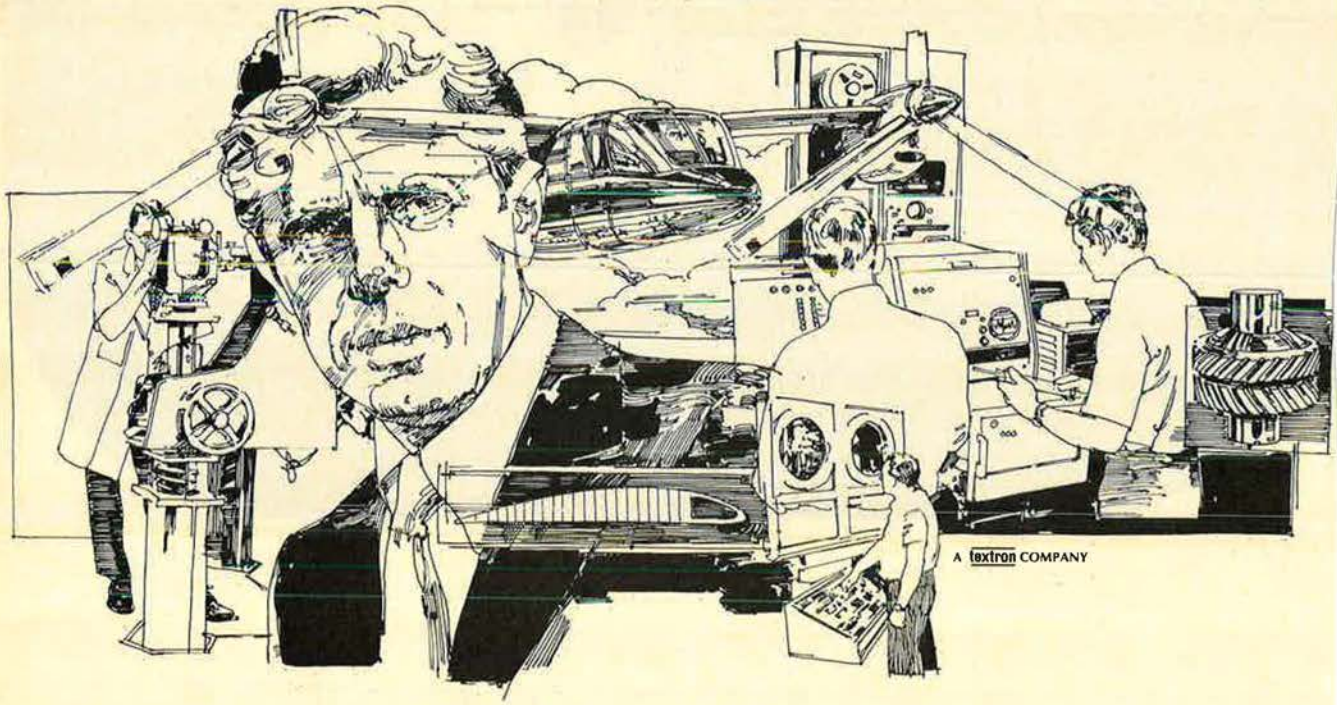
o save on Long Distance calls, put 'em through yourself.

When all you make are helicopters, one of the things you emphasize is Research and Development.



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Airmail

work is beyond me) and adding the ability to deliver nuclear weapons. The result is a single pilot who, in a time of reduced flying hours, must now be proficient in three major roles, day/night, and all weather.

Fighter pilots do it better, but they do it best if we stick to one "it"—in this case, killing enemy aircraft. With as complicated a weapon system as the F-15, we cannot expect one man to be able to handle all these roles with any foreseeable amount of training available.

The USN solves the problem by giving the majority of the bombing to the A-6s and A-7s. We have many fine bomber pilots in the A-7, F-111, and FB-111 communities, and since we don't ask them to be proficient in ACM, we should not be expected to be proficient in their ball park.

As I have discovered in my two years with the Navy's fighter community, the secret to winning ACM is in designating it as a single role and becoming ACM specialists, in thought and in training. Not many Navy fighter pilots can hit the ground with a bomb, but when they tangle with a MiG, there's not much doubt as to who is going to fly home.

Let's develop the ACF as a single role aircraft (ditto for the A-10) and save the multirole aircraft for the high portion of the high/low mix.

Capt. A. Lee Harrell, USAF
USAF/USN Exchange Program
FPO San Francisco

Space Trackers

Gentlemen: Next year's joint US and USSR Apollo-Soyuz Test Project (ASTP) manned space mission will provide an opportunity for radio amateurs around the world to monitor an American and a Soviet manned spaceship in space simultaneously. Many groups are organizing an extensive effort to follow the flight by shortwave radio.

One group of satellite trackers has been in existence for almost a decade. The "Kettering Group" (named after the hometown of its English founder) has been listening in on Soviet satellites since the early days of the space age.

A branch of the Kettering Group is now being organized in North America. We are looking for individual radio amateurs, radio clubs, or even school science classes who want to take this opportunity to use a real space mission to teach many aspects of radio, mathematics, and space science.

Because of the nature of Soviet space signals, there are some very important areas of the world which we want to cover. Outside of northeast North America and the western Caribbean, we need interested people in Japan, Korea, and the Middle East. All they need is some radio gear that can pick up at around 20 MHz and at 121 MHz. Military personnel stationed in these areas will be welcome in this unofficial and strictly amateur group.

If you are interested in participating, please send some details about yourself and your radio equipment, and a stamped, self-addressed envelope to

Capt. James E. Oberg, USAF
P. O. Box 46
College Park, Md. 20740

Ms. Cadet

Gentlemen: As a military academy graduate with twenty-four years in the Air Force, a son presently a freshman at West Point, and a daughter a college senior, let me state that Ed Gates's October column, "Will the Service Academies Go Coed?" has a lot of meat but isn't the whole hog. Although I am not a "prominent source," let me give you a few practical objections to females at the academies. There are really only three—getting in, graduating, and serving a full career. I am definitely not against female Air Force officers, by the way, and have unsuccessfully—so far—encouraged my daughter to apply for an Air Force career.

First—getting in. Something like 10,000–14,000 boys apply yearly for 1,450 appointments. Having just gone through this with my son, I know that it is a trying time. The academies do not know what makes a career officer but try to appoint those best suited on an overall basis (academic, which I'm sure females could meet; physical condition, which I'm not sure they could—this is throwing the basketball, running, etc., and meeting certain physical exam requirements). I do not believe many girls could survive competition on an overall basis. Many well qualified boys do not get in now because of their relatively lower standing. I understand that exceptions are made for minority groups, but girls are obviously in a majority status.

Second—graduating. Four years of academy life is tough, and thirty to forty percent never make it. For every cadet who does not make it, the potential cadet he displaced might have been the R. E. Lee of his class—and I am sure the failure rate of girls will far exceed that of the boys.

Finally—career plans. The primary purpose of the academies is to turn out career officers for the armed services. I'm disgusted with the high resignation rate we have had lately (I would put a ten-year firm commitment on each graduate, myself), but am convinced the resignation rate would be far higher for girls than boys. They have so many more reasons for resigning (like getting married and having children to raise). Thus, the primary purpose for sending them to the academies has failed.

I, personally, do not agree that each graduate is a potential Chief of Staff, but do agree that somewhere in each class lurks someone with that potential. Putting temperamental, emotional females in to engage in future wars, or even big business (which the nonwarring services are), would be a waste of national resources. I fully believe that ROTC, our biggest supply of new officers, could supply all the girls the services need. Outstanding ROTC graduates could still become Chief of Staff—look at Curtis LeMay.

Lt. Col. F. E. Thompson
Fairborn, Ohio

Blimp Historian

Gentlemen: As an amateur historian of Lighter Than Air, I was delighted with the article, "Free Spirit in a Free Balloon," by Joe Christy, in your September issue. I hope articles like this give as much interest and pleasure to all your readers.

I was particularly interested to read of the first C-6 motor observation balloon at Post Field as a retired Navy LTA friend, Hepburn Walker, recently wrote me about flying in this very blimp as recently as 1950. It seems that the Army clung to sixteen of the C-6, C-8, and C-9 motor OBs until 1943, when they were shipped to Lakehurst but never used by the Navy. After the war, all were purchased by Douglas Leigh Sky Advertising Co., and C-6-36-11 (which appears to have been the very first C-6) was rigged and

Airmail

flown at Lakehurst at least twice, on February 7, 1948, and March 20, 1950. None of these old Army airships was used for advertising.

I am sorry to have to correct the caption of the illustration on page 91. A careful inspection reveals that the number on the envelope is actually C-71, rather than C-7. C-71 is an abbreviation of TC-11-271, one of two TC-11-class blimps procured in 1928 or 1929. The other was -272. These airships, along with all the other Army coastal-patrol blimps, were turned over to the Navy at the beginning of FY 1938, but only the two most modern of these, TC-13 and TC-14, were ever used for offshore patrol in World War II.

C-7 actually was, in its time, a rather famous Navy blimp that, in 1921, became the first airship ever to fly anywhere using helium as its buoyant gas. Its subsequent career and eventual fate are obscure, at least to me, and I would greatly appreciate any information readers could give.

Donald Woodward
922 S. Patrick St.
Alexandria, Va. 22314

Still in Control

Gentlemen: Please be advised that Roscoe and what he stands for has not been and will not be forgotten. He still reigns supreme at Korat RTAFB and the officers' club remains the center of his domain. It is true that through some misunderstanding he was inappropriately banned from entry to the club for a three-hour period during one afternoon last May. However, this was remedied quickly with a minimum impact on his accustomed routine. Although he is old, Roscoe is as wise and spirited as ever and manages to find a way to get wherever he wants to go, whenever he wants to go there.

All of us here at Korat take great pride in the tradition and history that Roscoe exemplifies. I can understand the concern of anyone who knows of Roscoe and his story, as my first introduction to him came as a Thud pilot at Korat in 1965. In the intervening years between my assignments here, I, too, wondered about the old boy's status.

To assure that all my contemporaries are brought up to date, I have asked my information officer to prepare a brief story on today's Roscoe and forward it to your magazine for use as you see fit. For now, I offer my personal guarantee that Roscoe is alive and well and, as always, he is in complete control of the situation.

Col. John P. Russell
Commander, 388th Tactical Fighter Wing
Korat RTAFB, Thailand

• *Readers will remember the letter about "Roscoe's Plight" in the October "Airmail" column. We thank Colonel Russell for his prompt reply and assurances that Roscoe is indeed still the dog with the mostest. And we sincerely hope Colonel Russell wasn't bombed with a planeload of letters from irate Roscoe lovers.*—THE EDITORS

52d Pursuit Sqdn. Members

Gentlemen: Would greatly appreciate help in locating persons who were attached to the 52d Pursuit Squadron which was assigned to the 32d Pursuit Group at France Field in January 1942.

My late uncle, 2d Lt. Cilio S. Guerriere, was killed in a plane crash near Penonome, Republic of Panama, on January 2, 1942, and I am interested in learning the details of the circumstances surrounding the incident.

I am hoping some readers may be familiar with the crash or possibly know someone who was in that area at the time.

LCDR. Cilio N. Guerriere, MC, USNR
Plastic Surgery Clinic Code 33
Philadelphia Naval Hospital
Philadelphia, Pa. 19145

Enthusiastic Newcomer

Gentlemen: I was just commissioned out of AFROTC at the University of Texas at Austin in August. Recently, I received a letter from AFA President Joe Shosid concerning the Air Force Association Salute Program, and have begun to receive AIR FORCE Magazine. I wish to express my deepest appreciation to Mr. Shosid, each of you, and to all members of AFA for making this program possible.

I am presently doing prerequisite work for a graduate management degree, and am delayed awaiting entrance into Undergraduate Helicopter Training. My orders are cut for May 11, 1975. These few months until May will be the longest I will ever experience, as I am chompin at the bit and rarin' to go.

Being an AFA member gives me the much-needed sense of belonging and a continued feeling of contact with the Air Force. At least I'm not entirely in the dark. I enjoy reading AIR FORCE Magazine, and my wife enjoys reading it. We are able to gain more insights into the Air Force that will be extremely valuable to both of us later.

The Salute Program is fantastic and I hope it can continue for those who follow after me. I look forward to many years of service in the Air Force and membership in AFA. Thanks very much!

2d Lt. David G. Hoffman, USAFR
Austin, Tex.

Attention, 2d Bomb Gp.

Gentlemen: I was a B-17 pilot during World War II, stationed in Foggia, Italy, and would be interested in learning if there is a history of the 2d Bomb Group, to which I was attached. Also I would be interested in knowing if there is an organization of former members of this Group. If not, I would like to hear from any former members and discuss starting an organization.

Arthur K. (Kemp) Fores
2122 Hancock Drive
Austin, Tex. 78756

UNIT REUNIONS

20th Air Force Association

Plans for three special tours in 197 have been announced by the 20th Air Force Association. In mid-February, the group will do a 16-day Around South America tour with visits to Rio de Janeiro, the Iguassu Falls, Buenos Aires Lima, Cuzco, and Machu Picchu. In late April, a 2-week tour will take off fo Iberia and Morocco. And beginning August 9, for the sixth consecutive year a group will depart for a 24-day tour o former Pacific Island bases and Asia The trip will include visits to the Mar ana Islands (Guam, Saipan, and Tinian Hong Kong, Bali, Australia, New Zea land, and Tahiti. Details from

20th Air Force Associatio
Box 5534
Washington, D. C. 20016

466th Bomb Group (H)

The fourth reunion of the 466th Bom Group (H) will be held May 30–June 1975, at Norwich, England. All other 2 Air Division Groups will meet here also For further information contact

Lt. Col. John H. Woolnoug
7752 Harbour Blvd.
Miramar, Fla. 33023

SCIENCE/SCOPE

A space-qualified three-stage cryogenic refrigerator, designed for super-cooling infrared sensors to increase their sensitivity, has been developed for the U.S. Air Force by Hughes. It is the first three-stage refrigerator of the Vuilleumier type ever built and cools down to -439°F. (absolute zero is -459.6°F.). Because it operates at slow speed and low pressure, it provides high reliability and a long, maintenance-free life. It has already operated for 2,000 hours and will be delivered to the Air Force Flight Dynamics Laboratory at Wright-Patterson Air Force Base for a 5,000-hour operating-life test.

The first high-frequency military Manpack radio to employ LSI (Large Scale Integration) in its microminiaturized circuitry is in production at Hughes for the U.S. Marine Corps under contract to the Naval Electronics Systems Command. The 280,000-channel AN/PRC-104 is a single-side band transceiver 12½ inches wide, 11½ inches tall, and 2-5/8 inches thick. Each unit weighs only 12½ pounds including a battery pack that provides over 16 hours of service before recharging. The radio uses ground propagation to beam signals a few thousand yards, atmospheric propagation to bounce transmissions over thousands of miles.

A fully automatic air defense system -- the first to integrate infrared sensors with conventional radar and correlate the returns -- has been successfully tested by Hughes. It will be used aboard U.S. Navy ships as the Improved Point Defense/Target Acquisition System to speed the detection, identification, and tracking of approaching targets so that single ships can quickly defend themselves against threats -- especially low-flying targets "popping up" over the horizon -- that evade umbrella-like fleet area defenses.

An extended-range version of the U.S. Army's TOW anti-tank missile was demonstrated successfully in a recent series of helicopter firings at ranges up to 2-1/3 miles -- an increase of 25 percent. The additional range of 750 meters was achieved after Hughes engineers devised a way to increase the length, on the missile's existing spool, of the hair-thin guidance wires it unreels in flight. The longer range gives the helicopter crew greater standoff capability, thus increasing their safety.

The first mosaic map of the continental U.S. ever assembled from satellite photos taken from the same altitude and lighting angle was completed recently by the U.S. Department of Agriculture, which combined 595 photos taken by the Hughes-built multispectral scanner system (MSS) aboard NASA's Earth Resources Technology Satellite (ERTS). The map will aid in assessing the nation's surface water, drainage network, land use, and vegetation. Though NASA originally predicted a lifetime of only one year for ERTS, it began its third year July 23. Its still functioning MSS has now sent more than 200,000 photos back to earth.

A hologram lens system for a pilot's "head-up" display, currently being developed by Hughes research scientists, uses holography to produce the optical properties of a lens on a transparent plate in the pilot's light of sight. Projecting information via this plate does not block his vision outside the cockpit. The new technique has a larger field of view and lighter weight than display systems using conventional lenses and promises to be highly cost-effective.

Airpower in the News

By Claude Witze
SENIOR EDITOR, AIR FORCE MAGAZINE

New Traffic Signals Ahead

Washington, D. C., November 1

It is more pleasant to think about Halloween, which was yesterday, than to contemplate Election Day, next week, or Christmas and the New Year. The unreal world of hobgoblins has much to be said for it. Without speculating on the election outcome, it is safe to say there are going to be a lot of changes, and too many of them for the worse. By the time this magazine is distributed, Yule decorations will prevail. They will be camouflaging a new malignancy that our society does not deserve.

We have had about two years away from the battlefield, one we never should have been on. Yet the stresses on the defense establishment have lessened only to the extent that there are no casualty lists. Our affliction is political and economic. Like the threat of being overwhelmed by totalitarian adversaries, we share the plight with many other nations. They are watching each other like patients in a hospital ward.

The latest shocker is the announcement by the Queen of England that her new government is preparing to nationalize the aerospace industry. This step was in the platform of the winning Labor Party, and informed observers believe it almost certain that legislation will be offered soon. It is not known whether the government will be satisfied with controlling interest in the aerospace companies. More likely, the Laborites will want to run the show from government offices. In this case, one British expert, from industry, expects "complete disaster" and nothing less. We have another friend from London who is certain nationalization will work, if the management is left in the hands of competent engineers and economists. The wariness of bureaucratic control is based on the fear that a Labor government at the helm would result in poor productivity, lower quality standards, lagging technology. Italy, which has a more depressing sickroom chart than England, also has accepted more socialism and is suffering from the results. "When Fiat sneezes, Italy catches cold," proved no idle wisecrack, and Fiat has been suffering chills and fever for a long time.

Over here, there are advocates who believe we should follow Britain's example. John Kenneth Galbraith, the economic guru from Massachusetts, is one of them. Opposition should come from the administrators and legislators who know that government arsenals, by their nature, are technologically reactionary. And, unlike private industry, make no positive contribution to our balance of payments. It has been estimated that the foreign market for American-made commercial jet transports will total more than $30 billion in the next decade. In 1973 alone, US aerospace exports added up to $5.2 billion, and the figure will be even larger for 1974. Military sales are now a major factor, but not one with the lasting qualities of commercial business in a prospering world economy.

As was demonstrated at the Farnborough International air show in early September, it is American aerospace technology that leads the world. With Britain's industry socialized, it is hard to see how we can fail to keep that position. But there are others on this globe who also see opportunity ahead. They are the Russians, who have looked at the plight of the Western allies and concluded they can't help but win. Détente itself is a tool they are using toward that end. One of these Russians, identified in the press as an idealogue named Mikhail A. Suslov, has smacked his lips and said:

"The number of unemployed is growing [in the West], the life of the working people becomes harder, their uncertainty of tomorrow is growing, and the entire system of government-monopolistic regulation is bursting at the seams."

The Russians are pleased by the success of left-wing politicians in Britain, Italy, Greece, and Portugal.

At the moment, there is almost unanimous agreement that our election will result in a more liberal, and Democratic, Congress. The *Wall Street Journal* predicts "a rash of liberal bills." The paper lists these as top probabilities for 1975:

A multibillion-dollar public employment program "soak-the-rich" tax revision, including a crackdown on oil companies; a health insurance bill closer to the Kennedy and Mills plans than to the Administration's.

"The next Congress," says the *Journal*, "will eye military spending harder."

One subject certain to receive major attention in the 94th Congress, and one of key importance to the aerospace industry, is the formulation and execution of national policy on research and development. The irons already are in the fire, put there on October 11, when the Senate adopted, by voice vote, what is called the National Science Policy and Priorities Act. The event went by, barely noticed in the press.

The bill came out of the Senate Committee on Labor and Public Welfare. In both the committee report and the bill, as well as in the Senate floor debate, there is almost no reference to national defense or the contributions of the defense industry to our technological prowess.

Background on the bill deserves a brief review.

What is generally known as the scientific community long has been unhappy with the fate of the White House Office of Science and Technology under the Nixon Administration. The office had been created in 1962 by President John F. Kennedy and clearly assumed policy responsibilities with the emphasis on civilian matters. Previous stress on national security so far as the office of the President was concerned could be traced back to World War II. It was President Franklin Roosevelt who first brought science into the White House in 1941, when he set up the Office of Scientific Research and Development, headed by Vannevar Bush. The mission was military.

Under President Harry Truman there was created the National Science Foundation, a move recommended by Dr. Bush. NSF was to control federal funding of

asic research and education in science. It took the ussian launching of Sputnik, in 1957, to put science ack on the front burner. President Dwight Eisenhower rought in James R. Killian, Jr., from the Massachuetts Institute of Technology, as a special assistant. He so created the President's Science Advisory Committee (PSAC) to work with Dr. Killian. The concentration, again, was on military and space problems.

The next step was the 1962 action by President ennedy. What he did, in effect, was to steer the White ouse effort in science away from national security. lany of the scientists were distressed by this, and by ie time they had disagreed with the Vietnam War olicies of Lyndon Johnson, the rift was serious. Science lost stature in the front office. R&D funding was ut; there was a bias against basic research; and by 970, the military procurement bill included a ban gainst the pursuit of anything that did not have a pecific military application.

Then came Richard M. Nixon. He ignored much of ie advice offered by the civilian-oriented community f scientists. They opposed some projects the President had endorsed, specifically, the antiballistic missile (ABM) system and the supersonic transport (SST). here were some public statements by rebels in the anks. On January 26, 1973, Mr. Nixon abolished the hair of his science adviser, filled at that moment by dward E. David, Jr., as well as the Office of Science nd Technology and the Scientific Advisory Committee.

There is evidence that, right up to the moment it appened, the men working on science at the White ouse had no idea that they were about to be scuttled. /hile they were talking optimistically about a drive to strengthen technology policies, with insurance that national security needs would not be neglected, the President was turning the job over to the National Science Foundation, headed by H. Guyford Stever. The structure he abolished was sixteen years old. The scientists were disappointed, but there was nothing they could do about it. Dr. Stever, with a budget in the $800 million category, was in charge. Military research was left in the hands of the Pentagon, and the voice for other scientific interests was put on a level below that of the Office of Management and Budget (OMB).

Dr. Stever has been quoted as saying he had only limited access to the President's ear, usually on formal or ceremonial occasions. He said he sent his messages, but Mr. Nixon was not interested in listening. As for the rest of the White House staff, it had other interests—presumably Watergate was one of them.

Into this void now steps Senator Kennedy and his Committee on Labor and Public Welfare. There have been hearings and studies and a formative history that goes back to the 91st Congress. The committee report, released last month, defines the problem at the outset:

"Recent years have been marked by an absence of cohesive national policies for science and technology. Planning for future needs has been set aside to another time when there is no crisis of the day to be dealt with. Such an approach to what may be one of our most important national resources will not suffice."

The political angle was made obvious. Despite all the Nixon Administration's promises and campaign commitments, the Kennedy committee demanded changes:

"At a time when our nation is facing critical problems of inflation, unemployment, environmental degradation, resource depletion, and food shortfalls, it is an urgent matter that we reestablish within the White House a high-level Council of advisers on science and technology," the report declares.

"At this juncture in our history the reordering of national priorities, the changing of emphasis on different areas, the interrelationships between national policies and science and technology have become increasingly compelling."

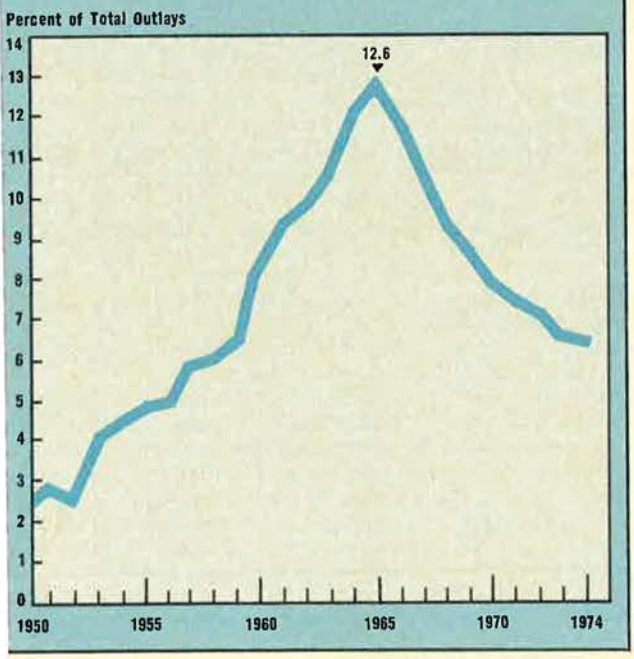
The language is ponderous, but the message critical:

"The great spurt in our economic growth and development since World War II has, in large measure, been founded upon a concomitant quantum leap in the growth of scientific knowledge and its translation into technology and implementation. It has become evident that the continued health, safety, and well being of this nation and others throughout the world will depend on our creative scientific work, deriving from knowledge developed by science and a basis for its application to technology.

"In order to do this it will be essential for us to devise policies, plans, programs, and, alternately, projects for the advancement of science and technology. We will also require creative institutional innovations, both in the public and private sectors, to manage and encourage our scientific and technological enterprise."

To accomplish this, the bill (S 32) would set up a White House council of three advisers on science and technology. The members would be chosen by the President with the advice and consent of the Senate. The bill would require the council to determine, in consultation with the economic advisers, how much the federal government should invest each year in R&D efforts. It also would establish priorities for the allocation of the funds.

Federal Research Spending, 1950–74
Percentage of Total Outlays



otal federal expenditures in actual dollars for research creased steadily from 1948–68, declined slightly until 71, and then began to increase again, reaching about 8 billion in Fiscal 1974. Taking inflation into account, owever, federal support for research and development as dropped about $1.3 billion since 1968. Data from ffice of Management and Budget and Bureau of the udget.

Airpower in the News

There would be a new Federal Coordinating Committee for Science and Technology, chaired by the chairman of the council. On the committee would be representatives of the Departments of Agriculture, Commerce, Defense, Health, Education and Welfare, Housing and Urban Development, Interior, State, Transportation, Veterans Administration, Atomic Energy Commission, National Aeronautics and Space Administration, National Science Foundation, Environmental Protection Agency, and Energy Research and Development Agency. The competition for stature in the priority scramble will be formidable.

From the President, the bill requires an annual report with legislative and financial recommendations. So far as money is concerned, the bill would authorize $8 million in Fiscal 1975 and $14 million in Fiscal 1976. The entire proposal breezed through the Senate. House action probably will not come before the 94th Congress is in session.

The proposal is one that the defense industry should monitor closely. While the Pentagon is to be represented on the coordinating committee, and anticipates no interference with its pursuit of military R&D requirements, the struggle is going to be about money. This puts defense in a new and expanded contest with other contenders for financial priority. ■

The Wayward Press

In the October 14 issue of *U.S. News & World Report* there is a report that Sen. Thomas Eagleton of Missouri has an "example of how fat can be trimmed from spending by the military." According to the magazine, he "asserts that an officers' club at Andrews Air Force Base, near Washington, D. C., is manned by eight bartenders" and suggests they could get by with six or seven.

The item implies that the bartenders are paid with taxpayers' dollars, which is not true. The club generates its own revenue and pays its bartenders. A spokesman for Senator Eagleton told AIR FORCE Magazine he does not believe the Senator ever made such a statement, and, "I have no idea where the magazine got that idea." Wherever it came from, there should be at least one editor on *U.S. News & World Report* who knows, from experience, that military clubs pay their own way.

* * *

The editors of *The New Republic*, in their issue of October 19, have an editorial denouncing the Administration, particularly Defense Secretary James R. Schlesinger, for the growing export of American arms to other nations. They quote Dr. Schlesinger as arguing that such sales "strengthen deterrence and promote peaceful negotiations by helping our friends and allies to maintain adequate defense forces of their own."

Then the editors wonder aloud whether the Secretary thinks peaceful negotiations "would be promoted were the Soviet Union to match the US in providing aircraft, tanks, and guns to any customer that could foot the bill."

Well, we don't know where *The New Republic* editors have been, but the Soviet Union is shipping MiG-23 jets to Iraq. Soviet ships are back in Alexandria with their holds full of arms for the Egyptians. Syria is on the customer list, just as surely as missiles went into Cuba a few years ago. Americans have been killed by Russian arms in South Korea and Southeast Asia.

To suggest, at this date, that Moscow is not arming its friends in other countries is to display editorial irresponsibility.

The Syrians are reported to have more advanced equipment than the Warsaw Pact allies of Russia, as well as 3,000 Soviet military advisers. Russia is backing the Palestinians. The Egyptian Foreign Minister has been arms shopping in Moscow, and Mr. Brezhnev will visit Cairo, with order blanks, in January.

There is increasing apprehension that there will be another, and cataclysmic, war in the Middle East. If and when it comes, it will be interesting to see how *The New Republic* editors explain that Russia promoted peace and the US did not.

* * *

For the record, it should be noted that "massive adverse pretrial publicity" has been blamed for reversal of the conviction of Army Lt. William L. Calley, Jr., in the Mylai murder case. The Army has appealed the decision, which was handed down in late September by US District Judge J. Robert Elliott in Columbus, Ga.

We have at hand the 132-page text of Judge Elliott's opinion. Seventy-eight of the pages are devoted to the publicity question. If the decision is not reversed, the conclusion must be that Lieutenant Calley's best friends are in the press corps. They are mentioned specifically: Seymour M. Hersh, CBS, NBC, ABC, *Life* magazine, *Newsweek*, and many others.

According to *Editor & Publisher*, Judge Elliott spent most of three months reviewing video tapes, newspaper and magazine articles, and books. Then, he wrote:

"Never in the history of the militar justice system, and perhaps in the history of American courts, has any accused ever encountered such intense and continuous publicity as did the Petitioner. . . . Not only was this publicity so inherently prejudicial as to require reversal, but the court-martial system itself had no means by which it could protect the Petitioner's right to a fair trial."

The decision has resulted in a flood of newspaper editorials, in which editors give credit to the press for "uncovering" the Mylai massacre. The court decision points out that Lieutenant Calley was charged with murder on September 5, 1969. It was not until November 13 that Mr. Hersh "triggered an avalanche of publicity concerning the incident and the Petitioner's role therein. Within a few days, virtually every form of news service in the country and indeed in the world, had deluged its hearers, viewers, and readers with extensive and intensive coverage of the Petitioner's plight."

Editor & Publisher, the newsman's weekly, points out that in civil and criminal courts the judge has a right to sequester the jury, so it can't see the papers or the screen. But, queries *E&P*, "what judge or court in the land can prevent the jury from learning about such a case before that?"

Well, the British have an answer. Under their rule, the press could have reported that Lieutenant Calley was under arrest, what he was charged with, and when he faced trial. When the trial began, they could report details disclosed before the court. This is not considered prior restraint or an imposition on the Freedom of the Press. It does help ensure a fair trial.

Conversation Pieces

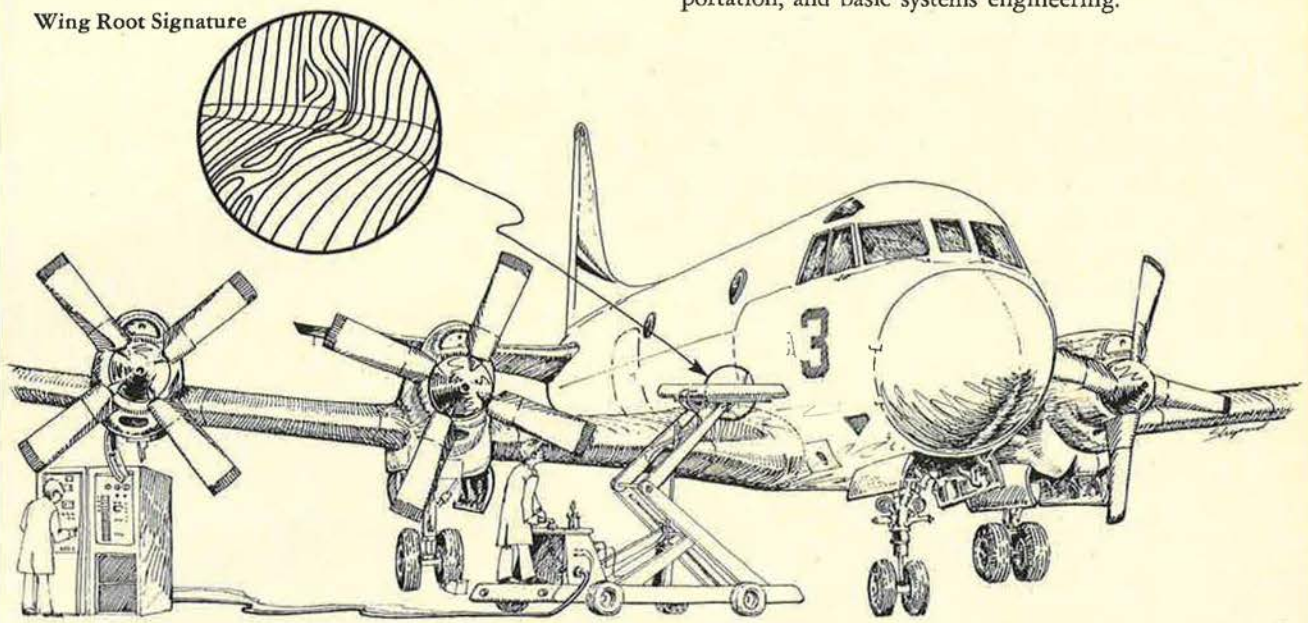
Fault-Finding Without Tears

With today's huge high-speed aircraft, meticulously careful maintenance is essential to safety as well as to efficient operation. A vital element in every maintenance program is the kind of probing inspection that detects even invisible signs of corrosion, fatigue, and other early symptoms of deterioration in highly stressed structures.

This need has given rise to a whole new breed of test engineers. They use magnetism, high-frequency sound, penetrating dyes, and now the coherent light of laser beams to find the subtlest internal flaws before they become dangerous.

Under the innovative leadership of Dr. Pravin Bhuta, a TRW team has developed a system that uses holographic interferometry to reveal potential weaknesses in landing gear, wing panels, turbine blades, and other critical parts of aircraft. With the sponsorship of the U.S. Navy's Analytical Rework Program Office, the system has been successfully used in an ordinary maintenance environment.

Wing Root Signature



The first tests were conducted in a TRW lab, however, where wing panels from a P-3 patrol pane were inspected. The prototype holographic systems not only found every flaw that had been previously located by conventional methods but also found several that had not been detected at all.

The next step was to do the same kind of job under workaday maintenance conditions *without* disassembling parts or removing paints or sealants. The completed system was taken to a Navy facility and the holographic equipment was mounted on a fork lift. It produced clear fringe patterns without external optics, whether it was pointed up, down, or sideways.

With this degree of mobility and flexibility, *in situ* inspection of critical parts becomes a practical reality not just for aircraft but for countless different kinds of structures. Compared with conventional methods, the saving in time alone is estimated to be as high as fifty percent.

When the technique has been fully developed, it will provide a cradle-to-grave record. Technicians will be able to compare the optical signature of the factory-new structure with later signatures, made during routine maintenance. Any significant differences will indicate the need for preventive repairs.

Dozens of promising ideas are under investigation at TRW, where we put the most advanced technology to work on the practical problems of defense, energy, transportation, and basic systems engineering.

For further information on the holographic interferometry system, write on your company letterhead to:

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In addition, Delco's Carousel IV is well established as the leading inertial nav system in commercial aviation. The choice of 35 of the world's airlines, these systems are presently in operation in hundreds of aircraft including 747's, DC-10's, DC-8's, and 707's. Recently Carousel IV was selected for the British Airways Concorde SST and Pan Am's new 747 SP's.

There are good reasons for this record of acceptance. Read on.

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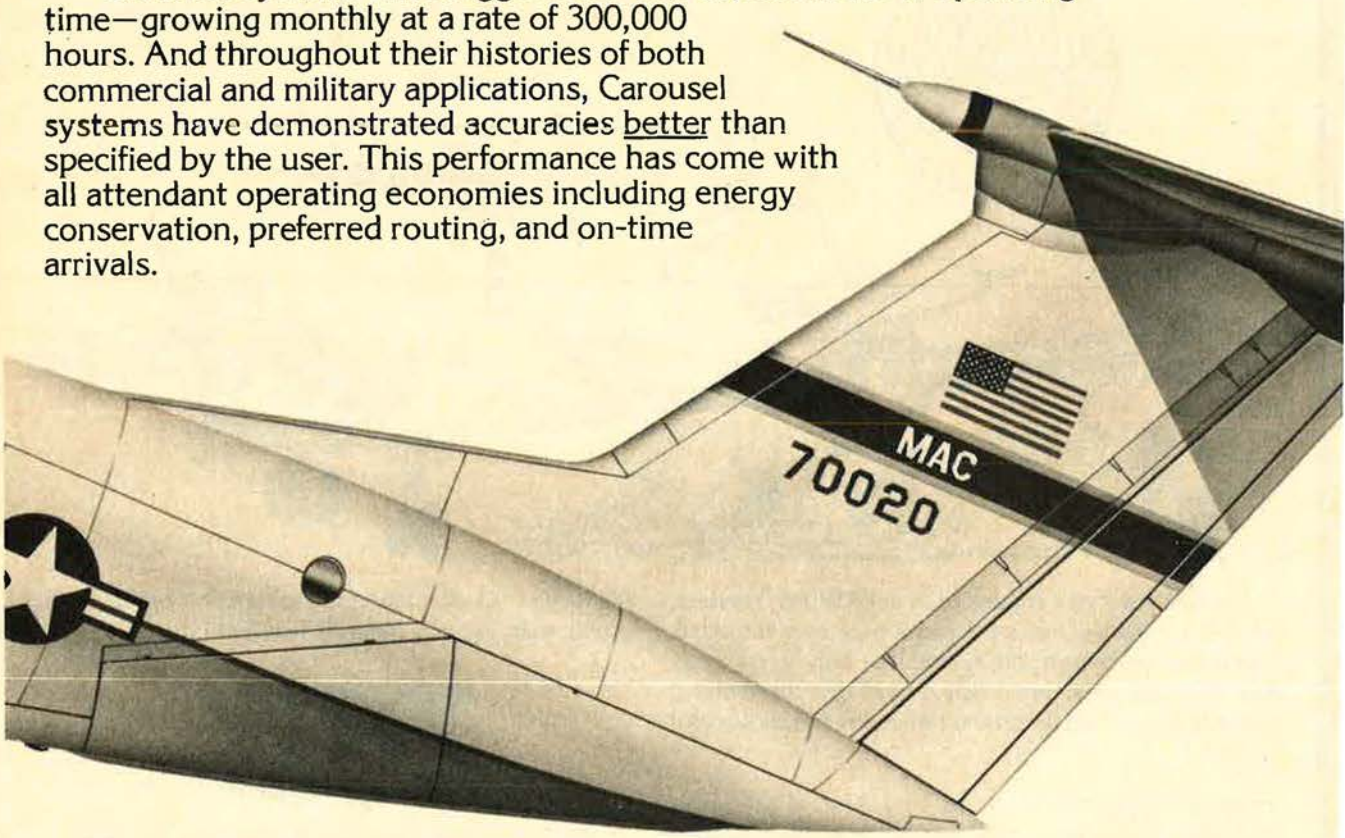

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Aerospace World

News, Views & Comments

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

Washington, D. C., Nov. 4

Two pairs of US aerospace companies have stated their intent to develop aircraft that could fill the US Navy's requirement for a low-cost Navy Air Combat Fighter.

Northrop Corp. and McDonnell Douglas Corp. said that they will jointly design such an aircraft based on the Northrop YF-17, now being evaluated by USAF in the Air Combat Fighter (ACF) flyoff.

Competing against them, General Dynamics Corp. and LTV Aerospace Corp. have teamed up to offer the General Dynamics contender in the ACF sweepstakes—the YF-16. (*It appears to be a sweepstakes indeed, with the strong possibility of major European buys of the aircraft selected by USAF in the competition. See November '74 issue, pp. 22, 28, and 56.)* The Air Force has said that it will make its choice in January 1975.

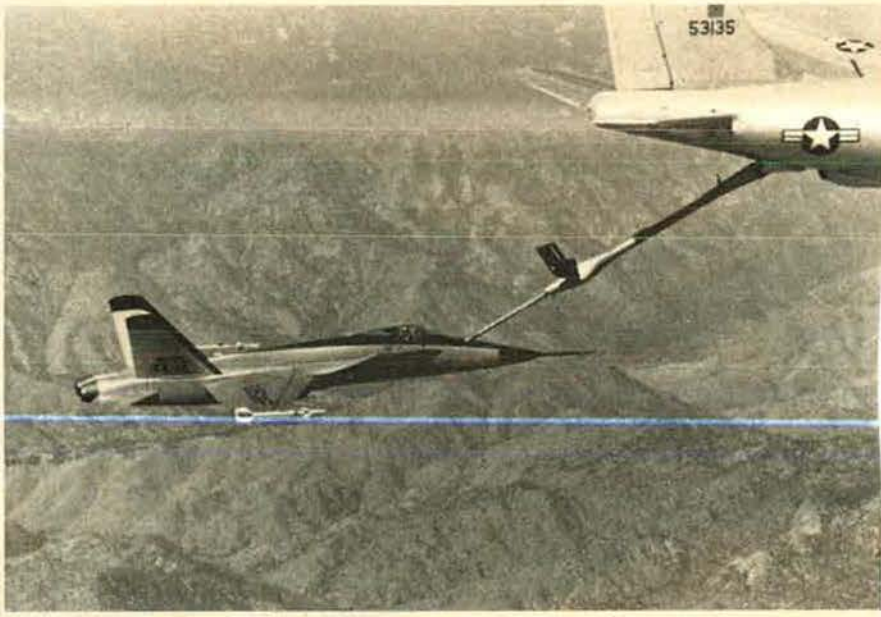
An aircraft designed for the Navy would differ from USAF's in that, for operation from carrier decks, it would require some structural strengthening and perhaps added engine thrust to permit shorter take-offs and landings. What is known as the plane's "technology base" would remain essentially the same.

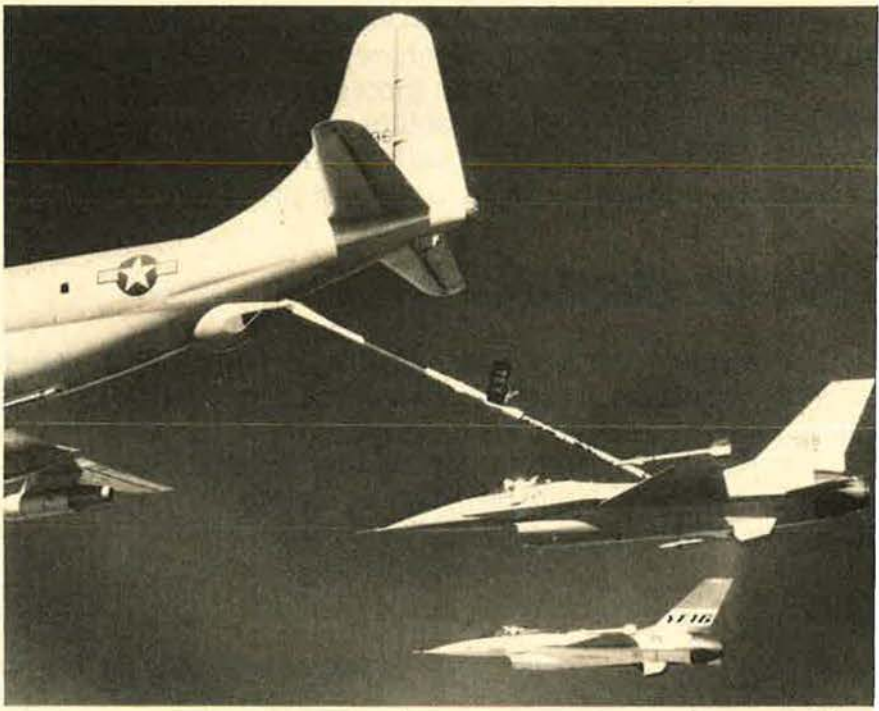
In another Navy aircraft matter, Grumman Corp., which produces Navy's new high-performance F-14 Tomcat fighter, recently resolved the lion's share of its current financial difficulties by securing $200 million in financing over the next four years from a group of US banks and an Iranian bank. (Iran is making a major purchase of the F-14.)

Advance payments by the Navy and Iran, which have come under criticism, will be repaid and those financing agreements terminated, Grumman said.

☆

The United Nations took unprecedented action in late October when one of its major committees overwhelmingly (but with twenty-seven abstentions) approved a US-intro-





Gulping fuel over the desert, two sleek competitors engage in aerial-refueling flight tests at Edwards AFB, Calif. Above, the YF-17 built by Northrop Corp. Below, General Dynamics' YF-16. The two aircraft are hot entries in USAF's Air Combat Fighter sweepstakes. With the test-flight program nearing completion, the Air Force said it would name a winner in January 1975. For word on proposed versions for Navy consideration, see adjacent item.

duced resolution calling for assistance and cooperation in accounting for the dead and missing in all armed conflicts.

The resolution, aimed from the US standpoint at putting pressure on North Vietnam to live up to its agreement to help in accounting for the American MIAs of the Southeast Asian fighting, is pretty much assured passage by the 138-member General Assembly, observers believe.

It will be the first time that the world body has taken a stand on the problem of men missing in action in wars.

MIA families were much encouraged by the UN move and hoped that it would provide a first step in ending the stalemate in the accounting effort, a spokesman said.

☆

The dedication and sacrifice of the men of the Aerospace Rescue and Recovery Service (ARRS) has been formally recognized with the recent establishment of the Rescue Memorial Park at Scott AFB, Ill.

Since 1946, more than 275 airmen have been killed in attempts to save others in both peace and war. On the other side of the ledger, rescue people are credited with saving 15,000 lives in that time span, with 92,000 additional persons in the US and abroad rescued from dangerous situations.

The memorial park at ARRS Headquarters is sponsored by the Jolly Green Giants Association, a national group composed of those involved in search and rescue operations worldwide.

Gen. Russell E. Dougherty, left, SAC Commander in Chief, and Lt. Gen. William F. Pitts, Commander of SAC's Fifteenth Air Force, stand beside the first B-1 strategic bomber, which was rolled out on October 26. USAF hopes for the new aircraft are reported in the story beginning on p. 38.

☆

In late October, the Air Force successfully launched a Minuteman I ICBM from an airborne C-5 transport.

The 86,000-pound missile was parachuted from the big transport at 20,000 feet near Vandenberg AFB, Calif., and then ignited for a ten-second "burn" before falling into the Pacific. Guidance systems were not brought into play, the Air Force spokesman said.

It was later denied that the test shot was timed to coincide with Secretary of State Henry Kissinger's arrival in Moscow for renewal of arms-limitation discussions.

It was pointed out that the test launch of the ICBM was simply the continuation of a program USAF is conducting to determine the feasibility of air-launched missile weapon systems. *(For further details, see September '74 issue, p. 56.)*

☆

Late in September, a C-5 Galaxy experienced an in-flight problem and made an emergency landing at a civilian airport in Oklahoma. Subsequently, the aircraft was destroyed by fire, but with no loss of life.

The C-5 had been on a training mission from Altus AFB, Okla., when the accident occurred. A final report following an investigation is pending.

The event is significant in that it was the first loss of a C-5 while on a mission. As of August 31, 1974, the seventy-nine C-5s of the MAC fleet had marked up 158,578 flying hours, during which no major accident had been recorded during op-

Also in late October, USAF achieved a first with the air-launch of a Minuteman missile. Here, a parachute system extracts the missile from the cargo compartment of a C-5 before positioning and ten-second ignition. See item above.

Ocean surveillance.

With IBM on board, the many systems of LAMPS work to a common purpose.

As an acronym, LAMPS tands for Light Airborne Multipurpose System.

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Some of what IBM does for LAMPS is easily seen. Like the multifunction displays and the central processors.

But what we do best can't be seen at all. And that's systems integration. Integrating the major helicopter and shipboard subsystems into an effective ASW system that meets the LAMPS requirements is IBM's expertise. Integral to these hardware systems are IBM processors, analyzers and displays.

Today, as system prime contractor for LAMPS, IBM is making a complex system work to a common purpose. A challenge that reflects IBM's experience in related programs of design-to-price systems for command and control, navigation, electronic countermeasures, ASW helicopters, shipboard and submarine sonar, ground tracking and launch control.

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☆

Effective January 1, 1975, MAC's Air Weather Service (AWS) will reactivate five weather squadrons, boosting the number of such units on duty across the nation from fifteen to twenty.

Those recommissioned: the 3d Weather Squadron, Shaw AFB, S.C.; the 5th Weather Squadron, Fort McPherson, Ga.; the 9th Weather Squadron, March AFB, Calif.; 25th Weather Squadron, Bergstrom AFB, Tex.; and 26th Weather Squadron, Barksdale AFB, La. (Several of these units are historic, USAF said. The 3d WS came into being in 1937 when the Air Weather Service was founded. The 5th was organized in 1939 in the Philippines and was overrun by the Japanese in the early days of World War II.)

☆

The initial Space Shuttle development flights will return to Edwards AFB, Calif., where NASA's Flight Research Center is located.

In addition, the space agency said, future plans call for Edwards to be used as a secondary landing site for operational Shuttle flights should weather and other considerations make it necessary.

The timetable now calls for horizontal flight tests of the Shuttle in 1977, when it will be launched from a Boeing 747. Earth orbital tests are scheduled for 1979, and the Shuttle is expected to be operational in 1980.

☆

The US Army has initiated development of a hand-held laser that will enable ground forces to pinpoint targets for attacking aircraft, Hughes Aircraft Co. reports.

The beam of the device, which resembles a bulky and stubby rifle, will be invisible except to sensors aboard especially equipped aircraft and helicopters, which can bring their weapons to bear via the laser's reflected beam. The device can also be used to indicate exact position of ground units with little chance of enemy detection.

The AN/PAQ-1 Lightweight Laser Designator (LWLD) is being produced by Hughes and has been designated a triservice project by DoD. A prototype has already been delivered to the Army for field testing.

The "stock" of the laser "rifle" is actually a battery pack of twenty-two cells that can be replaced in seconds. A second component transforms the battery current into laser energy and a third transmits it.

According to Hughes, ninety percent of the LWLD's active electronics are in a four-by-five-inch card that has the equivalent of 10,000 transistors etched into its microcircuitry.

☆

Malcolm S. Forbes, president and editor in chief of the business magazine that bears his name, will try to cross the Atlantic in a gas balloon in late December or early January 1975, he said.

Comète Members Visit US

During World War II, many an Allied airman shot down over Belgium was hidden from the searching Germans and later smuggled across France to Spain and freedom.

The Belgian resistance members who undertook this highly dangerous work (216 of their men and women were executed or died in captivity) began operations soon after Dunkirk and continued without letup throughout the war. Their underground railway carried the code name "Comète" (Comet). In all, the Comète Line was responsible for the escape or evasion of 773 Allied airmen and agents, more than 400 of them Americans.

In October 1974, it was the great honor of the US Air Forces Escape and Evasion Society to welcome fifty-seven Comète members to the US. During a whirlwind trip, the group first visited Detroit, where they were the guests of Ford Motor Co. and were otherwise made welcome in the homes of host families in the area.

Then on to Washington, D. C., to be addressed in French by USAF's intelligence chief, Maj. Gen. George J. Keegan, at a Pentagon briefing. The briefing was conducted by two E&E experts—Claude Watkins and Lt. Col. James Westbrooke—of USAF's Escape and Evasion Branch, Fort Belvoir, Va. A highlight was the description of life in captivity by former Vietnam POW Col. Elmo C. Baker, who also spoke to the group in French, which he had learned while a prisoner. (The English portions of the program were interpreted by USAF's Lt. Col. J. L. N. Violette.)

Next, with their standard unfurled and men and women alike proudly wearing their decorations, the Comète members paid an historic and emotionally charged visit to Arlington Cemetery. It was the first time in the national shrine's history that such a group of noncitizens had dedicated a wreath at the Tomb of the Unknowns.

The Comète visitors climaxed their US tour with a stop in New York City, where Mayor Abraham Beame presented them with keys to the city.

While many Americans contributed to the fitting welcome of the brave and comradely Comete group, most outstanding was Detroit's Ralph Patton, a former B-17 copilot who during the war evaded the Germans via the French resistance. Now a coal company executive, Mr. Patton is also president of the Escape and Evasion Society and is interested in adding to the organization's rolls. Contact him at 1424 Dorchester St., Birmingham, Mich. 48008.

New Jersey's Louis Rabinowitz, a former B-17 pilot who fought with the Belgian resistance and made a habit of escaping from the Germans, also did much to smooth the path for the Comète visitors.

While the passage of time is evident on the faces of the Comète members, their spirit is ageless. Each year, they attend a get-together at which any Allied airman who drops in is sure to receive a warm and friendly welcome—the same condition that prevailed thirty years ago.

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Aerospace World

Mr. Forbes earned laurels as a balloonist by crossing the continental US in a hot-air balloon last year. On the transatlantic flight, he'll be accompanied by Dr. Thomas F. Heinsheimer, an aerospace scientist experienced in the use of instrument-toting research balloons.

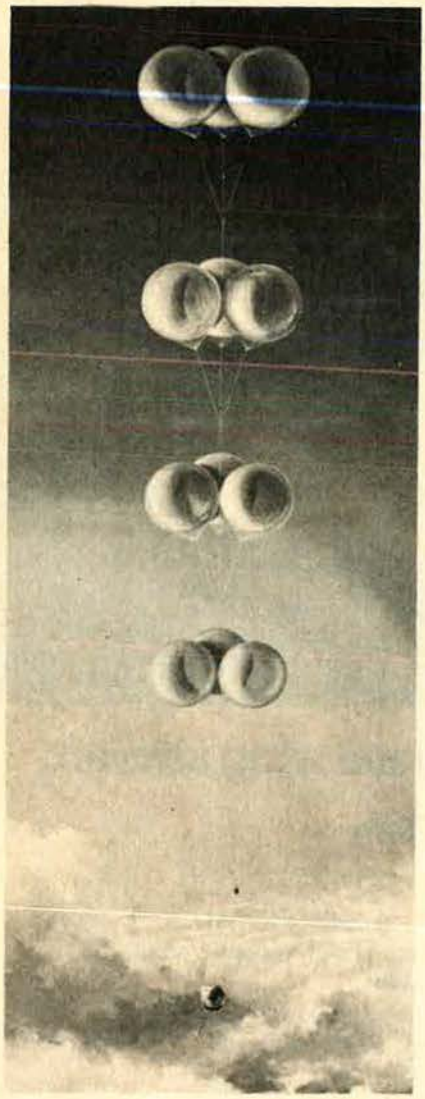
The Atlantic balloon crossings have been extremely chancy. All such previous attempts have ended in failure or death. (In the most recent instance, Thomas L. Gatch, a DoD employee, and his balloon went missing over the Atlantic shortly after launch from the US in February 1974; he was presumed lost at sea.)

The Forbes attempt, however, is to have unusually strong logistical support, with help from RCA, Rockwell International, and Garrett Corp.

The plan is for the forty-story-high balloon structure, dubbed *Windborne,* to be launched from El Toro Marine Base in southern California. Entering the jet stream at about 40,000 feet, *Windborne* should cross the US in something under forty-eight hours, Mr. Forbes believes. If all goes well, the balloon would continue across the ocean, arriving in France or northern Africa in from four to seven days.

Part of the "Atlantic Project's" backup will be a Mission Control Center, set up at an RCA facility in New York City. The MCC will provide continuous radio communication with the balloon's gondola, and satellites already in orbit will provide data links for the transmission of location, environmental, and subsystem information, the Forbes organization said.

The gondola will be supported by four clusters—one above the other—of three balloons each. The helium-filled balloons will inflate to thirty-three-foot diameters.



Artist's rendition of balloon system to be used by Malcolm S. Forbes in his forthcoming attempt to cross the Atlantic, a feat that has been meticulously planned. See details above.

☆

NASA has given the go-ahead for concept definition studies of a rocket propelled by solar electric power.

The rocket, known as the Solar Electric Propulsion Stage (SEPS), will use large panels to convert solar energy to electricity, which in turn will power engines to accelerate mercury ions and produce thrust.

And, while only a quarter of a pound of thrust will result, very little mercury fuel will be consumed in the process, thereby providing greater efficiency—and longevity in terms of months or years—than conventional chemical-powered rockets. In the weightlessness of space, such thrust will be more than sufficient for a wide range of earth orbital and other missions.

The lighter SEPS, say officials, could be launched more economically, thus making feasible missions otherwise prohibitively costly.

Conducting the studies are Boeing Co. and Rockwell International under the direction of Marshal Space Flight Center, Huntsville, Ala

☆

It was the thirteenth combat mission for the B-24 bomber crew when it took off from Nadzab, New Guinea, on May 7, 1944. Then followed thirty years of silence.

The mystery of the lost Liberato was recently solved by an Australian who came upon the remains o the aircraft and its ten-man crew in a hidden valley in the New Guinea jungle.

In October 1974, the men, who had become close friends in the year they flew together before thei disappearance, came home to a final resting place at Arlington National Cemetery. They were buried side-by-side with full military hon ors.

The four officers and six enlisted

Towering seventeen feet is a new US weather watcher—a Defense Meteorological Satellite for expanded glob coverage. The public seldom sees photos of such vehicles. An RCA di sion built this one.

Sweden's new JA37 Viggen fighter made its maiden flight in late September. Set to enter service in 1978, the aircraft is equipped with a new and more powerful RM8B engine. Saab-Scania will build an initial series of thirty JA37s.

men from the 321st Squadron, 90th Bomb Group, were: John E. Terpning, Kermit H. Kinne, William R. Parkinson, George S. Silverman, Sidney H. Branch, James M. McKain, Earl R. Pearson, Ray E. Thompson, Richard F. Dixon, and Michael E. Drucker.

☆

The Air Force Systems Command has reorganized its Aeronautical Systems Division at Wright-Patterson AFB, Ohio.

Under the new setup, the ASD Deputy for Prototypes has been abolished, and in its stead a new Deputy for Air Combat Fighter has been established. The latter is to be headed by Col. William E. Thurman, previously Deputy for Prototypes.

Further, the AMST (Advanced Medium Short Takeoff and Landing Transport) program has been placed under ASD's Deputy for Systems, and the Specialized System Office, among other things responsible for the prototype PAVE Low III rescue helicopter effort, has been realigned in the Specialized Aircraft Program Office, Deputy for Systems.

Colonel Thurman's program office is to be in charge of selecting either the General Dynamics YF-16 or Northrop YF-17 as the Air Force's new Air Combat Fighter. Both are currently undergoing competitive flight evaluation at the Air Force Flight Test Center, Edwards AFB, Calif.

For the first time, an active-duty Air Force officer has been assigned for training purposes to the Aerospace Education Foundation, an AFA affiliate. The one-year assignment for Capt. Robert LaRoche was made under USAF's Education With Industry program. Previously, Captain LaRoche served as an Assistant Chief, Allied Services Branch, Academic Instructor & Allied Officer School, Air University. A graduate of Rhode Island College, he holds an M.S. from Troy State University.

☆

The Navy is opening the first of four increments in its planned 260,000-square-foot Naval Aviation Museum at Pensacola, Fla.

The initial building, which resembles an operational hangar and provides 68,000 square feet of space, cost $1.5 million. Serious fund-raising by a nonprofit association of naval aviation enthusiasts began in 1965.

Dedicated in 1963, the museum's collection has occupied temporary quarters until the recent completion of the new facility.

Beside enthusiastic fund-raisers and volunteers to refurbish equip-

ndex to Advertisers

On the island of Shemya in the Aleutian Chain, Raytheon's phased array radar capabilities are going into action for intelligence and early warning.

The project is Cobra Dane. A giant 100-foot phased array radar for the Air Force Electronic Systems Division that will look down a 2000-mile corridor to collect data on Soviet missile development flights, provide early warning of ICBM launches, detect new satellites, and update known satellite orbit parameters.

Mixing and matching proven yet advanced technologies with existing equipment, such as the high-power, travelling wave tube shown at the right, will enable Raytheon to complete the entire project during 1976.

Raytheon's experience in radar technology and signal processing extends also to range instrumentation: (1) it is being applied to MUSTRAC, a telemetry receiver employing dielectric lens arrays to simultaneously track and receive data from high-velocity objects; (2) it is a key part of AGILTRAC, a limited scan phased array radar for multiple target tracking; (3) it is in the Coherent Radar System, a shipboard UHF radar for the tracking of reentry vehicles; and (4) it includes the highly sophisticated "forward scatter" techniques of the 440L system.

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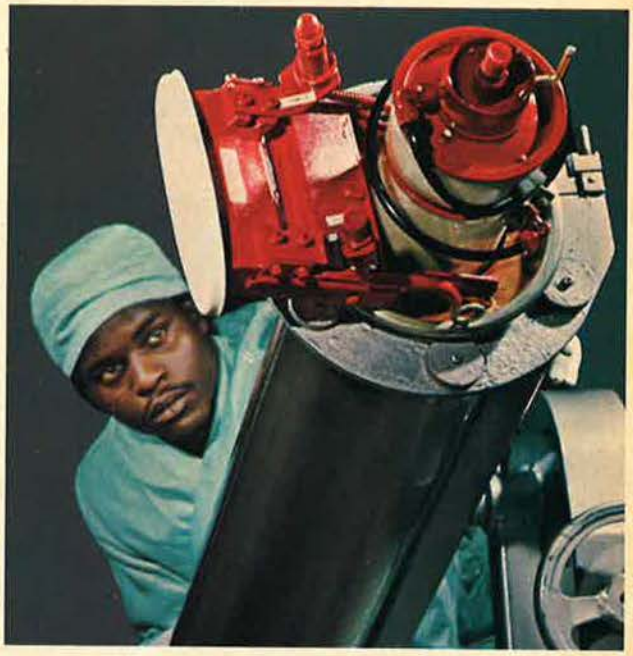

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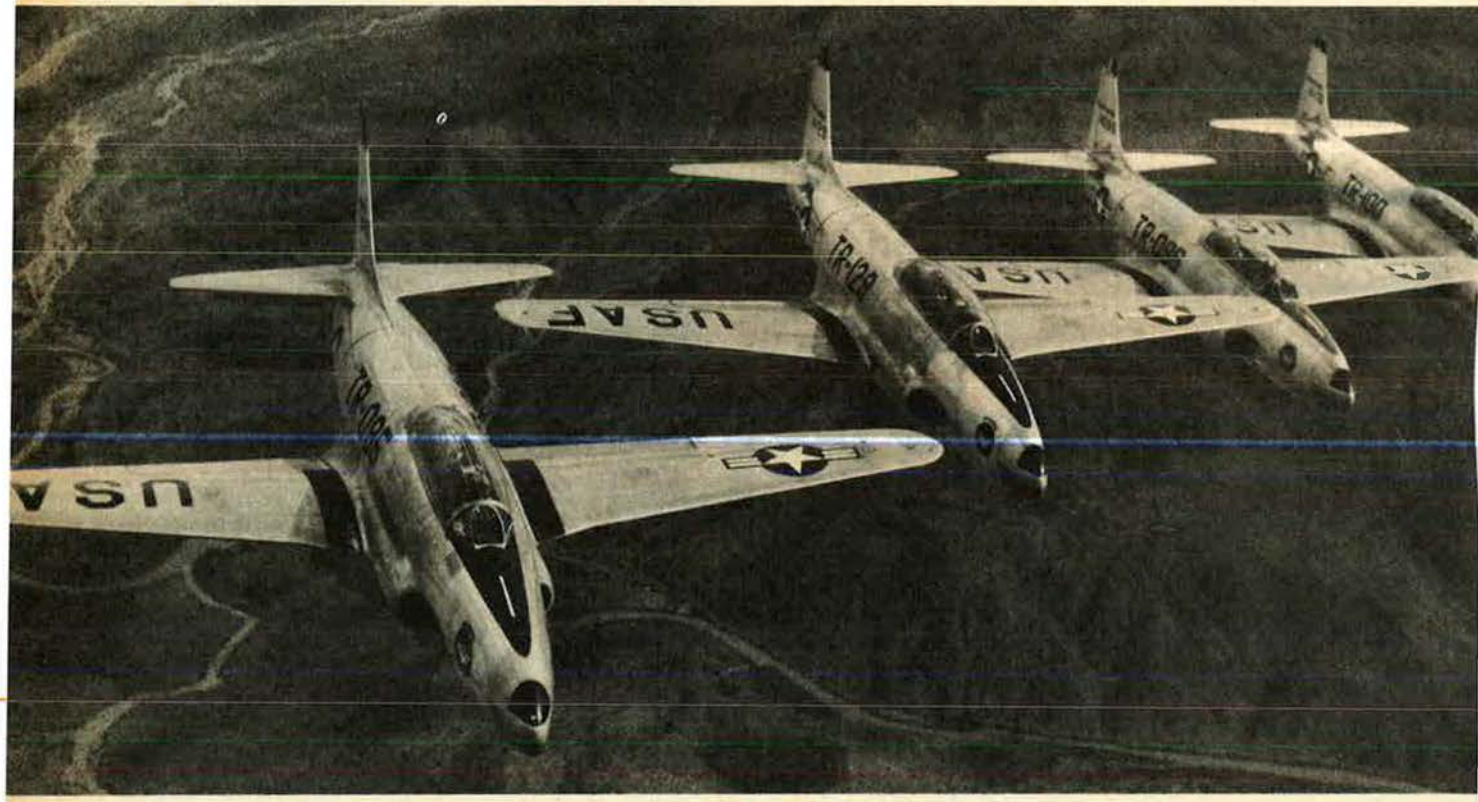

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ment and create displays, the new Naval Aviation Museum has a lot going for it. Namely, location.

Billed as a day's drive from Disney World, the museum is in the midst of Gulf Islands National Seashore, one of the newest in the national system of public parks. The museum will be drawing from the three million tourists who are expected to visit the area each year, within the next five years.

☆

The National Aeronautic Association elected as Elder Statesmen of Aviation for 1974:

- **Olive Ann Beech,** for her outstanding contributions to aviation through the years as cofounder, president, and, more recently, chairman of the board and chief executive officer, Beech Aircraft Co., Wichita, Kan.
- **Cass S. Hough,** for four decades of contributions to both military and civil aviation. (He holds Michigan Pilot's License No. 1.)
- **Jerry Lederer,** who has provided forty years of leadership in improving all elements of flight safety.

☆

NEWS NOTES—DoD announced that on October 2 the USSR launched what were believed to be two **SS-N-8 SLBMs** from the Barents Sea to about 500 nautical miles north of Midway Island—a distance of some **4,300 nm.** Presumably, the firings were from a Soviet **Delta-class** sub.

On October 28, the Soviet Union successfully launched **Luna-23,** the latest in its series of unmanned vehicles designed for **exploration of the moon.**

While the USSR will provide "the most complete, comprehensive release ever to the US news media of real-time information related to a Soviet space mission," during next July's planned US/USSR **joint space flight, no US newsmen will be permitted to observe** the actual launch of Soyuz, NASA said.

In mid-October, Western Union's **second Westar** domestic communications satellite was successfully put into synchronous orbit, NASA announced. It is to go operational in December 1974, following tests.

The Sikorsky **YUH-60A UTTAS** (Utility Tactical Transport Aircraft System), an advanced technology helicopter prototype being developed for the Army, made its **maiden flight** on October 17.

Died: James C. Fahey, 71, the editor and publisher of a series of books and manuals about ships and aircraft, widely used by the services for training purposes. Among his books were *US Army Aircraft, 1908–1946* and *USAF Aircraft, 1947–56.* Both books may still be purchased at the Smithsonian Institution, Washington, D. C. Mr. Fahey died at his home, Falls Church, Va. ■

First flight of Sikorsky's new YUH-60A Utility Tactical Transport Aircraft System was made on October 17, 1974, at the company's Stratford, Conn., plant. The helicopter prototype is being developed for the Army.

AFA AND DISABILITY RETIRED INCOME

AFA responded quickly to reports that the House Ways and Means Committee wants to drastically reduce tax exemptions on military disability retired pay.

The Committee has been drafting the Tax Reform Act of 1974. It recently indicated, in a confusing "tentative decision," that it proposes to change the rules governing sick pay exclusion and military disability pensions. One published report said that if the changes become law, disability tax benefits would be virtually eliminated. Under a 1949 statute, that part of retired pay attributed to disability is tax-free.

A storm of protests followed the report, including a personal letter from AFA President Joe L. Shosid to Rep. Wilbur D. Mills (D-Ark.), chairman of the tax-writing Ways and Means unit. It expressed AFA's deep concern over the reported planned elimination of tax benefits.

A late October memorandum from the Committee said that under the proposed change, "permanently and totally disabled persons" could continue to use the sick-pay exclusion. The maximum amount of this tax-exempt payment would be $5,200 a year, to be "reduced dollar for dollar by that taxpayer's income over $5,200 per year."

The memo, while adding that the tax-exempt status of Veterans Administration payments would not be affected, was silent on the key question of removing tax benefits for the tens of thousands of service members retired with partial disability ratings. However, according to informed sources, the Committee does not plan to remove them.

A Committee spokesman said that due to the confusion and controversy, Ways and Means planned to review the matter closely after Congress reconvened in late November.

You have to understand NATO's intricate organizational structure in order to evaluate the importance of . . .

General Haig's Role as SACEUR

BY GEN. T. R. MILTON, USAF (RET.)

The appointment of Gen. Alexander Haig to the post of Supreme Allied Commander Europe (SACEUR) has caused a certain amount of excitement and some criticism in US political circles. And because Gen. Andrew Goodpaster, the present SACEUR, was not expected to retire until next summer, a certain amount of consternation in Europe. Not much, but some.

However, it is not my purpose to explore the effects of General Haig's appointment, beyond making the simple prediction that he will do a good job of filling the large shoes of Andy Goodpaster.

Instead, since there seems to be so much misunderstanding, and just plain ignorance, over what it is Haig has been appointed to, I propose to write about some of the more important aspects of how NATO is organized and run. While we all detest organizational briefings, it is useful to understand how something works. Especially, as is the case with NATO, when it is our single most important international commitment; and, like everything else these days, it has a few problems.

NATO is a complex structure, and it begins by acknowledging the principle of civilian control of this military alliance. The North Atlantic Council is the supreme authority in NATO. It is made up of the Foreign Ministers of the member governments or, in our case, the Secretary of State. The North Atlantic Council meets in Ministerial sessions twice a year. All members of the Alliance, including France and Greece, belong to the Council and participate in all its sessions.

To take care of everyday business, the Council has Permanent Representatives of the member countries, holding the rank of Ambassador, at NATO Headquarters in Brussels. (Donald Rumsfeld, who is more or less General Haig's replacement in the White House, has just come from Brussels where he was our Permanent Representative on the Council.) The Permanent Representatives have full authority to act for the Council when it is not in session.

Then there is a Defense Planning Committee (DPC) made up of the Defense Ministers, in our case the Secretary of Defense. France (and now Greece), having withdrawn from the integrated military structure, do not participate in the DPC. The DPC meets twice a year in Ministerial session. The Defense Ministers are represented the rest of the time by the Ambassadorial Permanent Representatives in Brussels. Essentially, the DPC handles all business having to do with the military structure, including paying commonly funded bills in the NATO infrastructure accounts.

Presiding over all of this—the Council, its Permanent Representatives, and the Defense Planning Committee—is the Secretary-General, the senior person in NATO. Joseph Luns, who was Foreign Minister of the Netherlands for eighteen years, became Secretary-General in 1971.

Okay, you say, that's all very interesting, but where does Haig fit in? The newspapers said he was going to be the new NATO Commander.

We will get to him. But first, without wading through all the subsidiary committees in NATO, it is necessary to mention one more—the Military Committee. This one is made up of the Chiefs of Staff—in our case, the JCS Chairman, Gen. George S. Brown—of all NATO countries save France (and now Greece), and Iceland, which has no military. It meets, like the Ministers, twice a year. The Chiefs of Staff have Military Representatives in permanent session, who transact the daily business. And, while France and Greece have three-star representatives to the Military Committee, they do not participate in matters involving the integrated command structure, which is to say, command and control, common funding, and, for that matter, the military strategy itself. They are allies but, to some extent, uncommitted ones.

The Military Committee is the senior military authority in NATO. Its Chairman, who is elected for a two-year term, is the senior military person in NATO. Presently, the Chairman of the Military Committee is Admiral of the Fleet Sir Peter Hill-Norton.

Now for General Haig. As SACEUR, he will be the designated Commander of all forces earmarked for Allied Command Europe when these forces are transferred from National to NATO Command. Until that ominous day, he is primarily a planner, with actual command of forces limited to air defense and some international headquarters staff and support activities. He is also, and not just incidentally, the US Commander in Chief, Europe.

In passing, we should remember that there is another NATO Supreme Allied Commander with headquarters at Norfolk, Va. He is the Supreme Allied Commander Atlantic (SACLANT), who has equal status with SACEUR. He is also invariably an American and is also, again not incidentally, the US Commander in Chief, Atlantic. Presently, he is Adm. Ralph Cousins.

SACEUR, from the creation of NATO, has always been an American. Just as the Pope is always Italian. Eisenhower was the first SACEUR. It was under his direction, and with the influence of his enormous prestige, that NATO was organized and moved from a concept to reality. He was followed briefly by Gen. Matthew Ridgway, then by Gens. Alfred Gruenther, Lauris Norstad, Lyman Lemnitzer, and Andrew Goodpaster. These last four served long terms with great distinction.

It is a very visible position, this one of Supreme Allied Commander Europe, and it is thus, in the minds of most people, the most important one in NATO.

Without debating that issue, we can all agree that it is indeed very important. General Haig will have a key role to play in sustaining NATO's viability and, in fact, in mapping its future. ■

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AIR FORCE
DECEMBER 1974 MAGAZINE

B-1

'Good Bargain' for Deterrence

BY EDGAR ULSAMER
SENIOR EDITOR, AIR FORCE MAGAZINE

DEFENSE Secretary James R. Schlesinger, speaking to a large crowd of spectators witnessing the rollout of the B-1 bomber October 26 at Rockwell International's facility at Palmdale, Calif., again emphasized the importance of maintaining a mix of US strategic forces, including bombers.

Such a mix, he said, "contributes synergistically to the achievement of our ultimate objective: deterrence. [There is a] need to maintain a diversified force mix, such as our Triad, because of the special and unique contribution of each component to the overall panoply of US deterrent power.

"By maintaining forces that are both diversified and flexible," the Secretary went on, "we avoid the risks of dependence upon a single capability subject to sudden degradation through possible countermeasures—while at the same time we make the task of attacking US strategic forces so intractably complex that it continues to be dramatically unattractive."

All of these considerations, Secretary Schlesinger indicated, are the central reasons behind the Air Force's new strategic bomber.

Pointing out that there is no "satisfactory substitute" for the unique contributions that an advanced follow-on bomber will make to US deterrence, Secretary Schlesinger said such a weapon system "creates for the Soviet Union a special dilemma in allocating its defense resources.

"The Soviet Union will continuously be faced with the choice of allowing a free ride for bombers," or having to commit itself to "the continuation of very substantial expenditures on air defense," an aspect of the Soviet military posture that the US "finds least disquieting and least threatening."

Referring to the specific capabilities of the B-1, such as the ability to carry about twice the B-52's payload in an aircraft only about two-thirds as large and do so over greater distances with vastly improved survivability and penetration capability, the Secretary emphasized the paramountcy of "high unit performance," to make up for "the stringent limits on bomber numbers under present circumstances and a prospective arms-limitation agreement."

The incentive to pack as much performance and "destructive capability" as is economically possible into each of the proposed 244 B-1 aircraft is boosted further by the need to compensate for the larger number of ballistic missiles accorded the USSR by the 1972 SALT I agreement, the Secretary said.

Cost vs. Performance

The significantly higher limit in ICBM and SLBM forces allowed the Soviet Union, Secretary Schlesinger said, must be "implicitly compensated for by a larger number of [US] bombers," and "logically . . . points, once again, to the necessity for a bomber follow-on." Because these conditions create "a powerful incentive to achieve high unit performance," he added, the B-1 program should not be judged by routine "cost-quantity trade-off" rules that seek to establish the most advantageous relationship between the cost of a single weapon system and the quantities in which it is required in order to meet the overall mission requirements.

Maj. Gen. Harry M. Darmstandler, Special Assistant to the Chief of Staff for B-1 Matters, pointed out at the rollout ceremony that because of high unit performance and the resultant contribution to "essential equivalence and, thus, strategic deterrence, the B-1 appears to be a good bargain when compared to any alternative system," in spite of inflation-induced cost increases.

Although the aircraft's projected unit production cost has escalated tc


U.S. AIR FORCE

Only two-thirds the size of the B-52, the B-1 can carry a much larger payload. Secretary Schlesinger stressed its vital role in the Triad, and General Martin expects the B-1 to be in service well into the next century.

$62 million, "based on an annual inflation rate of 6.3 percent compounded out into the 1980s," the B-1 represents a "sound value," he said.

Secretary Schlesinger disclosed that if inflation is taken into account, the procurement cost for the B-1 would be some sixty percent greater than for the B-52, which "requires us to be fully assured that the added capabilities are commensurate with the cost." He cautioned that a "prerequisite" for a production decision, now scheduled for November 1976, "is that the B-1 continue to perform technically throughout the entire R&D sequence in a manner that is highly acceptable. This nation cannot launch itself into the acquisition of costly capabilities until such time as the major technical risks have been demonstrated to have been resolved."

For the time being, the B-1 program, end-product of twelve years of research on an advanced bomber, is confined to the development and testing of three prototypes. Following the first flight of the rollout vehicle, scheduled for this month, the Air Force plans to seek congressional approval for an additional test aircraft in order to avoid a costly gap between the program's R&D and acquisition phases as well as to provide for "a better baseline production aircraft." (Assuming congressional approval of a fourth prototype, the four test aircraft would be assigned to basic flight testing, in-flight load testing, avionics testing, and defensive systems testing, respectively.)

McLucas: Hold Down Costs

Air Force Secretary John L. McLucas stressed in his remarks the Air Force's determination to hold the B-1's costs down and to ensure "that we get the most cost-effective aircraft possible."

Where possible, he said, "we will trade off some performance if we can get large cost savings. For example, we have substituted aluminum in place of more expensive titanium where we can in the B-1's airframe. We have modified the engine inlet to a more easily manufactured design. More recently, we decided to substitute new high-performance ejection seats for the crew escape capsule in the fourth and subsequent aircraft in order to save money and reduce development risk."

(Maj. Gen. Abner B. Martin, AFSC's B-1 System Program Director, told reporters that new, high-performance ejection seats became available recently and made possible the deletion of the more costly crew escape capsule. These seats have "equal or higher capabilities" in terms of safe, high-speed ejection than the escape capsule, he said, adding that at least two types of seats exist that can eject at speeds of from "450 to 600 knots.")

Using the critical cost factor of manufacturing man-hours per pound of airframe as a yardstick, Secretary McLucas disclosed that the first B-58 bomber used about fifty-nine man-hours per pound and the first F-111 about thirty-one man-hours while "in the B-1 program, Rockwell reports that the first aircraft has needed about twenty-eight man-hours per pound and the second aircraft now is projected at about twenty-one." In terms of "resources required to produce it," he said, "the B-1 compares very favorably to other aircraft."

Although the Air Force recognizes the importance of cost and "will give up features not absolutely essential to mission performance," Secretary McLucas asserted that "we fully intend for the B-1 to meet its mission requirements."

21st Century Aircraft

General Martin described the B-1 as "a very advanced technological achievement that we firmly believe will be a very viable aircraft well into the 21st century." Among the array of features that assure the B-1's long-term viability, he said, is its ability to "spot enemy defenses" and "through its very programmable defensive countermeasures," to adapt to changing enemy defense tactics and technologies.

Assuming an affirmative production decision by the end of 1976, the first production B-1s could enter the Air Force inventory in early 1979. Initial operational capability (IOC) could be attained by 1981. According to present plans, the aircraft is to be produced at a rate of one per month, which, over a two-year period, would be accelerated to a maximum rate of four aircraft per month.

The overall program cost of 244 B-1s, allowing for inflation, is estimated at $15 billion, according to General Martin. ■

FOREWORD

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

"The Military Balance," compiled by The International Institute for Strategic Studies, London, is an annual, quantitative assessment of the military forces and defense expenditures of countries throughout the world.

The International Institute for Strategic Studies was founded in 1958 as an independent center for research and discussion in defense, arms control, disarmament, and related areas. It has earned worldwide recognition as *the* authority in its field.

As in the past, "The Balance" is arranged with national entries grouped geographically and with special reference to the principal defense pacts and alignments. Included in the section on the US and USSR is an assessment of the changing strategic nuclear balance between the two superpowers. The section on the European theater balance between NATO and the Warsaw Pact has been expanded and a discussion of Mutual Force Reductions added.

Also new this year is an essay on "Problems of Comparing Defence Expenditures and Gross National Product," emphasizing the caution with which this particular analytical measure must be applied. A table of technical data on the principal tactical and air defense missiles of the major powers appears for the first time. Because of space limitations, some tabular material on comparison of divisional establishments and military-assistance agreements negotiated since the last issue of "The Balance" has been excluded.

In preparing "The Military Balance 1974/75" for our use, the staff of AIR FORCE Magazine has retained the Institute's system of abbreviating military weapons and units as well as British spelling and usage. A list of the abbreviations used in the text appears on the following page.

"The Military Balance" examines the facts of military power as they existed in July 1974. 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 92 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, 1974, 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 Rumania (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, reserve, and paramilitary forces is also included in the country

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
Bty	Battery
Cav	Cavalry
Cdo	Commando
CENTO	Central Treaty Organization
COIN	Counter-insurgency
Comm	Communication
Coy	Company
Det	Detachment
Div	Division
Engr	Engineer
Eqpt	Equipment
Excl	Excluding
FB	Fighter-bomber
FGA	Fighter-ground attack
FPB	Fast patrol boat(s)
GDP	Gross Domestic Product
GM	Guided missile(s)
GNP	Gross national product
GP	General purpose
Gp	Group
GW	Guided weapon(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
LST	Landing ship, tank
Lt	Light
MARV	Manoeuvrable re-entry vehicle(s)
MCM	Mine counter-measures
Mech	Mechanized
Med	Medium
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)
MTB	Motor torpedo boat(s)
NATO	North Atlantic Treaty Organization
Para	Parachute
Pdr	Pounder
RCL	Recoilless rifle(s)
Recce	Reconnaissance
Regt	Regiment
Rkt	Rocket
RL	Rocket launcher(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)
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
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

entry where appropriate. 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 frontline 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 1974/75

The United States And the Soviet Union

STRATEGIC WEAPONS

At the summit conference in Moscow at the end of June 1974, the United States and the Soviet Union reached no new agreement to limit offensive missiles. Each is continuing the deployment of new and improved systems within the limits agreed in 1972, and the pace of research and development is unchecked.

OFFENSIVE SYSTEMS

The United States will have deployed 529 *Minuteman 3* ICBM by the end of 1974, each with 3 MIRV, and is to procure a further 21 in the first half of 1975 to complete the programme of 550 *Minuteman 3* with up to 1,650 warheads. When this conversion is complete, the remainder of the force will consist of 450 *Minuteman 2*. The option to deploy a larger *Minuteman 3* force is left open. A programme to strengthen substantially the 1,000 *Minuteman* silos has been started (to be completed by 1978), and a new Command Data Buffer system is being installed to allow rapid retargeting. At sea, 352 *Poseidon* SLBM, each with 10–14 MIRV, have been, or are about to be, deployed in 22 submarines; conversion of another 9 submarines to *Poseidon* will be complete by 1977, when only 10 *Polaris A-3* submarines will remain in service. Work has started on the *Trident 1* SLBM with a 4,600 mile range, designed to carry MARV warheads, capable of being installed on *Poseidon* submarines or in the new 24-tube *Trident* submarine. MARV stands for manoeuvrable re-entry vehicles, *i.e.,* which can be manoeuvred during the terminal phase of their flight. The projected production rate of the *Trident* submarine is 2 a year, and the first is to be operational at the end of 1978. There are to be 10 in all, replacing the 10 *Polaris A-3* boats mentioned above and so remaining within the total of 41 submarines permitted under SALT. (The SALT Interim Offensive Agreement runs out in 1977. If, as present plans indicate, the 10 *Polaris* submarines are replaced with *Trident,* the United States would have 736 SLBM by the early 1980s—26 more than the SALT total permits, even after using the freedom allowed by the Interim Offensive Agreement to replace 54 *Titan 2* ICBM with new SLBM.) If and when such programmes are completed, the United States would have ICBM and SLBM carrying more than 9,000 separately targetable warheads.

Though unconstrained by SALT, strategic bomber aircraft have been reduced (by 2 B-52 squadrons), but the B-1 supersonic bomber (which is to replace the B-52) is scheduled to make its first flight by early 1975. A decision on whether to procure a B-1 force of 241 is to be made in 1976.

There are a number of projects in earlier stages of development, the discontinuance of some of which is said to depend on the willingness of the Soviet Union to agree on mutual restraint. The accuracy of *Minuteman 3* is to be improved, largely through testing and software (electronic) changes, and a higher-yield warhead is under study, as is terminal guidance for both *Minuteman 3* and *Poseidon.* More distant programmes include a new, large-payload ICBM launched from existing silos and a new mobile missile, either ground- or air-launched (though the development of a mobile missile has been specifically made dependent on the Soviet Union embarking on such a course first). Development is also continuing of a new low-flying, strategic cruise missile which could be launched by aircraft, submarines, or surface vessels. In addition, funds have been requested for the study of a smaller and less costly SSBN which might eventually replace the *Polaris/ Poseidon* fleet.

The Soviet Union is also undertaking important developments in strategic offensive systems. On land, 1,575 ICBM are now deployed (48 more than last year and 43 short of the ceiling imposed by the 1972 SALT Interim Agreement), and the remaining 12 new silos are likely to be operational soon, bringing the ICBM total to 1,587. Development has continued of four new ICBM: the SS-X-18, a large liquid-fuelled missile in the SS-9 class (it could fit into slightly modified SS-9 silos); the SS-X-17 and the SS-X-19, two liquid-fuelled missiles with three to five times the throw-weight of the SS-11; and the SS-X-16, a solid-fuelled missile in the SS-13 class, which may have fixed and mobile versions. The 25 large silos started in 1970 are thought likely to be operational by mid-1975 with SS-X-18 missiles, which would then bring the Soviet 'heavy' ICBM total to the 313 permitted by the Interim Agreement. All four of the new ICBM have greater accuracy than those now deployed. The SS-X-18 has been tested with a single large RV and with 5–8 MIRV in the MT range. The SS-X-17 and SS-X-1 appear to be alternative replacements for the SS-11, with the latter seen as the most likely choice. The first has been tested with a single MT-range RV and with 4 MIRV,

ne second only with 4–6 MIRV. If three of the four new ystems are fully deployed, the Soviet ICBM throw-eight would increase from the present 6–7 million ounds to 10–12 million pounds and would be able to eliver some 7,000 separately-targeted warheads in the IT range. (This compares with the present United States CBM capability to deliver 2,000 separately-targeted arheads with 1–2 million pounds throw-weight.)

At sea, the Soviet Union has increased its LBM to 720 (in 70 submarines), 92 more than a year go. Two more Y-class boats have been launched, each ith 16 SS-N-6 (1,500–1,750 mile range), making 33. Six ore D-class have also been launched, making 9, each ith 12 SS-N-8 with a range of 4,600 miles—the longest ange of any operational SLBM. Only these two classes f submarine count against the SALT ceiling of 62 nodern' submarines. If the building rate is 6–8 per year, s has been estimated, the figure of 62 'modern' boats ould be reached by around mid-1977. The current umber of missiles in these and older nuclear-powered oats is 660, compared with the ceiling of 950 'modern' LBM (this ceiling assumes that SLBM replace older CBM; if not, the SLBM ceiling is 740). Since 18 or 19 -class boats (each with at least 12 missiles) are under onstruction or have been launched, and there are 33 -class (each with 16), a combined total of at least 744 nodern' SLBM seems intended, thus exceeding the wer ceiling figure of 740. Newer D-class submarines ing built may carry more than 12 missiles. A new rsion of the SS-N-6, with MRV, has been tested, robably to be carried by Y-class submarines. In addi-on, a 400-mile range, submarine-launched missile, the S-N-13, which may be ballistic, is undergoing tests and ay be deployed in 1975.

The first squadron of the new Soviet bomber, *ackfire,* may enter service in 1974/1975, with a range nd refuelling capacity that could give it an interconti-ental role.

EFENSIVE SYSTEMS

Though the 1974 Moscow summit conference roduced no new offensive missile limits, it did produce greement to limit ABM to a single deployment area for super-power (those which now exist) instead of he United States will thus not proceed with the deployment of ABM around Washington nor the Soviet Union with the site for ICBM defence. The *Safeguard* ABM defence for the *Minuteman* force at Grand Forks AFB, North Dakota, becomes operational in mid-1975, and research is continuing on improving ballistic missile interceptors and radars. The Soviet Union has not added to the 64 ABM launchers deployed in the Moscow area, but has conducted flight tests of new interceptors. As far as early warning systems are concerned, the United States is continuing work on the Over-the-Horizon Backscatter (OTH-B) radar, and funds have been requested for new SLBM warning radars. The Soviet Union is also developing an OTH radar system. While the United States has reduced numbers of interceptor aircraft and SAM units, the Soviet Union has brought the advanced interceptor aircraft MiG-25 *Foxbat* widely into service.

GENERAL-PURPOSE FORCES

The numbers in the United States armed forces have fallen by some 78,900 to 2,174,000, while those of the Soviet Union are 100,000 higher at 3,525,000.

Each is improving its conventional weapon systems. The United States has committed funds to a fourth nuclear-powered aircraft carrier; 30 new DD-963 GM destroyers are to be delivered by the end of 1978; and five nuclear-powered frigates are under construction. Twenty-seven nuclear-powered attack submarines have been funded (to add to the 61 now in service), as have new anti-ship missiles. A new main battle tank, the XM-1, is being developed, the procurement of anti-tank missiles accelerated, and new air defence missiles are planned. The F-15 air superiority fighter is to become operational in 1976, and much work is going into defence-suppression weapons, electronic countermeasures, and remotely piloted vehicles, prompted in part by lessons of the Arab–Israeli war. The Soviet Union is building a second S/VTOL aircraft carrier and has deployed new *Kara*-class cruisers, with three separate missile systems, and *Krivak*-class destroyers. A new fighter-bomber is under development (*Fencer A,* designed for ground attack), and others, such as the MiG-23 and Su-20, are in service. A new tank is in production. The two superpowers are thus modernizing their general-purpose forces across the whole range, matching the development in strategic systems.

UNITED STATES

opulation: 213,460,000.
ilitary service: voluntary.
otal armed forces: 2,174,000 (40,500 women).
stimated GNP 1973: $1,289.1 billion.
efence budget 1974–75: $85,800 million. (The budget, as finally approved, was $82.7 billion.)

rategic Nuclear Forces:

'fensive:
.) *Navy:* 656 SLBM in 41 submarines.
22 SSBN, each with 16 *Poseidon.*
19 SSBN, each with 16 *Polaris* A3.
.) *Strategic Air Command:*
BM: 1,054.
21 *Minuteman 1.*
450 *Minuteman 2.*
529 *Minuteman 3.*
54 *Titan 2.*
rcraft:
Bombers: 503. (Two B-52 sqn equivalents and 1 tanker sqn are rotated for duty in South-East Asia.)
66 FB-111A in 4 sqns } with SRAM
180 B-52G in 12 sqns } with SRAM
75 B-52H in 5 sqns } with SRAM
120 B-52D in 8 sqns.
22 B-52F in 1 sqn (training).
Tankers: 615 KC-135 in 38 sqns.
Aircraft in active storage or reserve include 40 B-52D/F/G/H and 130 KC-135.
Strategic Reconnaissance: 10 SR-71A in 1 sqn; RC/EC-135, DC-130, U-2.

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 (ADC).
ABM: Safeguard system with 30 *Spartan* and 70 *Sprint* ABM in 1 site to be complete by mid-1975.
Aircraft (excluding Canadian):
Interceptors: 532.
(i) Regular: 7 sqns with F-106A (to be 6).
(ii) Air National Guard: 6 F-101B sqns; 10 F-102A sqns; 4 F-106A sqns (to be 6 sqns F-101, 2 sqns F-102, 6 sqns F-106 by mid-1975).
AEW aircraft: 3 sqns with EC-121 (being reduced).
SAM: 261, 21 *Nike-Hercules* batteries (to be withdrawn by mid-1975).
Warning Systems:
(i) *Satellite-based early warning system:* three early warning satellites, one on station over the Eastern Hemisphere, two 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 Centre at NORAD HQ. Satellite tracking, identification, and cataloguing control.
(iii) *Over-the-Horizon, Forward Scatter* (OTH): 440L radar system with 9 sites;

The F-15, USAF's new Mach 2.5 air-superiority fighter, will be entering service with operational units during 1975.

The US is outnumbered by the USSR in both surface ships and submarines, with the single exception of carriers. In that category, the USN has fifteen flattops in operation, including the nuclear-powered Enterprise, *shown here.*

capable of detecting, but not tracking, ICBM very early in flight.
(iv) *Ballistic Missile Early Warning System* (BMEWS): 3 stations, in Alaska, Greenland, and England; detection and tracking radars with an ICBM and IRBM capability.
(v) *Distant Early Warning* (DEW) *Line:* 31 stations, roughly along the 70° N parallel.
(vi) *Pinetree Line:* 23 stations in central Canada.
(vii) *474N:* SLBM detection and warning net of 4 stations on the East, 1 on the Gulf, and 3 on the West coasts of the United States.
(viii) *Back-Up Interceptor Control* (BUIC): system for air defence command and control (all stations except one now semi-active).
(ix) *Semi-Automatic Ground Environment* (SAGE): system for co-ordinating all surveillance and tracking of objects in North American airspace; 6 locations; combined with BUIC.
(x) *Ground radar stations:* some 55 stations manned by Air National Guard; augmented by the Federal Aviation Administration stations. Nine joint use stations now in service.

Army: 782,000 (13,700 women).
3 armoured divisions.
1 armoured cavalry division.
4 mechanized infantry divisions.
3 infantry divisions.
1 airmobile division.
1 airborne division.
3 armoured cavalry regiments.
1 brigade in Berlin.
1 school brigade.
2 special mission brigades in Alaska and Panama.
20 *Honest John, Pershing, Sergeant,* and *Lance* SSM battalions (*Lance* is being introduced to replace *Honest John* and *Sergeant*).
M-48, M-60, and M-60A1/A3 and A2 (*Shillelagh*) med tks; M-41, M-551 *Sheridan* lt tks with *Shillelagh* ATGW; M-557, M-114, M-113 APC; M-107 175mm SP guns; M-108 105mm, M-109 155mm, and M-110 203mm SP how; M-56 90mm SP ATk guns; *TOW* and some *Dragon* ATGW; *Chaparral/Vulcan* 20mm AA msl/gun system; *Redeye* and *HAWK* SAM.
Army Aviation: about 10,000 hel and 1,000 fixed-wing ac.

Deployment:
Continental United States
(i) Strategic Reserve: 1 armd cav div; 1 inf div; 1 airmobile div; 1 AB div; 1 inf bde.
(ii) To reinforce 7th Army in Europe: 1 armd div (with equipment stockpiled in West Germany); 1 mech div (less 1 bde) (this division has two dual-based brigades with heavy equipment stored in West Germany); 1 mech div (with equipment stockpiled in West Germany); 1 armd cav regt.
Europe
(i) Germany: 7th Army: 2 corps, incl 2 armd divs, 2 mech inf divs, 1 mech inf bde plus 2 armd cav regts; 190,000; 2,100 medium tanks (this figure includes those stockpiled for the dual-based and Strategic Reserve divisions).
(ii) West Berlin: HQ elements and 1 inf bde of 4,400 men.
(iii) Italy: Task force of HQ elements and 1 *Sergeant* SSM bn.
Pacific
(i) South Korea: 1 inf div; 26,000.
(ii) Hawaii: 1 inf div (less 1 bde).

Reserves: Authorized strength 658,000, a tual strength 610,000.
(i) Army National Guard: authoriz 400,000, actual 383,000; capable sor time after mobilization of manning armd, 1 mech, and 5 inf divs, 18 ind bdes (3 armd, 7 mech, and 8 inf) and armd car regts, plus reinforcements a support units to fill regular formations.
(ii) Army Reserves: authorized 258,000, a tual 227,000; in 12 trg divs and 3 ind trg bdes; 48,000 a year undergo sh active duty tours.

Marine Corps: 196,000 (1,100 women).
3 divs (each of 18,000 men).
2 SAM bns with *HAWK.*
M-48 and M-103A2 med tks; LVTP-7 AP 175mm guns; 105mm SP how; 1 and 155mm how; M-50 SP r 106mm RCL; 36 *HAWK* SAM. (60A1 med tks, 100 *TOW* on order.)
3 Air Wings: 550 combat aircraft.
12 fighter sqns of F-4B/J with *Sparr* and *Sidewinder* AAM.
10 attack sqns (5 each of 60 A-4E/F

The US Army is replacing its Honest John and Sergeant surface-to-surface missiles with the Lance, shown here in Germany. Lance will carry either a conventional or a nuclear warhead, and is believed to have a range of about seventy-five miles.

and 60 A-6A).
3 close-support sqns with 36 AV-8A *Harrier.*
3 recce sqns with RF-4B/C and 23 EA-6A.
3 observation sqns with OV-10A and AH-1J.
3 assault tpt/tanker sqns with 46 KC-130F.
6 heavy hel sqns with CH-53D.
9 med assault hel sqns with CH-46A.

eployment:
Continental United States: 2 divs/air wings.
Pacific Area: 1 div/air wing.

eserves: Authorized strength 45,000, actual strength 34,700.
div and 1 air wing: 4 fighter sqns, 1 with F-4B, 3 with F-8J; 5 attack sqns with A-4C/E/L; 1 recce sqn with RF-8; 1 observation sqn with OV-10A and AH-1G; 1 tpt sqn with KC-130; 9 hel sqns (2 hy with CH-53, 6 med with CH-46, 1 lt with UH-1E, AH-1G); 1 SAM bn with *HAWK.*

avy: 551,000 (10,000 women); 177 major combat surface ships, 73 attack submarines.
ubmarines, attack: 61 nuclear, 12 diesel.
ircraft carriers: 15.
1 nuclear-powered (USS *Enterprise,* 76,000 tons); a second will be commissioned in 1974–75.
8 *Forrestal/Kitty Hawk*-class (60,000 tons).
3 *Midway*-class (52,000 tons).
3 *Hancock*-class (33,000 tons; 1 training).
The larger carriers have a normal complement of 80–90 aircraft, the smaller ones 70–80. These are organized as an air wing of 2 fighter sqns with F-4 (F-8 in the *Hancock*-class), 2 attack sqns with A-4 or A-7; RA-5C or RF-8 recce; 1 sqn each of S-2E and SH-3A/D/G/H hel (ASW); EKA-3B tankers.
'her surface ships:
1 cruiser (nuclear) with SAM and *ASROC.*
3 cruisers with SAM and *ASROC.*
1 gun cruiser.
2 light cruisers with SAM (1 more in 1974).
3 frigates (nuclear) with SAM and *ASROC* (1 more in 1974–75).
26 frigates with SAM and *ASROC.*
29 destroyers with SAM and *ASROC.*
32 gun/ASW/radar picket destroyers, some with SAM and *ASROC.*
5 destroyer escorts with SSM, SAM, and *ASROC.*
58 gun/radar picket escorts.
16 patrol gunboats, 2 with SSM.
35 amphibious warfare ships.
9 MCM ships (plus numerous small craft).
156 logistics and operations support ships.
Missiles incl *Standard* SSM/SAM, *Tartar, Talos, Terrier, Sea Sparrow* SAM, *ASROC* and *SUBROC* ASW.
:raft: about 1,900 combat aircraft.
8 fighter sqns with F-14A, F-4, F-8.
2 attack sqns with A-4, A-6, A-7.
0 recce sqns with RA-5C, RF-8.
4 maritime patrol sqns with 240 P-3A/B/C.
9 ASW sqns, 10 with S-2E, 9 with SH-3A/G/H hel (5 sqns with S-3 to be in service 1974–75).
helicopter sqns, with UH-1/2, AH-1J, RH-53D.
3 other sqns with C-1, C-2, C-9B, C-54, C-130, 35 EA-6B, and 48 E-2B/C.

loyment (average strengths of major ombat 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, 67 surface combatants, 1 amphibious ready group.*
Third Fleet (Eastern Pacific): 6 carriers, 56 surface combatants.
Sixth Fleet (Mediterranean): 2 carriers, 17 surface combatants, 2 amphibious ready groups.*
Seventh Fleet (Western Pacific): 3 carriers, 25 surface combatants, 2 amphibious ready groups.*
Middle East Force (Persian Gulf): 1 amphibious ship, 2 surface combatants.

Reserves: Authorized strength 129,000, actual strength 119,000; 3,000 a year undergo short active duty tours. Ships in commission with the Reserve include 37 destroyers and 26 MCM ships.
Aircraft:
2 carrier attack wings: 3 A-7, 3 A-4E/L attack sqns; 1 F-4B, 3 F-8J fighter sqns, 2 recce sqns (RF-8G); 2 KA-3 tanker sqns; 2 AEW sqns with E-1B.
2 ASW groups: 6 sqns with S-2; 4 hel sqns with SH-3; 2 A-4 fighter sqns; 2 E-1B sqns.
12 MR sqns: 4 with P-3A, 8 with SP-2H.
4 tpt sqns with C-118.
Ships in reserve:
11 submarines, 6 aircraft carriers, 4 battleships, 12 heavy cruisers, 4 SAM light cruisers, 70 destroyers, 2 frigates, 78 destroyer escorts (all classes), 8 rocket ships, 74 amphibious warfare ships, 82 MCM ships/craft, 75 logistics support ships. (Many older vessels are to be scrapped and the Reserve Fleet reduced substantially during 1974–75.)

Air Force: 645,000 (15,700 women); about 5,000 combat aircraft.
69 fighter/attack sqns with F-4, F-105, F-111, and A-7D.
13 tactical recce sqns with RF-4C, EB-66.
8 special purpose sqns with A-1E, A-37, F-105G, F-4C, O-2, OV-10, C-123, C-130, AC-130, UH-1, CH-3.
1 tactical drone sqn.
17 tactical airlift sqns with 325 C-130E.
17 hy tpt sqns, 4 with 79 C-5A, 13 with 275 C-141.
3 medical tpt, weather recce, and SAR sqns with C-9, HC-130, and HH-53.

Deployment:
Continental United States (incl Alaska and Iceland):
(i) Tactical Air Command: 88,000; 37 fighter sqns. 9th and 12th Air Forces.
(ii) Military Airlift Command (MAC): 58,000. 21st and 22nd Air Forces.
Europe, US Air Force, Europe (USAFE): 47,000.
3rd Air Force (Britain), 16th Air Force (Spain), 17th Air Force (West Germany), and a logistics group in Turkey.
21 fighter sqns (plus 4 in the US on call) with 396 F-4C/D/E and 72 F-111E.
5 tactical recce sqns with 85 RF-4C.
Pacific, Pacific Air Forces (PACAF): 48,600.
5th Air Force (Japan, Korea, Okinawa), 7th Air Force (Thailand), 13th Air Force (Philippines, Taiwan, Thailand).
11 fighter sqns.

Reserves:
(i) Air National Guard: Authorized strength 92,000, actual 92,500; about 650 combat aircraft. 20 interceptor sqns (under ADC, see above); 29 fighter sqns (17 with F-100C/D, 4 with F-105B/D, 1 with F-104, 1 with F-4C, 3 with A-7, 2 with A-37B, 1 with B-57); 7 recce sqns (4 with RF-101, 3 with RF-4C); 2 strategic tpt sqns with C-124C; 12 tactical tpt sqns (10 with C-130A/B/E, 1 with C-123J, 1 with C-7); 9 tanker gps with KC-97L; 1 electronic warfare gp with EC-121 (ADC); 3 special operations gps with C-119/U-10, and 5 tactical air support gps with O-2A.
(ii) Air Force Reserve: Authorized strength 56,000, actual strength 46,000; about 420 combat aircraft. 3 fighter sqns with F-105D; 4 attack sqns with A-37; 22 tactical tpt sqns (16 with C-130A/B/E, 4 with C-123K, 2 with C-7); 1 electronic warfare sqn with EC-121; 1 special operations sqn with CH-53E; 4 SAR gps, 2 with HC-130, 2 with HH-1H. 18 Reserve Associate sqns (personnel only).
(iii) Civil Reserve Air Fleet: 246 commercial long-range ac, incl 153 suitable for cargo.

* Amphibious ready groups are 3-5 amphibious ships with a Marine battalion embarked. Only 1 in the Mediterranean and 2 in the Pacific are regularly constituted; one is occasionally formed for the Caribbean.

THE SOVIET UNION

Population: 252,530,000.
Military service: Army and Air Force, 2 years; Navy and Border Guards, 2–3 years.
Total armed forces: 3,525,000.
Estimated GNP 1973: 441 billion roubles. (The 1973 official exchange rate was $1 = 0.72 roubles. An American study gave $1 = 0.59 as a suitable 1970 GNP conversion rate, compared with the then ruling official exchange rate of $1 = 0.9.)
Estimated defence expenditure 1974: 23.8 billion roubles (approximately $96 billion). (This dollar estimate is only a valuation of the Soviet defence effort at US prices measured in dollars.)

Strategic Nuclear Forces:

Offensive:
(A) *Navy:* 720 SLBM in 70 submarines.
9 SSBN (D-class), each with 12 SS-N-8 missiles.
33 SSBN (Y-class), each with 16 SS-N-6 missiles.
8 SSBN (H-class) each with 3 SS-N-5 missiles.
11 diesel submarines (G-II-class), each with 3 SS-N-5 *Serb* missiles. (These launchers are not considered strategic missiles under the terms of the Strategic Arms Limitation (Interim) Agreement.)
9 diesel (G-I-class) each with 3 SS-N-4 *Sark* missiles. (These launchers are not considered strategic missiles under the terms of the Strategic Arms Limitation (Interim) Agreement.)

(B) *Strategic Rocket Forces (SRF)* (The SRF, a separate service, have their own manpower): 350,000.
ICBM: 1,575.
209 SS-7 *Saddler* and SS-8 *Sasin.*
288 SS-9 *Scarp.*
1,018 SS-11 (including about 100 IRBM/MRBM).
60 SS-13 *Savage.*
IRBM and MRBM: about 600.
100 SS-5 *Skean* IRBM.
500 SS-4 *Sandal* MRBM.
The majority are sited near the western border of the USSR, the remainder east of the Urals.

The Soviet Air Defence Forces (PVO-Strany) is a separate service. Its operational inventory of about 2,650 interceptors ranges from the Mach 3.2 MiG-25 Foxbat to this older Yak-28P Firebar.

The USSR's Tactical Air Force numbers about 4,500 tactical fighters and bombers, including some 500 of these Su-7s, used principally for close-support missions.

(C) *Air Force:*

Long Range Air Force (LRAF): 840 combat aircraft. (About 75 per cent is based in the European USSR, with most of the remainder in the Far East; in addition there are staging and dispersal points in the Arctic.)

Long range bombers: 140.

100 Tu-95 *Bear* and 40 Mya-4 *Bison.*

Tankers: 50 Mya-4 *Bison.*

Medium range bombers: 700.

500 Tu-16 *Badger* and 200 Tu-22 *Blinder.*

The Soviet Army has about 1,000 surface-to-surface missile launchers varying in range from ten miles for the older FROGs to some 500 miles for this Scaleboard. All of them are believed to be nuclear capable.

Defensive:

Air Defence Forces (*PVO-Strany*) 500,000: early-warning and control system, fighter-interceptor squadrons, and SAM units. (The Air Defence Forces are a separate service with their own manpower.)

Aircraft: about 2,650.

Interceptors: include about 650 MiG-17 and MiG-19, 750 Su-9, 1,250 Yak-28P *Firebar,* Tu-28P *Fiddler,* Su-11, Su-15 *Flagon A,* and MiG-25 *Foxbat.*

AEW aircraft: 10 modified Tu-114 *Moss.*

Anti-ballistic Missiles (ABM):

64 *Galosh* long-range missile launchers are deployed in four sites around Moscow, each with *Try Add* engagement radars (another radar of this type is under construction). Target acquisition and tracking is by a phased-array *Dog House* radar, and early warning is given 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: 9,800 launchers at about 1,650 sites.

SA-2 *Guideline:* about 4,500; *Fan Song* radar; high-explosive warhead; slant range (launcher to target) about 25 miles; effective between 1,000 and 80,000 feet.

SA-3 *Goa:* Two-stage, low-level missile; slant range about 15 miles.

SA-4 *Ganef:* Twin-mounted (on tracked carrier), air-transportable, long-range missile with solid fuel boosters and ram-jet sustainer.

SA-5 *Griffon:* Two-stage, boosted high-level missile; slant range about 50 miles, with a limited capability against missiles.

SA-6 *Gainful:* Triple-mounted (on tracked carrier), low-level missile; slant range about 17 miles.

Army: 1,800,000 (excluding Air Defence Forces).

110 mechanized divisions.

50 tank divisions.

7 airborne divisions.

SSM: (nuclear capable): about 1,000 launchers (units are organic to formations), including:

(1) *FROG*-1-7, range 10–45 miles.

(2) *Scud A,* range 50 miles.

(3) *Scud B,* range 185 miles.

(4) *Scaleboard,* range 500 miles.

SAM: SA-2, SA-4, SA-6, and SA-7 *Grail* (man-portable or vehicle mounted).

Tanks:

JS 2/3, T-10, T-10M hy, T-62 and T-54/55 med, PT-76 amphibious recce lt (most Soviet tanks are equipped for a phibious crossing by deep wading).

AFV: BTR-50P, -60, -152; BMP AF BRDM scout car, and BMD airbor AFV.

Artillery:

100mm, 122mm, 130mm, 152mm, a 203mm field and SP guns and ho 122mm multiple RL; 140mm RL; ASU- and ASU-85 SP and 85mm and 100n ATk guns; *Sagger, Snapper, Swat* ATGW.

Anti-Aircraft Artillery:

14.5mm, 23mm, 57mm towed guns a ZSU-57-2 57mm twin-barrelled a ZSU-23-4 23mm four-barrelled track SP guns; 85mm, 100mm, and 130n guns.

Deployment and Strength:

Central and Eastern Europe: 31 divs: divs (10 tank) in East Germany; 2 ta divs in Poland; 4 divs (2 tank) in Hu gary; and 5 divs (2 tank) in Czechos vakia; 9,025 medium tanks.

European USSR: 63 divs (about 22 tan

Central USSR: 5 divs (1 tank).

Southern USSR: 23 divs (3 tank).

Sino-Soviet border: 45 divs, incl 2 in Mo golia (about 8 tank).

Soviet divisions have three degrees combat readiness: Category 1, betwe three-quarters and full strength, w complete equipment; Category 2, tween half and three-quarters streng with complete fighting vehicles; Ca gory 3, about one-third strength, po bly with complete fighting vehic (though some may be obsolescent). 31 divs in Eastern Europe are Categ

With a maximum takeoff weight of 551,000 pounds, the Soviet An-22 falls about half-way between the USAF C-141 and the C-5.

1, as are a small number of those in the European USSR and the Far East and a few in the Southern USSR. The remaining divisions in European USSR, Southern 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; mech divs 255.

Outside the Warsaw Pact area:
Afghanistan 150, Algeria 600, Cuba 1,000, Egypt 500, Iraq 600, North Vietnam 1,000, Somali Republic 1,000, Syria 2–3,000, People's Democratic Republic of South Yemen 200.

Navy: 475,000 (incl Naval Air Force, 75,000; Naval Infantry, 17,000, and Coast Artillery and Rocket Troops, 10,000); 221 major surface combat ships, 245 attack and cruise missile submarines, 70 nuclear, 175 diesel.

Submarines:
Attack: 30 nuclear (10 N-, 15 V-, 3 E-I-, 1 U-, 1 A-class); 140 diesel (50 F-, 10 R-, 20 Z-, 59 W-, 1 T-class).
Cruise missile: 40 nuclear (1 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.

NATO has no counterpart to these SS-4 MRBMs with a range of 1,200 miles, or to the longer-range Soviet SS-5 IRBMs. The USSR has some 600 missiles in these two classes.

3 *Kara*-class ASW cruisers with SSM and SAM.
4 *Kresta*-class ASW cruisers with SSM and SAM.
6 *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), and 1 older cruiser.
6 *Krivak*-class destroyers with SSM and SAM.
6 *Kanin*-class ASW destroyers with SAM.
3 *Krupny*-class destroyers with SSM.
19 *Kashin*-class ASW destroyers with SAM.
8 modified *Kotlin*-class destroyers with SAM.
36 *Kotlin*- and *Skory*-class destroyers.
110 other ocean-going escorts.
8 *Nanuchka*-class coastal escorts with SSM and SAM.
150 submarine chasers.
130 *Osa*- and *Komar*-class FPB with *Styx* SSM.
300 patrol and torpedo boats.
260 minesweepers (125 coastal).
100 amphibious ships.
100 landing craft.
25 hydrofoils.

The Soviet helicopter carrier Moskva, *under way in the Mediterranean. The USSR is now building V/STOL carriers in a bid for control of the seas.*

(1 40,000-ton *Kuril*-class aircraft carrier, apparently designed to operate with a combined total of perhaps 25 S/VTOL ac and 36 hel, may be in service in late 1975. A second is building.)
In addition to the above there are 50 intelligence collection vessels (AGI) and a number of trawlers used for electronic intelligence.
A proportion of the destroyers and smaller vessels may not be fully manned.

Naval Air Force: about 715 combat aircraft.
(Most shore-based near the north-west and Black Sea coasts, organized generally into 3 regiments of 3 sqns each at each base.)
280 Tu-16 *Badger* with one *Kipper* or two *Kelt* ASM.
55 Tu-22 *Blinder* strike and reconnaissance ac.
20 Il-28 *Beagle* torpedo-equipped light bombers.
50 Tu-95 *Bear* long-range naval reconnaissance ac.
150 Tu-16 *Badger* reconnaissance and tanker ac.
100 Be-2 *Mail* ASW amphibians.
60 Il-38 *May* ASW aircraft.
270 Mi-4 and Ka-25 ASW helicopters.
200 miscellaneous transports.

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

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

Deployment (average strengths only):
Northern Fleet: 160 submarines, about 80 of them nuclear; 56 major surface combat ships.
Baltic Fleet: 30 submarines, 50 major surface combat ships.
Black Sea Fleet: 20 submarines, 60 major surface combat ships.
Pacific Fleet: 100 submarines, about 40 of them nuclear; 55 major surface combat ships.

Air Force: 400,000; about 5,350 combat aircraft, excluding Air Defence Forces (*PVO-Strany*).
Long Range Air Force (see above).
Tactical Air Force: about 4,500 aircraft, incl Yak-28, Il-28, 800 MiG-17, 500 Su-7, 300 MiG-23 *Flogger*, more than 1,350 MiG-21; Su-20, improved *Fitter B, Fencer A.*
Air Transport Force: about 1,700 aircraft; 870 Il-14, An-8, An-24, some 800 An-12 and Il-18 med tpts, and 30 An-22 hy tpts.
2,500 hel (about 500 Mi-1, Mi-2; Mi-4, 1,000 Mi-6, Mi-8, Mi-10; Mi-12 and Mi-24).

Deployment:
About half the Tactical Air Force is oriented towards Western Europe and a quarter towards China. Some 1,250 aircraft are actually deployed in Eastern Europe. There is a Tu-22 sqn in Iraq.

Reserves: about 3,000,000 (500,000 with recent training earmarked for divisional reinforcements).

Para-Military Forces: 310,000.
180,000 KGB border troops; 130,000 MVD security troops. The border troops are equipped with tks, AFV, ac, and ships; MVD have tks and AFV. There is a part-time military training organization (DOSAAF) which takes part in such recreational activities as athletics, shooting, and parachuting. It assists in pre-military training given in schools, colleges, and workers' centres to those of 15 and over. The membership is perhaps 9 million, but the number of effectives is likely to be much smaller.

THE MILITARY BALANCE 1974/75

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 Rumania; 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 Rumania. 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, Rumania, and Hungary between December 1956 and May 1957, and with Czechoslovakia in October 1968; all these remain in effect except the one with Rumania, which lapsed in June 1958 when Soviet troops left Rumania.

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: 8,700,000.
Military service: Army and Air Force, 2 years; Navy, 3 years.
Total regular forces: 152,000.
Estimated GNP 1973: $12.2 billion.
Defence expenditure 1974: 483 million leva ($345 million).
$1 = 1.4 leva.

Army: 120,000.
(East European Warsaw Pact formations are not all manned at the same level. They can be regarded as being in two categories: Category 1 formations up to three-quarters of establishment strength; Category 2 unlikely to be at more than a quarter of establishment strength. This note applies to Bulgaria and the Warsaw Pact entries that follow.)

8 motorized rifle divisions.
5 tank brigades.
Some hy tks; 150 T-34, 1,800 T-54/55, 5(T-62 med tks; 250 PT-76 lt tks; 2,35(BTR-40, -50, -60, and -152 APC; 1,0(85mm, 100mm, 122mm, and 152m guns and how; SU-100 SP guns; 1(RL; 33 *FROG* and 18 *Scud* SSM; 3(57mm and 76mm ATk guns; *Sagge Snapper* ATGW; 450 37mm, 57m

85mm, and 100mm AA guns; SA-7 SAM.

Reserves: 250,000.

Navy: 10,000.
2 submarines.
2 *Riga*-class escorts.
6 *SOI*- and 2 *Kronstadt*-type coastal escorts.
20 MCM ships (2 T-43, 4 *Vanya*, 4 T-30 classes).
5 *Osa*-class patrol boats with *Styx* SSM.
24 patrol boats (ex-Soviet PO-2 type).
8 *Shershen* and 8 P-4 torpedo boats.
20 landing craft.
2 Mi-1, 6 Mi-4 helicopters.

Reserves: 15,000.

Air Force: 22,000; 267 combat aircraft.
6 fighter-bomber sqns with 72 MiG-17.
4 interceptor sqns with 48 MiG-21.
3 interceptor sqns with 40 MiG-19.
5 interceptor sqns with 60 MiG-17.
1 recce sqn with 12 Il-28.
2 recce sqns with 35 MiG-15, MiG-17, and MiG-21.
2 tpt sqns with 4 Li-2, 6 An-2, 4 Il-18, and 10 Il-14.
3 hel sqns with 36 Mi-4 helicopters.
2 SAM battalions with SA-2.
1 parachute regiment.

Reserves: 20,000.

Para-Military Forces: 20,000, including border guards (15,000); security police; a volunteer People's Militia of 150,000.

CZECHOSLOVAKIA

Population: 14,540,000.
Military service: 24 months.
Total regular forces: 200,000.
Estimated GNP 1973: $35.3 billion.
Defence expenditure 1974: 17.3 billion koruny
($1,384 million).
$1 = 12.5 koruny.

Army: 155,000.
5 tank divisions.
5 motorized rifle divisions.
1 airborne brigade.
Some hy tks; about 3,500 med tks, mostly T-54/55 with some T-62; OT-65 scout cars; OT-62 and OT-64 APC; 1,200 100mm, 122mm, and 152mm guns and how; 120mm mor; 200 RL; 33 *FROG*, 27 *Scud* SSM; 57mm, 85mm, 100mm ATk guns; *Sagger, Snapper, Swatter* ATGW; 850 30mm, 57mm, and 85mm AA guns.

Reserves: 300,000.

Air Force: 45,000; 500 combat aircraft.
12 FGA sqns with 56 Su-7 and 112 MiG-17.
18 interceptor sqns with 84 MiG-19 and 168 MiG-21.
6 recce sqns with 80 MiG-21 and Il-28.
About 40 An-24, Il-14, and Il-18 transports.
About 180 Mi-1, Mi-4, and Mi-8 helicopters.
Some L-39 *Albatross* trainer/light attack.
About 20 SA-2 SAM sites.

Reserves: 50,000.

Para-Military Forces: Border troops (*Pohranicki straz*) 35,000 (subordinate to the Ministry of the Interior); a part-time People's Militia of about 120,000.

GERMAN DEMOCRATIC REPUBLIC

Population: 17,010,000.
Military service: 18 months.
Total regular forces: 145,000.
Estimated GNP 1973: $38.2 billion.
Defence budget 1974: 8,900 million Ostmarks
($2,171 million).
$1 = 4.1 Ostmarks.

Army: 100,000.
2 tank divisions.
4 motorized rifle divisions.
Some hy tks; about 2,000 T-54, T-55, T-62 med tks; several hundred T-34 (used for training); about 130 PT-76 lt tks; BRDM scout cars; BTR-50P, -60P, -152 APC; SU-100 SP guns; 85mm, 122mm, 130mm, 152mm guns; 122mm RL; *FROG-7*, *Scud B* SSM; 57mm, 100mm ATk guns; *Sagger, Snapper, Swatter* ATGW; 23mm, 57mm SP and 100mm AA guns.

Reserves: 200,000.

Navy: 17,000.
2 *Riga*-type escorts.
20 coastal escorts.
20 *SOI* and *Hai*-type submarine chasers.
12 *Osa*-class patrol boats with *Styx* SSM.
6 fleet and 40 medium minesweepers.
60 MTB (15 *Shershen*, 45 less than 100 tons).
20 landing ships and craft.
1 hel sqn with 8 Mi-4 helicopters.

Reserves: 30,000.

Air Force: 28,000; 334 combat aircraft.
3 FGA sqns with 40 MiG-17.
18 fighter sqns with 294 MiG-21.
34 transports, incl Il-14, Il-18, Tu-124, and Tu-134.
85 Mi-1, Mi-2, Mi-4, Mi-8, and Mi-24 helicopters.
6 AD regiments with about 120 57mm and 100mm AA guns.
2 AD battalions with SA-2 SAM.

Reserves: 30,000.

Para-Military Forces: 70,000. 46,000 Border Guards (*Grenzschutztruppen*); 24,000 security troops; 400,000 in the Workers' Militia (*Kampfgruppen der Arbeiterklasse*).

Most of the Pact air forces are equipped with Mil Mi-8 helicopters, which also are used by Aeroflot. The military version is being equipped to carry external stores in support of assault landings by airborne troops.

The Warsaw Pact countries, excluding the USSR, have nearly 1,400 Soviet-built interceptors, more than 600 of them MiG-21s, similar to the model shown here.

HUNGARY

Population: 10,480,000.
Military service: 2 years.
Total regular forces: 103,000.
Estimated GNP 1973: $16.9 billion.
Defence budget 1974: 10,610 million forints
($457 million).
$1 = 23.2 forints.

Army: 90,000.
1 tank division.
5 motorized rifle divisions.
About 1,500 T-54/55, 30 T-62, some 100 T-34 med tks; 150 PT-76 lt tks; 1,450 BTR-40 scout cars; 400 BTR-50, -60, -152 APC; 630 85mm, 100mm, 122mm, 152mm guns and how; 80 RL; 18 *FROG*, 12 *Scud* SSM; 350 57mm, 76mm ATk guns; *Sagger, Snapper, Swatter* ATGW; 350 23mm to 100mm AA guns.

Reserves: 150,000.

Air Force: 13,000; 108 combat aircraft.
3 FGA sqns with 12 Su-7 and 24 MiG-17.
6 interceptor sqns with 36 MiG-19, 36 MiG-21.
Some 5 An-2, 10 Il-4, and 10 Li-2 transport aircraft.
About 25 Mi-1, MI-4, and Mi-8 helicopters.
2 SAM battalions with SA-2.

Reserves: 13,000.

Para-Military Forces: 25,000 border guards, 150,000 Workers' Militia.

The MiG-19, a Mach 1.4 fighter, was first displayed publicly in 1955. It is still widely used by Pact and other air forces. This one bears Rumanian markings.

Soviet T-62 medium tanks are appearing in greater numbers in the Pact armies. The one shown here is equipped with a 115mm gun.

POLAND

Population: 33,410,000.
Military service: Army, internal security forces, and Air Force, 2 years; Navy and special services, 3 years.
Total regular forces: 303,000.
Estimated GNP 1973: $51.2 billion.
Defence budget 1974: 45.2 billion zloty
($2,073 million).
$1 = 21.8 zloty.

Army: 220,000.
5 tank divisions.
8 motorized rifle divisions.
1 airborne division.
1 amphibious assault division.
Some hy tks; 3,400 T-34, T-54/55, and T-62 med tks; about 250 PT-76 lt tks; FUG and BRDM scout cars; OT-62 -64, and BTR-152 APC and K-61 amphibious tpts; 1,370 85mm ASU-85 AB assault guns; 122mm, 152mm guns and how; *FROG*-7, *Scud* SSM; 250 RL; 350 57mm, 85mm, 100mm ATk guns; *Sagger, Snapper, Swatter* ATGW: 800 23mm, 57mm SP AA guns; SA-7 SAM.

Deployment: Egypt (UNEF) 821, Syria (UNDOF) 88.

Reserves: 500,000.

Navy: 25,000 (incl 1,000 marines); 48 combat aircraft.
4 W-class submarines.
1 *Kotlin*-class destroyer with SA-N-1.
3 destroyers.
27 submarine chasers/patrol craft.
24 fleet and 25 inshore minesweepers.
12 *Osa*-class patrol boats with *Styx* SSM.
15 P-6, 9 *Wisla*-class torpedo boats.
38 fast patrol boats.
23 *Polnocny*-class landing ships.
40 MiG-17, 8 Il-28 lt bomber/recce, and some 32 Mi-1, Mi-2, Mi-4 helicopters.

Reserves: 40,000.

Air Force: 58,000; 734 combat aircraft.
4 light bomber sqns with 30 Il-28.
12 fighter-bomber sqns with 200 MIG-17 and Su-7.
36 interceptor sqns with 240 MiG-17, 36 MiG-19, and 156 MiG-21.
6 recce sqns with 48 MiG-21 and 24 Il-28.
About 35 An-2, An-12, An-24, Il-12, Il-14, Il-18, and Li-2 transports.
140 helicopters, including Mi-1, Mi-2, Mi-4, and Mi-8.
About 180 SA-2 SAM at 30 sites.

Reserves: 60,000.

Para-Military Forces: 73,000 border troops, incl armoured brigades of the Territorial Defence Force; 34 small patrol boats operated by the coastguard; 350,000 Citizens' Militia (ORMA).

RUMANIA

Population: 21,230,000.
Military service: Army and Air Force, 16 months; Navy, 2 years.
Total regular forces: 171,000.
Estimated GNP 1973: $31.0 billion.
Defence budget 1974: 8.585 billion lei
($572 million).
$1 = 15.0 lei.

Army: 141,000.
2 tank divisions.
8 motorized rifle divisions.
2 mountain brigades.
1 airborne regiment.
Some hy tks; 1,700 T-34, T-54/55 med tks 270 PT-76 lt tks; 560 BTR-40, -50P -60P, -152 APC; SU-100 SP guns; 61(85mm, 122mm, 152mm guns; 110 RL; 3(*FROG*, 12 *Scud* SSM; 360 57mm, 76mr ATk guns; *Sagger, Snapper, Swatte* ATGW; 300 37mm, 57mm, and 100mm AA guns.

Reserves: 400,000.

Navy: 9,000.
3 *Poti*- and 3 *Kronstadt*-class patrol vessels.
5 *Osa*-class patrol boats with *Styx* SSM.
30 MCM ships (12 ex-Soviet T-301-class).
10 P-4 torpedo boats.
4 Mi-4 helicopters.

Reserves: 10,000.

Air Force: 21,000; 290 combat aircraft.
5 FGA sqns with 80 MiG-17 and Su-7.
15 interceptor sqns with 200 MiG-17, MiG-19, and MiG-21.
1 recce sqn with 10 Il-28.
1 transport sqn with about 30 Il-14 and Li-2.
10 Mi-4 helicopters.
SA-2 SAM.

Reserves: 25,000.

Para-Military Forces: 40,000, including border troops; a militia of about 500,000.

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. The Secretary-General and an international staff advise on the politico-military, financial, economic, and scientific aspects of defence planning.

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 the 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 1974, there were four such members: Canada, Greece, the Netherlands, and Norway. 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'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 Military 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. As for ballistic-missile submarines, the United States has committed a small number (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 very wide range in the kiloton spectrum, but the average yield of the bombs stockpiled in Europe for the use of NATO tactical aircraft is about 100 kilotons, and of the missile warheads, 20 kilotons.

About 63 division equivalents are available to SACEUR in peacetime. The Command has some 2,800 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 23 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. (Under a reorganization recently agreed, operational air forces in Central Europe are shortly to be placed under a central command.) *[See also AIR FORCE Magazine, Nov. '74 issue, p. 30.]*

(*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 available include 19 divisions from Turkey, 8 from Greece [*Greek forces were withdrawn from NATO in September, subsequent to publication of "The Military Balance"*], and 11 from Italy, as well as the tactical air forces of these countries. Other formations from these three countries have been earmarked for AFSOUTH, as have the United States 6th Fleet and naval forces from Greece, 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, 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 Greece, Turkey, Sicily, and Italy; French aircraft are participating in these operations. Its commander, an American rear-admiral, is immediately responsible to CINCSOUTH.

The Allied On-Call Naval 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, five 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, 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 on 2 May 1973, to consist of mine counter-measures ships from Belgium, 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 the DPC in December 1967 envisaged attacks on NATO territory being met with appropriate force levels, including nuclear weapons.

BELGIUM

Population: 9,800,000.
Military service: 12 months.
Total armed forces: 89,700.
Estimated GNP 1973: $49.9 billion.
Defence expenditure 1974: 41,104 million francs
($1,079 million).
$1 = 38.1 francs (1974), 35.99 francs (1973).

Army: 65,400 (including Medical Service).
1 armoured brigade.
3 mechanized brigades.
3 reconnaissance battalions.
3 motorized infantry battalions.
1 para-commando regiment.
3 artillery battalions.
3 engineer battalions.
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* and 112 M-47 med tks; 125 *Scorpion* and 14 M-41 lt tks; 1,000 M-75 and AMX APC; 90 M-108 105mm, 26 M-44 and 40 M-109 155mm and 12 203mm, 10 M-110 203mm SP how; AA guns; 10 *Honest John* SSM (being replaced by *Lance*, 36 *HAWK* SAM (some 500 lt AFV incl 111 *Scimitar* SP ATk/AA guns, 84 JPZ 4-5 SP ATk guns, and 55 *Gepard* SP AA guns on order).

Deployment: Germany: 2 div HQ, 1 armd bde, and 3 mech inf bdes.

Reserves: 8,000 trained: 1 mech bde and 1 mot inf bde.

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

Reserves: 7,600.

Air Force: 20,100; 185 combat aircraft.
2 fighter-bomber sqns with F-104G.
3 fighter-bomber sqns with *Mirage VBA*.
2 AWX sqns with F-104G.
1 recce sqn with *Mirage VBR*.
(A combat squadron normally has 18–21 aircraft.)
2 tpt sqns with 12 C-130H, 2 DC-3, 12 *Pembroke*, 2 *Falcon* 20, and 4 DC-6A/C.
1 SAR sqn with 5 HSS-1 and 6 S-58 hel.
8 SAM sqns with 16 *Nike-Hercules*.
(5 *Sea King* and 3 HS-748 on order.)

Para-Military Forces: 15,000 Gendarmerie.

BRITAIN

Population: 56,230,000.
Military service: voluntary.
Total armed forces: 354,600 (incl 14,300 women and 9,300 enlisted outside Britain).
Estimated GNP 1973: $177.1 billion.
Defence budget 1974–75: £3,654 million ($8,721 million).
$1 = £0.419 (1974), £0.388 (1973).

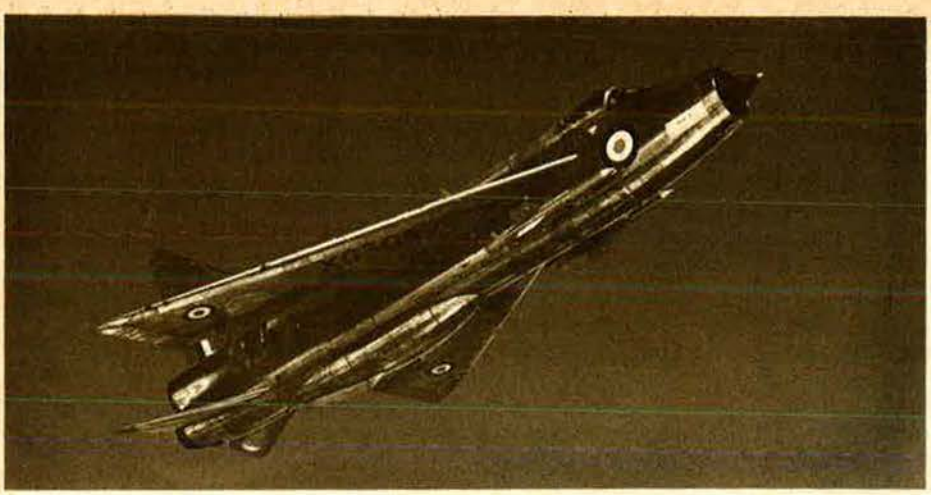
Strategic Forces:
SLBM: 4 SSBN each with 16 *Polaris* A-3 missiles.
Ballistic Missile Early Warning System (BMEWS) station at Fylingdales.

Army: 178,300 (incl 5,700 women and 7,900 enlisted outside Britain).
13 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*.
14 engineer regiments.
(59 of the above units are organized in 5 armd, 10 mech or inf, 1 para, and 1 Gurkha bdes.)
900 *Chieftain* med, 180 FV-101 *Scorpion* lt tks; *Saladin* armd cars; *Ferret*, *Shorland* scout cars; FV-432, *Saracen* APC; 105mm *Abbot* and M-107 175mm SP guns; M-109 155mm SP how; 12 M-110 203mm SP how; Model 56 105mm pack how; 105mm lt field gun; *Honest John* SSM (*Lance* on order); *Carl Gustav* RCL; *Vigilant* and *Swingfire* ATGW; L-40/70 AA guns; *Blowpipe* and *Thunderbird* SAM (*Fox* scout cars, *Blowpipe*, *Rapier* SAM on order); 2 SRN-6, 2 CC-7 hovercraft.
2 Army Aviation wings of 17 sqns and 8 indep flights with 20 *Beaver* lt ac; 120 *Scout*, 10 *Alouette* AH-2, 175 *Sioux* hel (*Lynx* and *Gazelle* on order).

Deployment:
United Kingdom: United Kingdom Land Forces: 1 div HQ, 4 bdes, and 1 para bde, 1 bn group, 1 SAS regt, 1 Gurkha inf bn. HQ Northern Ireland with 3 bde HQ, 1 armd recce regt, 17 units in inf role, 2 military police regts, 3 field engr sqns, and 4 army aviation sqns.
Germany: British Army of the Rhine (BAOR) of 55,500, includes 1 corps HQ, 3 div HQ, 5 armd bdes, 1 mech bde, 2 arty bdes (incl *Thunderbird* SAM regt), and 2 armd recce regts. In Berlin there is one 3,000-strong inf bde. (Some units from BAOR are serving on short tours in Northern Ireland, being away from Germany for up to six months. Numbers involved average 4,000.)
Singapore: 1 inf bn group.
Brunei: 1 Gurkha bn.
Hong Kong: 9,300; 1 armd recce sqn with lt tks; 2 bdes with 2 British and 3 Gurkha inf bns; 1 arty regt.
Cyprus: 1 inf bn and 1 armd recce sqn with UN force (UNFICYP); 1 inf bn and 1 armd recce sqn in garrison at Sovereign Base Areas (being increased).
Gibraltar: 1 inf bn.
Belize: 1 bn HQ and 1 coy.

Reserves: 300,000 Regular reserves, 55,300 Territorial Army and Volunteer Reserve; 7,700 Ulster Defence Regiment (11 bns).

Navy: 78,100 (including Fleet Air Arm, Royal Marines, 3,600 women, and 800 enlisted outside Britain); 74 major surface combat vessels.
Submarines, attack:
8 nuclear, 22 diesel.
Surface ships:
1 aircraft carrier.
2 commando carriers (1 with *Seacat* SAM).
2 assault ships with *Seacat* SAM.
2 cruisers with 4 *Sea King* hel, *Seacat* SAM.
9 destroyers (8 with *Seaslug I* and *Seacat II* SAM, 1 with *Sea Dart* SAM and *Ikara* ASW msls) each with 1 ASW hel.
58 frigates: 35 GP each with 1 hel (32 with *Seacat* and 2 with *Ikara;* 8 will get *Exocet* SSM); 16 ASW (9 with *Seacat* and 1 hel); 3 AA and 4 aircraft direction (with *Seacat*).
39 coastal minesweepers/minehunters.
6 inshore minesweepers.
5 coastal patrol vessels.
6 patrol/seaward defence boats.
2 hovercraft (SRN-6, BH-N7).
(Included in the above are the following ships in reserve or undergoing refit or conversion: 1 nuclear and 5 diesel submarines, 1 cdo carrier, 1 destroyer, 10 frigates, 3 minesweepers. Under con-



The RAF operates eight squadrons of BAC Lightning all-weather interceptors. The Lightning, which has not been produced since 1967, is a Mach 2-plus aircraft with a service ceiling well above 60,000 feet.

struction are 2 SSN, 4 destroyers, 7 frigates, and 4 patrol craft.)

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

The Royal Marines: 8,000.
1 commando bde with 3 commandos; SRN-6 Mk 5 hovercraft.

Deployment:
Malta: 1 commando.
Falkland Islands: 1 detachment.
Gibraltar: 1 detachment.

Reserves (naval and Marines): 27,500 regular and 7,000 volunteers; 11 coastal minesweepers.

Air Force: 98,200 (incl 5,000 women and 600 enlisted outside Britain); about 500 combat aircraft.
6 strike sqns with 50 *Vulcan* B2.
4 strike sqns with *Buccaneer*.
2 FGA sqns with *Hunter*.
6 strike/attack/recce sqns with F-4M.
4 close support sqns with 48 *Harrier*.
2 lt close support sqns with *Jaguar*.
8 interceptor sqns with *Lightning*.
1 interceptor sqn with *Phantom* F-4K.
1 recce sqn with *Vulcan* SR2.
1 recce sqn with 15 *Victor* SR2.
2 recce sqns with *Canberra* PR9.
1 AEW sqn with *Shackleton*.
6 maritime patrol sqns with *Nimrod*.
(Combat sqns have 6–18 aircraft.)
3 tanker sqns with 24 *Victor* K1A.
5 strategic transport sqns with 14 VC-10, 10 *Belfast*, 15 *Britannia*, and 8 *Comet* C4.
7 tactical tpt sqns, 6 with C-130 *Hercules*, 1 with *Andover*.
5 lt comms sqns with HS-125, *Andover*, *Basset*, *Devon*, *Pembroke*; *Sycamore* and *Whirlwind* hel.
9 hel sqns with 60 *Wessex*, 30 *Whirlwind*, and 26 SA-330 *Puma*.
2 *Bloodhound* SAM sqns.
(*Jaguar*, HS-1182, *Bulldog*, and *Puma* on order.)
There are 11 ground defence and air defence squadrons of the Royal Air Force Regiment, 1 with *Tigercat*, 2 with *Rapier* SAM (more on order), and 5 with L40/70 AA guns.

Deployment: The Royal Air Force includes an operational home command (Strike Command), the UK Air Defence Region Command, and two overseas commands —RAF Germany (8,600), and Near East Air Force. Squadrons are deployed overseas as follows:
Germany: 4 F-4; 2 *Buccaneer*; 2 *Lightning*; 3 *Harrier*; 1 *Wessex*; 2 sqns RAF Regt.
Gilbraltar: Hunter detachment.
Near East: (a) Cyprus: 2 *Vulcan*; 1 *Lightning*; 1 *Hercules*; 1 *Whirlwind*; 2 sqns RAF Regt; 1 sqn with *Bloodhound*. (b) Malta: 1 *Nimrod*; 1 *Canberra*.
Singapore: detachments *Nimrod* and *Wessex* hel.
Hong Kong: hel and RAF Regt detachments.
Belize: RAF Regt detachment.

Reserves: 31,800 regular; about 200 volunteer.

CANADA

Population: 22,560,000.
Military service: voluntary.
Total armed forces: 83,000 (unified).
Estimated GNP 1973: $US 118.1 billion.
Defence expenditure 1974–75: $Can 2,361 million.
($US 2,429 million).
$US 1 = $Can. 0.972 (1974), $Can. 0.995 (1973).

Army (Land): 33,000 (approx).
Canada: Mobile Command (about 18,000).
1 airborne regiment.
3 combat groups each comprising:
3 infantry battalions.
1 reconnaissance regiment.
1 reduced light artillery regiment (of 2 batteries).
Support units.
330 *Centurion* med tks; 820 M-113 APC; 120 *Ferret* armd cars; 60 105mm pack how, 50 105mm how, 50 M-109 SP how; 138 106mm and 800 *Carl Gustav* RCL; SS-11 ATGW; CL-89 drone. (*TOW* ATGW and 100 *Blowpipe* SAM on order.)
One group is intended for operations in Europe, part of it (an air transportable bn gp) for use with the AMF. The other groups contribute to North American ground defence and UN commitments.
Europe: One mech battle group of 2,800 men, with 32 *Centurion* med tks, 375 M-113 APC recce, 18 M-109 155mm SP how, and *Kiowa* hel.
Cyprus (UNFICYP): 482 men (being increased).
Egypt (UNEF): 884 men.
Syria (UNDOF): 172 men.

Reserves: about 14,400.

Navy (Maritime): 14,000 (approx).
4 submarines (3 ex-British *Oberon*-class).
4 ASW hel destroyers with 2 CHSS-2 and 2 *Sea Sparrow*.
13 ASW frigates, 2 with 1 hel, 4 with *ASROC*.
7 ASW destroyer escorts with 1 hel.
3 support ships with *Sea Sparrow* SAM and 2 CHSS-2 hel.

The Maritime Air Element consists of:
4 maritime patrol sqns with 33 CL-28 *Argus*.
1 maritime patrol sqn with CS-2F-3 *Tracker*.
1 ASW sqn with CHSS-2 *Sea King* hel.
4 utility sqns with *Tracker*, T-33, *Dakota*, and *Twin Huey*.

Reserves: about 2,600.

Air Force (Air): 36,000 (approx); 162 combat aircraft.
Canada:
Mobile Command:
2 CF-5 tactical fighter sqns (for use with AMF).
6 hel sqns with CUH-1N, CH-113A, COH-58A.
Air Defence Command (Canadian component of NORAD): 8,600.
3 interceptor sqns with F-101B/C.
4 main, 18 auxiliary sites of Distant Early Warning (DEW) Line.
28 long range radar sites (*Pine Tree Line*).
1 SAGE control centre.
1 CF-100 electronic warfare trg sqn (phasing out).
Air Transport Command: 6,430.

Several NATO countries have US-built HAWK SAMs, effective against supersonic aircraft from low level to above 38,000 feet.

1 sqn with 5 Boeing 707-320C transport/tankers.
2 sqns with 23 C-130E *Hercules*.
4 tpt/SAR sqns with 15 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*.
(5 C-130H and 8 CH-47C on order.)
Europe: 2,300; 3 attack sqns with CF-104D.

Reserves: about 700, 30 *Otter* lt tpt.

DENMARK

Population: 5,060,000.
Military service: voluntary; 9 months conscription for Supplementary Force.
Total armed forces: 37,100.
Estimated GNP 1973: $30.2 billion.
Defence budget 1974–75: 3,300 million kroner
($551 million).
$1 = 5.99 kr (1974), 5.63 kr (1973).

Army: 21,500.
5 mech inf bdes, each of 1 tk bn, 1 mech bn, 1 arty bn, 1 recce sqn, and support units.
1 infantry battalion group.
200 *Centurion* med tks; M-41 lt tks; 670 M-113 APC: 105mm how; 72 M-109 155mm SP how; 203mm how, *Honest John* SSM, 12 Hughes 500M (OH-6A) hel.
(120 *Leopard* med tks, *TOW* ATGW on order.)

Deployment: Cyprus (UNFICYP): 250 men.

Reserves: Supplementary Force: 4,500, subject to immediate recall; Field Army Reserve: 41,000; Regional Defence Force: 24,000, 21 inf bns, 7 arty bns, ATk sqns, support units; Home Guard: 50,000.

Navy: 6,000.
6 coastal submarines (2 German U-4 class).
2 destroyers.
4 fishery protection vessels.
4 coastal escorts (corvettes).
9 seaward defence craft.
12 FPB (8 with SSM on order).
7 coastal minelayers.
12 minesweepers (4 inshore).
13 patrol craft (7 less than 100 tons).
8 *Alouette III* helicopters.

Reserves: 4,000. Home Guard: 4,300, with small patrol boats.

Air Force: 9,600; 123 combat aircraft.
1 fighter-bomber sqn with 20 F-35XD *Draken*.
2 fighter-bomber sqns with 40 F-100D/F.
2 interceptor sqns with 25 F-104G and 15 CF-104G.
1 recce sqn with 23 RF-35XD *Draken*.
1 tpt sqn with 8 C-47 and 2 C-54.
1 SAR sqn with 8 S-61 hel.
4 SAM sqns with *Nike-Hercules*.
4 SAM sqns with *HAWK*.
(6 F-100F, 5 TF-35 *Draken*, and 3 C-130H tpts on order.)

Reserves: 7,000. Home Guard: 11,500.

FRANCE

Population: 52,000,000.
Military service: 12 months.
Total armed forces: 502,500 (conscripts 271,300).
Estimated GNP 1973: $277.4 billion.
Defence budget 1974: 38,221 million francs ($7,913 million).
$1 = 4.83 francs (1974), 4.10 francs (1973).

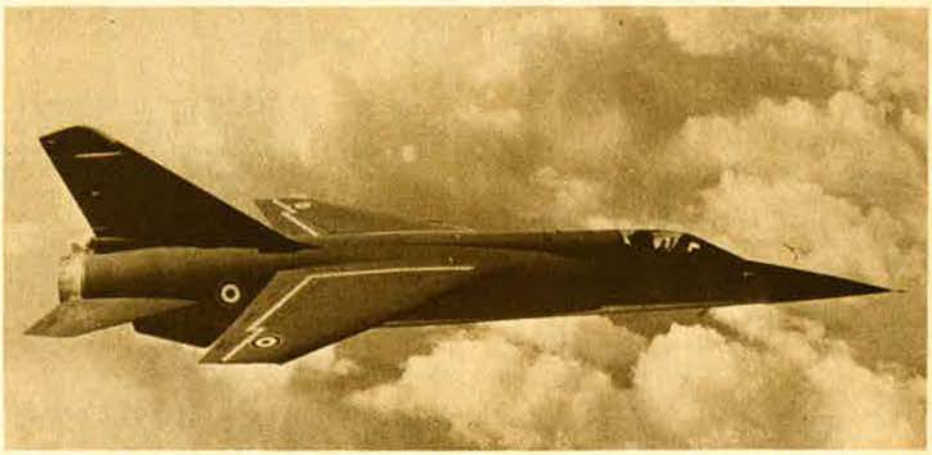
Strategic Forces:
SLBM: 3 SSBN each with 16 MSBS M-1 msls (a fourth to become operational in 1976). 2 more SSBN under construction; the building of a sixth is being studied.
IRBM: 2 squadrons, each with 9 SSBS S-2 msls.
Aircraft:
9 squadrons with 36 *Mirage IVA* bombers.
3 squadrons with 11 KC-135F tankers.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

Army: 331,500 (including 216,000 conscripts and Army Aviation).
5 mechanized divisions.
1 airborne division (2 brigades).
1 airportable motorized brigade.
2 alpine brigades.
9 armoured car regiments.
2 motorized infantry regiments.
1 parachute battalion.
21 infantry battalions.
1 SSM regt with 6 *Pluton*.
2 SSM battalions with 8 *Honest John*. (The nuclear warheads held under double-key arrangements with the United States were withdrawn in 1966.)
3 SAM regiments with 54 *HAWK* launchers.
910 AMX-30 med tks; 1,120 AMX-13 lt tks; some 850 lt AFV, incl 620 Panhard EBR hy and AML lt armd cars; 150 AMX-10 APC; AMX SP 105mm guns and 155mm how; Model 56 105mm pack how; 120mm mor; 30mm twin SP 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, six divisions, and 7 regional Commands.
70 Bell, 175 *Alouette II*, 60 *Alouette III*, and 105 SA-330 *Puma*, 45 SA-341 *Gazelle* hel.
150 light fixed-wing aircraft.

Deployment (incl Navy and Air Force).
Strategic Reserve (Force d'Intervention):
2 airborne and 1 airportable motorized brigades.
Manoeuvre Forces (Force de Manoeuvre):
First Army: 2 mech divs and 2 SSM bns in Germany, 58,000; 3 mech divs in support in France; about 2,000 men in Berlin.
Territory of the Afars and Issas: 2,000 inf, 3 frigates.
Reunion/Diego Suarez: 4,000; 1 inf bn, 1 destroyer, 3 minesweepers, landing craft.
Elsewhere in Africa: about 4,000.
Pacific Territories: 2 battalions.
Caribbean: 1 battalion.
The remaining troops are stationed in France for territorial defence (*Défense Opérationelle du Territoire*—DOT). Their strength is about 52,000, including two alpine bdes, 21 inf bns, 3 armd cav regts, and one arty regt. Mobilization would bring the force up to a total of 80 bns.

Reserves: about 400,000.



The French Air Force Defence Command has two squadrons of Mirage F.1 interceptors, with more on order. The Mach 2-plus F.1 will compete with the US Air Combat Fighter, to be based on either the YF-16 or YF-17, as a replacement for NATO F-104s.

Navy: 69,000 (16,500 conscripts) (including Naval Air Force); 49 major surface combat vessels.
19 attack submarines (diesel).
2 aircraft carriers (each with 40 ac).
2 cruisers (1 with *Exocet* SSM and *Masurca* SAM; 1 with 8 hy ASW hel).
20 destroyers (3 with *Masurca* SAM and *Malafon* ASW; 4 with *Tartar* SAM; 8 ASW with *Malafon*; 4 aircraft direction; 1 command).
25 frigates.
8 fleet minesweepers.
38 coastal minesweepers/minehunters.
15 patrol craft (1 with SS-11 SSM).
7 landing ships and 14 landing craft.

Naval Air Force: 13,000; 181 combat aircraft.
2 fighter-bomber sqns with 36 *Etendard IVM*.
2 interceptor sqns with 36 F-8E(FN) *Crusader*.
2 ASW sqns with 36 *Alizé*.
5 MR sqns with 38 *Atlantic* and 23 P-2.
1 reconnaissance sqn with 12 *Etendard IV-P*.
2 ASW hel sqns with 19 *Super Frelon* and 12 HSS-1.
3 hel sqns with 17 *Alouette II*, 25 *Alouette III*.

Reserves: about 50,000.

Air Force: 102,000 (38,800 conscripts); 431 combat aircraft.
Air Defence Command (CAFDA): 9,000.

3 interceptor sqns with 45 *Mirage IIIC.*
2 interceptor sqns with 30 *Mirage F.1* (a third forming).
3 interceptor sqns with 45 *Super Mystère B-2.*
(Automatic *STRIDA II* air defence system.)

Tactical Air Force (FATAC—divided into 1st and 2nd CATAC): 13,500.
8 FB sqns with 120 *Mirage IIIE.*
2 FB sqns with 30 *Mirage V.*
4 FB sqns with 56 F-100D.
2 FB sqns with 30 *Jaguar.*
2 lt bbr sqns with 30 *Vautour* (being withdrawn).
3 recce sqns with 45 *Mirage IIIR/RD.*

Air Transport Command (COTAM): 7,400.
8 tactical tpt sqns; 3 with 50 Transall C-160F and 4 with 120 Nord 2501 *Noratlas.*
2 heavy tpt sqns with 4 DC-6B, 3 DC-8.
1 tpt sqn with 5 DC-6 and 2 Br 763.
4 hel tpt sqns with 93 H-34 and *Alouette II/III.*

Para-Military Forces: 70,000 Gendarmerie.

The Jaguar, a tactical fighter developed jointly by the British and the French, is now operational in the air forces of both countries. It has a sea-level speed of Mach 1.1 and a short-field capability.

FEDERAL REPUBLIC OF GERMANY

Population: 62,100,000 (including West Berlin).
Military service: 15 months.
Total armed forces: 490,000 (conscripts 240,000).
Estimated GNP 1973: $385.4 billion.
Defence Budget 1974: DM 27,555 million ($10,764 million).
$1 = DM 2.56 (1974), DM 2.40 (1973).

Army: 340,000 (conscripts 190,000).
13 armoured brigades.
12 armoured infantry brigades.
3 motorized infantry brigades.
2 mountain brigades.
3 airborne brigades.
These are organized in 3 corps and 12 divisions.
2 tank regiments (each with 2 battalions)
11 SSM battalions with *Honest John.*
4 SSM battalions with *Sergeant.*
Territorial Army: peacetime strength 35,000 (5,000 conscripts); mobilization strength 218,700. 8 geographical commands, with Home Defence Brigades of 2 active mot inf bns, 1 armd inf coy, and 1 mor coy. A further 2 inf bns, 2 coys, and supporting units are at cadre strength. The Territorial Army provides defensive units, communications, engineer, police, and service support units on mobilization.
1,360 M-48A2 *Patton* and 2,200 *Leopard* med tks; 758 HS-30 and 1,567 *Marder,* 2,374 Hotchkiss and 3,330 M-113 APC; 770 tank destroyers with 90mm gun and 316 with SS-11 ATGW; 277 105mm, 72 155mm how; 587 155mm, 77 203mm SP how; 148 175mm SP guns; 209 multiple RL; 640 20mm, 300 40mm, 496 40mm SP AA guns; 1,000 *Redeye* SAM; *Cobra, Milan, TOW* ATGW; 71 *Honest John,* 19 *Sergeant* SSM; 85 CH-53G, 194 UH-1D, and 234 *Alouette II* hel; 18 Do-27 lt ac.

Reserves: 518,000.

Navy: 39,000 (including 11,000 conscripts and Naval Air Arm).
13 coastal submarines (11 more on order for 1974).
11 destroyers (3 with *Tartar* SAM).
6 fast frigates.
5 ASW corvettes.
11 fast combat support ships.
57 minesweepers (16 coastal, 21 fast, 2 minehunter, 18 inshore).
40 FPB (14 will have *Exocet* SSM by end-1974).
22 landing craft.

Naval Air Arm: 6,000; 148 combat aircraft.
4 FB/recce sqns with 128 F-104G and RF-104G.
2 MR sqns with 20 Br-1150 *Atlantic.*
1 SAR hel sqn with 21 *Sea King* Mk 41 and 7 H-34G.
1 utility sqn with 20 Do-28.

Reserves: 27,000.

Air Force: 111,000 (conscripts 39,000); 468 combat aircraft.
6 FGA sqns with 108 F-104G.
4 FGA/fighter sqns with 72 F-104G.
8 FGA/recce sqns with 168 G-91R3.
4 interceptor sqns with 60 F-4F (converting).
4 recce sqns with 60 RF-4E.
4 tpt sqns with 56 Transall C-160.
4 hel sqns with 80 UH-1D.
8 SSM sqns with 72 *Pershing.*
24 SAM batteries with 216 *Nike-Hercules.*
36 SAM batteries with 216 *HAWK.*

Reserves: 85,000.

Para-Military Forces: 20,000 Border Police

Fast minesweepers of the German Navy's First Minesweeper Squadron return to port after a week of exercises at sea. The German Navy has its own air arm.

GREECE

[*See note on Greek forces, p. 54.*]
Population: 8,970,000.
Military service: 24 months.
Total armed forces: 161,200 (112,000 conscripts). (The Greek armed forces were increased by mobilization of reservists during the Cyprus crisis in July 1974.)
Estimated GNP 1973: $16.4 billion.
Defence budget 1974: 18,000 million drachmas
($602 million).
$1 = 29.9 drachmas (1974), 29.9 drachmas (1973).

Army: 121,000 (85,000 conscripts).
1 armoured division.
11 infantry divisions (8 at cadre strength).
13 indep inf brigades (10 at cadre strength).
1 para-commando brigade.
2 SSM battalions with 8 *Honest John.*
1 SAM battalion with 12 *HAWK.*
300 M-47, 500 M-48, and 60 AMX-30 med tks (130 more AMX-30 on order); M-24, M-26, and M-41 lt tks; M-8 and M-20 armd cars; M-2, M-3, M-59, and M-113 APC; 175mm SP guns, 25-pdr, 105mm, 155mm, and 203mm how; 40mm, 75mm, and 90mm AA guns; *Honest John* SSM *HAWK* SAM; Bell 47G hel.

Deployment: Cyprus, 1 bn, 950 men.

Reserves: about 230,000.

Navy: 17,500 (11,000 conscripts).
7 submarines.

9 destroyers.
4 destroyer escorts.
4 FPB with *Exocet* SSM (4 on order).
3 coastal patrol vessels.
12 fast torpedo boats (less than 100 tons).
5 MGB.
2 coastal minelayers.
14 minesweepers.
14 landing ships (8 LST, 5 med, 1 dock).
8 landing craft.

Reserves: about 20,000.

Air Force: 22,700 (16,000 conscripts); 220 combat aircraft.
5 fighter-bomber sqns with 18 F-4E and 62 F-84F.
2 fighter-bomber sqns with 40 F-104G.
3 interceptor sqns with 40 F-5A.
1 interceptor sqn with 16 F-102A.
2 recce sqns with 18 RF-84F, 14 RF-5A.
1 MR sqn of 12 HU-16B.
3 tpt sqns of 35 C-47 and 44 *Noratlas*.
2 hel sqns with 14 UH-1H, 4 Bell 47G, 4 H-19B.
Trainers include 70 T-33, 22 T-41, 20 T-6, 18 T-37, 10 F-5B.
1 SAM battalion with *Nike-Hercules*.
(F-4E, 60 A-7D, 40 *Mirage* F.1, and 18 C-130H on order.)

Reserves: about 25,000.

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

ITALY

Population: 55,110,000.
Military service: Army and Air Force: 15 months; Navy, 24 months.
Total armed forces: 421,000.
Estimated GNP 1973: $138.2 billion.
Defence budget 1974: 2,373 billion lire ($3,673 million).
$1 = 646 lire (1974), 579 lire (1973).

Army: 306,500.
2 armd divs, each with 2 armd bdes, 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 SSM brigade with 2 bns of *Honest John*, 2 bns of 203mm SP how, and 1 inf bn.
4 SAM battalions with *HAWK*.
700 M-47, 300 M-60, and 300 *Leopard* med tks (500 more *Leopard* on order); 3,300 M-113, some LVT-4 APC; 155mm guns; M-107 175mm SP guns; Model 56 105mm pack how; 105mm, 155mm how; M-44 155mm, M-109 155mm, M-55 203mm SP how; M-42 40mm SP AA guns; *Mosquito, Cobra,* SS-11 ATGW (130 *TOW* on order); 8 *Honest John* (to be replaced by *Lance*); 68 *HAWK*.

Army Aviation: 21 units with 150 Piper L-18/19/21A, Cessna O-1E, some SM.1019 lt ac (100 SM.1019, 20 AM-3C on order); over 270 hel incl 120 AB-47G/J, 50 AB-204B, 30 AB-205A, 60 AB-206A/B-1, and 6 CH-47C (20 more CH-47C, 12 Augusta 101G, 30 more AB-206 on order).

Reserves: 550,000.

Navy: 44,500 (incl air arm and 1,700 marines).
9 submarines.
3 cruisers (2 with *Terrier* SAM and 4 ASW hel; 1 with 9 AB-204B ASW hel, 1 *Terrier/ASROC* launcher).
10 destroyers (4 with ASW hel, *Standard* and *Tartar* SAM).
10 frigates (6 with ASW hel).
11 corvettes.
4 ocean, 37 coastal, and 20 inshore minesweepers.
13 FPB (2 with *Seakiller* Mk 2 SSM).
1 hydrofoil with *Otomat* SSM.
2 landing ships.
72 landing craft.
2 marine infantry battalions.

Naval Air Arm: 20 combat aircraft.
2 MR sqns with 20 S-2 *Tracker*.
5 hel sqns with 24 SH-3D, 32 AB-204B, and 12 A-106.

Reserves: 65,000.

Air Force: 70,000; 279 combat aircraft.
6 FB sqns (2 with 36 F-104G, 2 with 30 F-104S, and 2 with 36 G-91Y).
2 light attack sqns with 35 G-91R.
6 AWX sqns with 90 F-104S.
3 recce sqns with 38 RF-104G.
2 MR sqns with 14 Breguet 1150 *Atlantic*.
3 tpt sqns with 32 C-119 (to be replaced by 32 of 44 G.222 on order) and 14 C-130H *Hercules*.
2 tpt sqns with Convair 440, DC-6, and 2 DC-9.
1 lt tpt sqn with 15 PD-808 *Vespa Jet*.
2 SAR sqns with 12 HU-16 ac and 15 AB-204 hel.
Hels incl 60 AB-204B, 90 AB-205, 2 AB-206A, some AB-47G/J.
12 SAM groups with 96 *Nike-Hercules*.

NETHERLANDS

Population: 13,500,000.
Military service: Army, 16–18 months; Navy and Air Force, 18–21 months.
Total armed forces: 113,900.
Estimated GNP 1973: $63.7 billion.
Defence budget 1974: 6,149 million guilders ($2,303 million).
$1 = 2.67 guilders (1974), 2.60 guilders (1973).

Army: 75,000 (incl 44,500 conscripts, 7,000 reservists).
2 armoured brigades.
4 mechanized infantry brigades.
2 SSM battalions with *Honest John*.
400 *Centurion* and 485 *Leopard* med tks; AMX-13 lt tks; 2,000 AMX-VCI, YP-408, and M-113 APC; 250 M-59 155mm guns; 105mm, 155mm, 203mm how; M-107 175mm SP guns; AMX 105mm, M-109 155mm, and M-110 203mm SP how; 120mm mor; M-72 *LAW, Carl Gustav,* and 106mm RCL; L40/70 AA guns; *Honest John* SSM. (60 *Gepard* SP AA guns and *TOW* on order.)

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

Reserves: about 300,000, of which 40,000 are on immediate recall. 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, if needed for territorial defence.

Fiat G-91s are used for reconnaissance and tactical support work by the air forces of Italy and Germany. The G-91 has been operational since early 1960s.

Reserves: 30,000.

Para-Military Forces: 80,000 Carabinieri.

LUXEMBOURG

Population: 354,000.
Military service: voluntary.
Total armed forces: 550.
Estimated GNP 1973: $1.8 billion.
Defence budget 1974: 677 million francs ($18 million).
$1 = 38.1 francs (1974), 35.99 francs (1973).

Army: 550.
1 light infantry battalion.
1 independent company.
106mm RCL and 81mm mortars.
(*TOW* ATGW on order).

Para-Military Forces: 350 Gendarmerie.

Navy: 19,000 (incl 2,800 marines, 2,000 naval air arm, 3,600 conscripts).
6 submarines.
1 cruiser with *Terrier* SAM.
6 frigates with *Seacat* SAM and 1 lt ASW hel.
10 destroyers.
6 small frigates.
5 patrol vessels.
3 MCM support ships.
24 coastal minesweepers/minehunters.
16 inshore minesweepers.
1 fast combat support ship.
2 amphibious combat groups.
1 mountain/arctic warfare company.

Naval Air Arm: 2,000; 23 combat aircraft.
2 MR sqns with 8 Br-1150 *Atlantic* and 15 P-2 *Neptune*.
2 hel sqns with 7 AB-204B and 12 *Wasp*.

Deployment: Netherlands Antilles: 1 destroyer, 1 amphibious combat det, 1 MR det.

British-built Westland Sea King helicopters are used for search and rescue operations by the Norwegian armed forces.

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

Air Force: 19,900 (incl 5,400 conscripts, 2,000 reservists); 162 combat aircraft.
2 fighter-bomber sqns with 36 F-104G.
4 fighter-bomber sqns with 72 NF-5A/B.
2 interceptor sqns with 36 F-104G.
1 recce sqn with 18 RF-104G.
1 transport sqn with 12 F-27.
20 NF-5B trainers.
3 observation and comm sqns (under Army command) with 54 *Alouette III* hel and 24 Piper L-21.
8 SAM sqns with 32 *Nike-Hercules*.
11 SAM sqns with 66 *HAWK*.

Reserves: about 18,300.

Para-Military Forces: 3,700 Gendarmerie. Home Guard 4,000 (on mobilization).

NORWAY

Population: 4,000,000.
Military service: Army, 12 months; Navy and Air Force, 15 months.
Total armed forces: 34,900 (22,900 conscripts).
Estimated GNP 1973: $20.5 billion.
Defence budget 1974: 3,704 million kroner ($680 million).
$1 = 5.45 kroner (1974), 5.24 kroner (1973).

Army: 17,700 (13,200 conscripts).
1 brigade group of 1 armd, 2 mech inf bns in north Norway.
Indep armd sqns, inf bns, and arty regts.
78 *Leopard* and 38 M-48 med tks; M-8 armd cars; M-113 and BV-202 APC; 105mm and M-109 155mm SP how; 107mm mor; 57mm, 75mm ATk guns; 84mm *Carl Gustav*, 106mm RCL: Bofors L-60 AA guns; L-18 and L-19 lt ac. (*TOW* and *Carl Gustav* on order.)

Reserves: 135,000. 12 Regimental Combat Teams (brigades) of 5,000 men each, supporting units and territorial forces; Home Guard (all Services) 80,000.

Navy: 8,300, incl 1,600 coastal artillery (5,200 conscripts).
15 coastal submarines.
5 frigates.
2 coastal escorts.
26 fast patrol boats (with *Penguin* SSM).
20 torpedo boats.
10 coastal minesweepers and 4 minelayers.
1 support ship.
7 landing craft.
36 coastal artillery batteries.
10 *Sea King* helicopters.

Reserves: 22,000.

Air Force: 8,900 (4,500 conscripts); 107 combat aircraft.
3 FGA sqns with 48 F-5A.
1 FGA sqn with 22 CF-104G.
1 AWX fighter sqn with 16 F-104G.
1 recce sqn with 16 RF-5A.
1 MR sqn with 5 P-3B.
1 transport sqn with 6 C-130H.
2 hel sqns with 32 UH-1B.
3 lt AA bns with 40mm L/70 guns.
4 SAM batteries with *Nike-Hercules*.

Reserves: 17,500; 9 lt AA bns for airfield defence with L/60 40mm guns.

PORTUGAL

Population: 9,200,000.
Military service: Army, 24 months; Air Force, 36 months; Navy, 48 months.
Total armed forces: 217,000.
Estimated GNP 1973: $11.1 billion.
Defence budget 1973: 11,926 million escudos
($523 million).
$1 = 25.1 escudos (1974), 22.8 escudos (1973).

Army: 179,000.
2 tank regiments.
4 cavalry regiments.
1 cavalry bn, 5 indep sqns.
21 infantry regiments.
7 lt inf bns, 13 inf bns, and 13 inf coys.
7 artillery regiments (2 medium, 5 light), 6 artillery battalions, and 5 artillery batteries.
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.)
M-47 and M-4 med tks; M-41 lt tks; Humber Mark IV and EBR-75 armd cars; AML-60 scout cars; FV-1609 and M-16 half-track APC; 200 25-pdr, 5.5-inch guns, 105mm and 140mm how; coast and AA arty.

Deployment:
About 25 inf, 4 para bns, and supporting units are located in Africa. The numbers concerned, including locally enlisted, are:
Angola: 57,000.
Mozambique: 50,000.
Portuguese Guinea: 27,000.

Reserves: 550,000.

Navy: 19,500 (including 3,400 marines).
4 submarines (French *Daphne*-type).
8 frigates.
6 submarine chasers/corvettes.
29 coastal patrol vessels.
9 coastal minesweepers.
25 patrol launches (less than 100 tons).
64 landing craft (58 less than 100 tons).

Reserves: 12,000.

Air Force: 18,500; 127 combat aircraft.
2 lt bbr sqns with 6 B-26 *Invader* and 10 PV-2.
2 FGA sqns with 30 G-91.
1 interceptor sqn with 25 F-86F.
6 COIN flights with 50 armed T-6K.
1 maritime patrol sqn with 6 P-2V5.
20 *Noratlas*, 20 C-47, 10 DC-6, and 15 C-45 tpts.
13 T-33, 25 T-37, and 40 T-6 recce/trainers.
2 *Alouette II*, 80 *Alouette III*, 11 SA-330 *Puma* hel.
(28 CASA 212 *Aviocar* tpts and *Puma* and *Alouette* hel on order.)
1 parachute regiment of 3,300.

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

TURKEY

Population: 38,940,000.
Military service: 20 months.
Total armed forces: 453,000.
Estimated GNP 1973: $21.5 billion.
Defence budget 1974–75: 13,427 million liras
($995 million).
$1 = 13.5 liras (1974), 13.7 liras (1973).

Army: 365,000.
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*.
1,800 M-47 and M-48 med tks; M-24, M-26, and M-41 lt tks; M-36 tank destroyers; M-8 armd cars; M-59 and M-113 APC; 105mm and 155mm SP guns; 105mm, 155mm, and 203mm how; SS-11 and *Cobra* ATGW; 40mm, 75mm, and 90mm AA guns; 12 *Honest John* SSM; Do-27, Do-28D-1 *Sky Servant* and U-1 *Beaver* lt ac; 20 AB-206 and 20 Bell 47G hel.

Deployment: Cyprus: 1 bn, 650 men. (Turkey increased her forces in Cyprus by an estimated 20–30,000 in July 1974.)

Reserves: 750,000.

Navy: 40,000.
15 submarines.
14 destroyers.
7 escort vessels.
11 FPB (2 less than 100 tons).
27 MGB and 14 motor launches.
16 coastal and 4 inshore minesweepers.
8 minelayers.
90 landing craft.
1 MR sqn with 12 S-2E *Tracker*.
3 AB-205A ASW helicopters.

Reserves: 25,000.

Air Force: 48,000; 290 combat aircraft.
1 fighter-bomber sqn with F-4.
2 fighter-bomber sqns with 33 F-104G.
5 fighter-bomber sqns with F-100D.
2 fighter-bomber sqns with F-5A.
1 interceptor sqn with 28 F-5A.
2 AWX sqns with 30 F-102A.
3 recce sqns with RF-84F and RF-5A.
(A combat sqn has an average of 18 aircraft.)
3 tpt sqns with 14 C-47, 10 C-130, and 20 Transall.
10 Bell UH-1D, 10 Sikorsky UH-19D, and some AB-204B hel.
2 SAM battalions with 72 *Nike-Ajax/Hercules*.
(F-4, 16 Transall on order.)

Para-Military Forces: 75,000 Gendarmerie (including 3 mobile brigades).

Other European Countries

ALBANIA

Population: 2,420,000.
Military service: Army 2 years; Air Force, Navy, and special units 3 years.
Total regular forces: 38,000.
Estimated GNP 1971: $1.0 billion.
Defence expenditure 1974: 610 million leks ($122 million).
$1 = 5 leks.

Army: 30,000.
1 tank brigade.
6 infantry brigades (2 cadre).
Some light coastal batteries.
70 T-34, 15 T-54, and T-59 med tks; T-62 lt tks; 20 BA-64, BTR-40, and BTR-152 APC; SU-76 SP guns; 122mm and 152mm gun/how; 45mm, 57mm, 76mm, and 85mm ATk guns; 37mm and 85mm AA guns.

Navy: 3,000.
4 submarines (ex-Soviet W-class).
5 coastal escorts (ex-Soviet *Kronstadt*-class).
40 MTB (12 ex-Soviet P-4, 28 ex-Chinese *Hu Chwan* class hydrofoils).
10 MCM ships (2 ex-Soviet T-43, 6 T-301 class).
10 ex-Soviet PO-2 patrol boats.

Air Force: 5,000; 72 combat aircraft.
2 fighter sqns with 24 MIG-15/F-2 (Chinese).
2 interceptor sqns with 36 MiG-19 and 12 MiG-21 (Chinese).
1 transport sqn with 3 An-2 and 3 Il-14.
2 sqns with 20 Mi-1 and Mi-4 helicopters.
SA-2 SAM.

Reserves (all services): 100,000.

Para-Military Forces: 15,000: Internal security force 5,000; frontier force 10,000.

AUSTRIA

Population: 7,550,000.
Military service: 6 months, followed by 60 days' reservist training.
Total armed forces: 12,300 regular, 25,000 conscript (total mobilizable strength 150,000).
Estimated GNP 1973: $31.6 billion.
Defence budget 1974: 5,879 million schilling.
($323 million).
$1 = 18.2 schilling (1974), 17.5 schilling (1973).

Army: 10,000 regulars, 23,000 conscripts.
3 mech bdes (each with 1 tk bn, 2 mech inf bns).
4 infantry brigades (3 inf bns, 1 arty bn).
1 commando battalion.
5 signals battalions.
320 M-47, M-60 med tks; 120 *Kuerassier* tk destroyers; 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, 107 M-2 107mm, and 82 M-30 120mm mor; 240 M-52/M-55 85mm ATk guns.

Deployment: 1 company and 1 field hospital in Cyprus (UNFICYP), 240; 1 battalion in Egypt (UNEF), 613; 1 battalion in Syria (UNDOF), 508.

Reserves: 112,000; 3 reserve brigades (each of 3 inf, 1 arty bns); 16 regiments and 4 battalions of *Landwehr* distributed among 8 regional military commands. 690,000 have a reserve commitment.

Air Force: 2,300 regulars; 2,000 conscripts; 38 combat aircraft. (Austrian air units are an integral part of the army, but have been listed separately for purposes of comparison.)
3 fighter-bomber squadrons with 38 Saab 1050E.
1 tpt sqn with 3 *Beaver* L-20A, 2 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 17 Cessna L-19.
3 independent air defence battalions.
297 20mm Oerlikon, 44 35mm Z/65 *Super Bat,* 59 40mm 55 and 57 Bofors AA guns.

Reserves: 700.

Para-Military Forces: 11,250 Gendarmerie.

EIRE

Population: 3,050,000.
Military service: voluntary.
Total armed forces: 12,300.
Estimated GNP 1973: $6.8 billion.
Defence budget 1974; £27 million (figure for 9 months to December 1974, after which financial year will coincide with calendar year).
($64 million).
$1 = £0.419 (1974), £0.388 (1973).

Army: 11,300.
9 infantry battalions.
4 recce squadrons.
3 field artillery batteries.
8 engineer companies.
1 AA battery.
4 AML H90, 16 AML H60 armd cars; 30 Panhard VTT/M-3, 17 *Unimog* APC; 48

The Austrians developed and produced this Kuerassier tank destroyer for their army. It is equipped with a laser rangefinder, and is highly maneuverable.

The thirteen attack squadrons of the Swiss Air Force fly these de Havilland Venoms. Swiss Air Force equipment also includes Mirage IIIs in both interceptor and recce roles and five squadrons of Hawker Hunter tactical fighters.

25-pdr guns; 72 m/41C 120mm mor; 447 84mm *Carl Gustav* and 96 90mm IIIO RCL; 26 40mm Bofors AA guns.

Reserves: 18,600: Regular Reserve 1,200; Territorial Army 17,400.

Navy: 430.
1 fishery protection vessel.
3 coastal minesweepers (ex-British *Ton*-class).

Air Force: 570; 7 combat aircraft.
3 *Vampire* T-55 (to be withdrawn late 1974), 4 BAC *Provost*, 8 *Chipmunk*, and 8 Cessna FR-172; 2 *Dove* lt tpt; 8 *Alouette III* hel.
(6 *Super Magister* CM-170 to be delivered 1974–75.)

FINLAND

Population: 4,674,000.
Military service: 8–11 months.
Total armed forces: 35,800 (28,000 conscripts).
Estimated GNP 1973: $17.5 billion.
Defence budget 1974: 944 million markkaa ($261 million).
$1 = 3.62 markkaa (1974), 3.65 markkaa (1973).

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 coastal artillery regiments.
3 independent coast artillery battalions.
1 AA regiment.
4 independent AA battalions.
T-54, T-55, and *Charioteer* med tks; PT-76 lt tks; BTR-50P APC; 105mm, 122mm, and 130mm guns; 105mm, 122mm, 150mm, and 152mm how; 81mm and 120mm mor; 55mm and 95mm RCL; *Vigilant* and SS-11 ATGW; ZSU-57-2, ZSU-23-2, 35mm Oerlikon, and 40mm Bofors AA guns.

Deployment: Cyprus (UNFICYP) 226 (being increased), Egypt (UNEF) 497.

Navy: 2,500.
3 frigates (one used as training ship).
2 corvettes.
1 patrol boat with SSM (experimental).
15 fast patrol boats (less than 100 tons).
5 patrol boats.
1 coastal minelayer.
6 landing craft.

Air Force: 3,000; 47 combat aircraft.
3 fighter sqns with 35 MiG-21F, 12 Saab J-35BS *Draken*, and Fouga *Magister*.
About 8 DC-3, Il-28, and *Beaver* tpts.
60 *Magister*, 30 *Safir*, 3 MiG-15UTI, and 2 MiG-21UTI trainers.
3 Mi-4, 2 Mi-8, 1 *Alouette II*, and 1 AB-206A hel.

Reserves: 685,000 (29,000 a year do training).

Para-Military Forces: 3,700 frontier guards.

SPAIN

Population: 35,250,000.
Military service: 18 months.
Total armed forces: 284,000.
Estimated GNP 1973: $61.018 billion.
Defence expenditure 1973: 65.7 billion pesetas
($1,131 million).
$1 = 57.3 pesetas (1974), 58.1 pesetas (1973).

Army: 208,000.
1 armoured division.
1 mechanized infantry division.
1 motorized infantry division.
2 mountain divisions.
1 armoured cavalry brigade.
11 independent infantry brigades.
(All above are about 70 per cent strength.)
1 mountain brigade.
1 airportable brigade.
1 parachute brigade.
2 artillery brigades (1 coast artillery).
1 SAM bn with *Nike-Hercules*.
1 SAM battalion with *HAWK*.
200 AMX-30, 350 M-47 and M-48 med tks; 250 M-24 and M-41 lt tks; *Greyhound* armd cars; AML-60/90 and M-3 scout cars; 50 M-113 APC; 75mm, 122mm, 155mm guns; 105mm, 155mm, and 175mm SP guns; 200 105mm, 155mm, and 203mm how; 108mm, 216mm, and 300mm multiple RL; 120mm mor; 89mm, 106mm ATk weapons; 90mm SP ATk guns; 40mm L/70 and 90mm AA guns; 88mm coastal guns; 20 Cessna O-1E, 20 CASA 127 lt ac; 6 Bell 47G, 12 UH-1B, 16 UH-1H, and 16AB-206A hel (6 CH-47C tpt hel on order); *HAWK* SAM.

Navy: 43,000 (incl 7,000 marines).
6 submarines (2 *Daphne*-class on order).
1 helicopter carrier.
1 cruiser.
20 destroyers (5 more on order).
6 frigates (2 with *Standard* SAM; 3 more on order).
5 corvettes.
3 ASW launches.
3 torpedo boats.
23 minesweepers.
14 landing ships/craft.
3 ASW hel and 1 lt hel sqns with 6 SH-3D, 4 AB-204B, 9 H-19, 5 Hughes 500M, 15 Bell 47H-1G, Bell 212, and Sikorsky CH-47. (8 AV-8A *Harrier* on order.)

Air Force: 33,000; 201 combat aircraft.
2 FB sqns with 36 F-4C.
2 FB sqns with 24 *Mirage IIIEE*.
4 FB sqns with 36 SF-5A and 36 SF-5B.
2 FB sqns with 44 HA-200 *Saeta*.
1 FB sqn with 25 HA-220 *Super Saeta*.
1 ASW sqn with 11 SA-16B.
1 SAR sqn with 11 HU-16A.
Tpt ac include C-47, DC-4, CASA 207 *Azor*, *Caribou*; 12 KC-97L tankers.
Trainers include 6 *Mirage IIIDE* and 6 SF-5B.
Hel include AB-205, AB-206, and AB-47.
(21 *Mirage* F-1, 4 C-130H, 32 C-212 *Aviocar*, 8 *Chinook*, and 8 *Cobra* on order.)

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

Deployment (outside mainland Spain): 41,000.
Balearic Islands: 6,000.
Canary Islands: 8,000.
Ceuta: 8,000, incl 1 regt of Foreign Legion.
Melilla: 9,000, incl 1 regt of Foreign Legion.
Spanish Sahara: 10,000, incl 2 regts of Foreign Legion.

SWEDEN

Population: 8,240,000.
Military service: Army and Navy, 7½–15 months; Air Force, 9–14 months.
Total armed forces: 18,000 regulars, 13,900 reservists, and 54,200 conscripts, plus 112,400 conscripts on annual refresher training. (Total mobilizable strength 750,000.)
Estimated GNP 1973: $55.2 billion.
Defence budget 1974–75: 7,221 million kroner.
($1,641 million).
$1 = 4.40 kroner (1974).

Army: 8,200 regulars, 9,000 reservists, and 40,400 conscripts, plus 101,000 conscripts on 18–40 days' annual refresher training.
6 armoured brigades.
20 infantry brigades.
4 *Norrlands* brigades.
50 independent inf, arty, and AA bns.
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.
Strv 101, 102 (*Centurion*), and 103B med tks; Strv 74 lt tks (Ikv 91 on order); Pbv 302A, SKPF APC; Ikv 102, Ikv 103i 105mm, and Bk 1A (L/50) 155mm SP guns; 75mm, 105mm, and 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*), 12 Hkp-3 (AB-204B), and 22 Hkp-6 (*JetRanger*) hel.

Deployment: Cyprus (UNFICYP) 225, Egypt (UNEF) 622.

Navy: 4,400 regulars, 2,900 reservists, and 7,500 conscripts, plus 6,800 conscripts on annual refresher training.

20 submarines.
8 destroyers, 2 with Rb-08 SSM, 4 with *Seacat* SAM.
4 fast ASW frigates (2 with lt hel).
1 FPB with *Penguin* SSM.
21 heavy torpedo boats.
16 motor torpedo boats (less than 100 tons).
24 patrol launches.
3 minelayer/submarine depot ships.
9 coastal minelayers.
10 mine tenders.
18 coastal minesweepers.
20 inshore minesweepers (8 less than 100 tons).
69 landing craft (60 less than 100 tons).
25 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-6 hel.

Air Force: 5,400 regulars, 2,000 reservists, and 6,300 conscripts, plus 4,600 conscripts on annual refresher training; 600 combat aircraft.
9 FGA sqns, 6 with A-32A *Lansen* (with Rb-04E ASM) and 3 with AJ-37 *Viggen*.
1 FGA sqn with Saab Sk-60B.
13 AWX sqns with J-35F *Draken*.
6 AWX sqns with J-35A/D *Draken*.
2 recce-fighter sqns with S-32C *Lansen*.
3 recce/day fighter sqns with S-35E *Draken*.
(A combat sqn has up to 18 aircraft.)
2 tpt sqns with 2 C-130E and 5 C-47, *Norseman*, and BAC *Pembroke*.
5 comms sqns with 110 Saab 105 (Sk-60A/B) and 58 SA *Bulldog* (SK 61).
5 hel groups (up to 2–4 aircraft each) with 1 Hkp-2, 6 Hkp-3, and 10 Hkp-4B.
2 SAM sqns with *Bloodhound* 2.
There is a fully computerized, fully automatic control and air surveillance system, *Stril 60*, co-ordinating all air defence components.

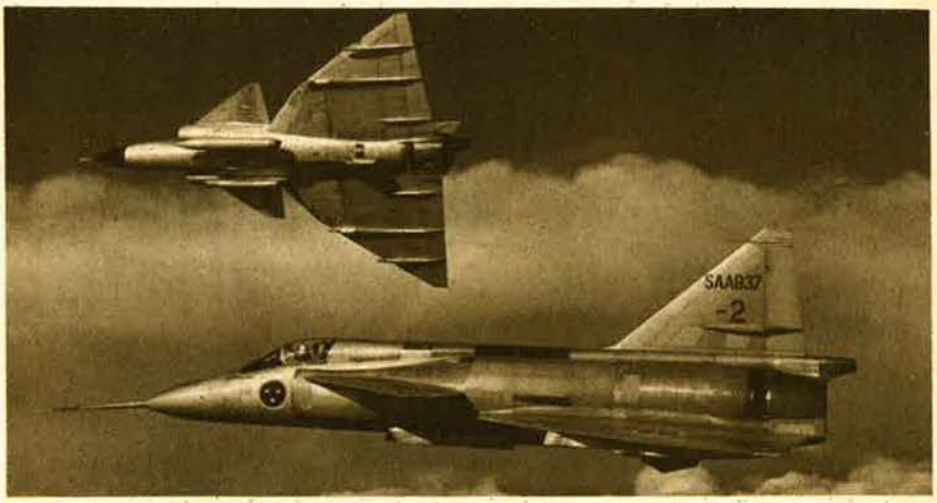
Reserves (all services): voluntary defence organizations 551,500.

SWITZERLAND

Population: 6,580,000.
Military service: 4 months initial training, refresher training of three weeks a year for 8 years, two weeks for 3 years, and one week for 2 years.
Total armed forces: 6,500 regulars and 36,000 conscripts (total mobilizable strength 625,000; militia can be fully mobilized within 48 hours).
Estimated GNP 1973: $45.9 billion.
Defence budget 1974: 2,662 million francs ($884 million).
$1 = 3.01 francs (1974), 2.89 francs (1973).

Army: 3,500 regulars (incl Air Defence troops), 30,000 conscripts, 536,500 militia (reservists).
1 mountain corps of 3 mountain inf divs.
3 corps each of 1 mech, 1 inf, and 1 frontier div.
13 indep frontier, fortress or 'redoubt' bdes.
100 *Centurion*, 150 Pz-61, and 170 Pz-68 med tks; 200 AMX-13 lt tks; 1,250 M-113 APC; 105mm guns; 105mm, 155mm, and 150 M-109U 155mm SP how; 120mm mor; 83mm, 106mm RCL; 50mm, 57mm, and 90mm ATk guns; 20mm, 25mm, 30mm, 34mm, and 35mm AA guns; 10 patrol boats.

Air Force: 3,000 regular, 6,000 conscripts, 46,000 militia (maintenance is by civilians); 290 combat aircraft.
5 interceptor/FGA sqns with 80 *Hunter* F-58.
2 interceptor/FGA sqns with 30 *Mirage IIIS*.
13 FGA sqns with 150 *Venom* FB-50.
2 recce sqns with 30 *Mirage IIIRS*.
1 tpt sqn with 3 Ju-52/3m.
5 lt ac sqns with 20 Do-27, some Pilatus *Porter*.
2 hel sqns with 30 *Alouette II*.
Some 50 *Alouette III* hel.
1 parachute company.
3 air base regiments.



Finland's small air force is equipped with a mixture of Soviet- and Swedish-built fighters, including the Saab J-35 Draken (top). In numbers of combat aircraft, the Swedish Air Force is the largest in non-Communist Europe. This Saab AJ-37 all-weather attack aircraft (below) has a secondary interceptor capability. It is among the aircraft competing as a replacement for NATO F-104s.

1 SAM regt of two bns, each with 32 *Bloodhound*.

Reserves (all services): 582,500.

YUGOSLAVIA

Population: 21,190,000.
Military service: Army and Air Force, 15 months; Navy, 18 months.
Total armed forces: 230,000.
Estimated GNP 1973: $18.4 billion.
Defence expenditure 1974: 19.6 billion dinars
($1,298 million).
$1 = 15.1 dinars (1974), 15.5 dinars (1973).

Army: 190,000.
10 infantry divisions.
8 armoured brigades.
20 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, BTR-60P, BTR-152, and M-590 APC; M-18 (76mm), M-36 (90mm), SU-100 SP guns; 76.2mm, 122mm, 130mm, 155mm guns; 105mm, 155mm how; 105mm SP how; RL; 120mm mor; 75mm, 82mm RCL; 57mm, 100mm ATk guns; *Snapper*, *Sagger* ATGW; 20mm, 30mm, 37mm, 85mm, 88mm AA, and ZSU-57-2 SP AA guns.

Navy: 20,000.
5 submarines.
1 destroyer.
20 coastal escorts.
10 *Osa*-class FPB with *Styx* SSM.
55 torpedo boats (15 *Shershen*-class).
25 patrol boats.
30 MCM vessels (14 river minesweepers).
34 landing craft.
25 coastal artillery batteries.

Air Force: 20,000; 275 combat aircraft.
12 FGA sqns with 10 F-84, 20 *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, and An-12.
60 *Galeb*, 30 T-33, and some MiG-21UTI trainers.
15 *Whirlwind*, 35 Mi-4, 25 Mi-8, and 5 *Alouette III* helicopters (130 SA-341 *Gazelle* on order).
8 SAM batteries with SA-2.

Para-Military Forces and Reserves: 19,000 Frontier Guards; 1,000,000 Territorial Defence Force (planned to increase to 3,000,000).

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. 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 provides 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, 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. 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. 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 is 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 and maintains a garrison in two Sovereign Base Areas in the island. Greece and Turkey each maintain a contingent in Cyprus under an associated Treaty of Alliance with the Republic. (Turkish forces in Cyprus were 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, particularly Greece, Libya, 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. 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.

Iran gives military assistance to Oman, and Iranian troops are assisting government forces there.

ALGERIA

Population: 16,350,000.
Military Service: voluntary.
Total armed forces: 63,000.
Estimated GNP 1973: $8.4 billion.
Defence expenditure 1974: 1.6 billion dinars
($404 million).
$1 = 3.96 dinars (1974), 3.72 dinars (1973).

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; 350 BTR-152 APC; 85 SU-100 and 15 JSU-152 SP guns; 85mm guns; 122mm and 152mm how; 140mm and 240mm RL; 57mm, 85mm, and 100mm AA guns.

Reserves: 50,000.

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

Air Force: 4,500; 206 combat aircraft.
2 lt bomber sqns with 30 Il-28.
2 interceptor sqns with 35 MiG-21.
1 FGA sqn with 20 Su-7.
4 FGA sqns with 70 MiG-17.
2 FGA sqns with 25 MiG-15.
2 COIN sqns with 26 *Magister*.
1 transport sqn with 8 An-12.
4 hel sqns with 4 Mi-1, 42 Mi-4, 6 Hughes 269A, and 5 SA-330.

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

EGYPT

Population: 36,600,000.
Military service: 3 years.
Total armed forces: 323,000.
Estimated GNP 1973: $8.4 billion.
Defence budget 1974–75: £E 1,225 million ($3,117 million).
$1 = £E 0.393 (1974), £E 0.403 (1973).

Army: 280,000.
3 armoured divisions.
3 mechanized infantry divisions.
5 infantry divisions.
2 independent armoured brigades.
2 independent infantry brigades.
2 airborne brigades.
1 parachute brigade.
26 commando battalions.
4 artillery brigades.
2 heavy mortar brigades.
2 SSM regts (up to 24 *Scud*). (Believed to be under Soviet control.)
2,000 JS-3/T10 hy, T-54/55, T-62 med tks, PT-76 lt tks; 2,000 BTR-40, BTR-50P, BTR-60P, OT-64, and BTR-152 APC; 100 BMP-76PB; about 120 SU-100 and JSU-152 SP guns; about 1,200 122mm, 130mm, and 152mm guns and how; 8-inch guns; 40 203mm how; 420 RL; about 900 57mm, 85mm, and 100mm ATk guns; *Sagger, Swatter, Snapper* ATGW; 18 FROG-7 and some *Samlet* SSM; ZSU-23-4, ZSU-57-2 SP AA guns; SA-6, SA-7 SAM. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)

Air Defence Command: 75,000 (under Army command, with Army and Air Force manpower); 108 combat aircraft. 80 SA-2, 65 SA-3, some SA-6; 20mm, 23mm, 37mm, 57mm, 85mm, and 100mm AA guns; 9 sqns of MiG-21MF interceptors; 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: 15,000 (including coastguard).
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 6 *Komar*-class FPB with *Styx* SSM.
29 MTB (*Shershen* and P-6).
12 ex-Soviet minesweepers (6 T-43, 4 *Yurka*, 2 T-301).
14 landing craft (10 *Vydra*, 4 MP-SMB-1).

Reserves: about 14,000.

Air Force: 28,000; 568 combat aircraft, including about 100 in storage. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)
25 Tu-16 medium bombers (10 with *Kelt* ASM).
5 Il-28 light bombers.
38 *Mirage V* fighter-bombers (from Libya).
100 Su-7 fighter-bombers.
100 MiG-17 fighter-bombers.
200 MiG-21 interceptors with *Atoll* AAM.
200 MiG-15, MiG-21, Su-7, Yak-18, L-29, and *Gomhouria* trainers.
About 50 Il-14 and 20 An-12 med tpts.
200 Mi-1, Mi-4, Mi-6, Mi-8, and 30 *Sea King* hel.

Reserves: about 20,000.

Para-Military Forces: about 100,000; National Guard 6,000, Frontier Corps 6,000, Defence and Security 30,000, Coast Guard 7,000.

IRAN

Population: 32,215,000.
Military service: 2 years.
Total armed forces: 238,000.
Estimated GNP 1973: $22.5 billion.
Defence expenditure 1974–75: 215,100 million rials
($3,225 million).
$1 = 66.7 rials (1974), 67.8 rials (1973).

Army: 175,000.
3 armoured divisions.
2 infantry divisions.
4 indep bdes (2 inf, 1 AB, 1 special force).
1 SAM battalion with *HAWK*.
300 *Chieftain*, 400 M-47, and 460 M-60A1 med tks; about 2,000 M-113, BTR-50, and BTR-60 APC; 130mm and 155mm guns; 600 75mm, 105mm, 155mm, 203mm how; 175mm SP guns and 203mm SP how; 64 BM-21 RL; SS-11, SS-12, *TOW* ATGW; 23mm, 40mm, 57mm, and 85mm AA guns; *HAWK* SAM; (480 *Chieftain* med, 250 *Scorpion* lt tks; 155mm SP guns and ZSU-23-4 SP AA guns on order).
Ac include C-45, Li-8, 45 Cessna 185, 10

The USSR has provided Egypt, Iraq, and Syria with SA-6 Gainful surface-to-air missiles, effective against supersonic aircraft at altitudes from about 300 to 45,000 feet. None of the Warsaw Pact nations is known to have the SA-6.

O-2A, 6 Cessna 310.
20 *Huskie,* 24 AB-206A, and 14 CH-47C hel (52 AB-205A on order).

Deployment: Oman 1,500, 1 para bn, 1 hel sqn.

Reserves: 300,000.

Navy: 13,000.
3 destroyers.
4 frigates with Mk 2 *Seakiller* SSM and *Seacat* SAM.
4 corvettes.
10 patrol boats (3 under 100 tons).
6 minesweepers (4 coastal).
4 landing craft.
8 SRN-6 and 2 *Wellington* BH-N7 hovercraft.
4 AB-205A, 14 AB-206A, 6 AB-212, 10 SH-3D hel.
(6 FPB, 2 BH-N7 hovercraft, 6 P-3 Orion MR ac on order.)

Air Force: 50,000; 216 combat aircraft.
6 FB sqns with 32 F-4D, 64 F-4E with *Sidewinder* and *Sparrow* AAM.
6 FB sqns with 100 F-5A.
2 recce sqns with 4 RF-4E, 16 RF-5A.
6 med tpt sqns with 60 C-130E/H.
2 lt tpt sqns with 12 F-27, 6 C-54, 5 C-47, and 5 *Beaver.*
12 *Huskie,* 5 AB-206A, 5 AB-212, 4 CH-47C hel.
Trainers incl 30 T-41, 30 T-33, T-6.
Rapier and *Tigercat* SAM.
(80 F-14 *Tomcat,* 70 F-4E, 141 F-5E, 4 F-28, 6 707-320C tankers, 22 CH-47C, 287 UH-1H/214A *Huey Plus, Blindfire* SAM radar on order.)

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

IRAQ

Population: 10,740,000.
Military service: 2 years.
Total armed forces: 112,500.
Estimated GNP 1973: $5.0 billion.
Defence expenditure 1974–75: 236 million dinars
($803 million).
$1 = 0.294 dinars (1974), 0.302 dinars (1973).

Army: 100,000.
2 armd divs, each of 2 armd bdes and 1 mech bde.
3 inf divs, each of 1 mech and 3 inf bdes.
1 Republican Guard mech bde.
2 special forces bdes.
1,300 T-62, T-54/55, and 90 T-34 med, PT-76 lt tks; about 1,300 AFV, incl BTR-60, BMP-76, BTR-152; 700 75mm, 85mm, 100mm, 120mm, 130mm, and 152mm guns; *FROG* SSM; 23mm, 37mm, 57mm, 85mm, 100mm AA guns. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)

Reserves: 250,000.

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

Air Force: 10,500; 218 combat aircraft. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)
1 bomber sqn with 8 Tu-16.
3 fighter-bomber sqns with 60 Su-7.
1 FGA sqn 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, and Tu-124.
35 Mi-4, 16 Mi-6, 30 Mi-8, and 20 *Alouette III* hel.
Trainers incl 30 MiG-15, MiG-21UTI, *Hunter* T66/69, Yak, L-29 (L-39 on order).
SA-2, SA-3, and SA-6 SAM.

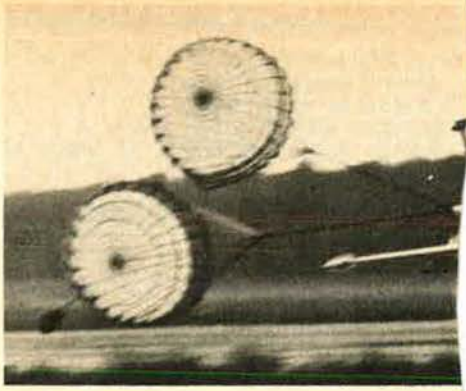
Reserves: 18,000.

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

ISRAEL

Population: 3,260,000.
Military service: men 36 months, women 20 months (Jews and Druses only; Moslems and Christians may volunteer). Annual training for reservists thereafter to age 40/41 for men, 30 for women.
Total armed forces: 33,500 regular, 112,000 conscripts (mobilization to about 400,000 in 72 hours).
Estimated GNP 1973: $8.7 billion.
Defence budget 1974–75: 15,528 million Israeli pounds
($3,688 million).
$1 = 4.21 Israeli pounds (1974), 4.19 pounds (1973).

Army: 15,000 regular, 110,000 conscripts (including 12,000 women); 375,000 on mobilization.
10 armoured brigades.
9 mechanized brigades.
9 infantry brigades.
5 parachute brigades.
7 brigades (2 armd, 3 inf, 2 para) normally kept near full strength; 5 (1 armd, 4 mech) between 50 per cent and full strength; rest at cadre strength.
3 artillery brigades.
1,900 med tks, incl *Sherman* (modified with 75mm, 76mm, 105mm guns), *Centurion,* M-48, M-60, TI-67, T-54/55; some T-62, PT-76 lt tks, about 3,600 AFV, incl AML-60, 15 AML-90, and some *Staghound* armd cars; about 2,500 M-2, M-3, M-113, BRDM, BTR-40, -50P/OT-62, -60P, -152 APC; 350 105mm and 155mm, and some 175mm SP how; 250 122mm guns and how; 120 130mm guns; 155mm how; 240mm RL; 900 120mm and 160mm (some 160mm SP) mor; about 50 90mm SP ATk guns and 106mm RCL; *LAW, TOW, Cobra,* SS-10/11 ATGW; about 900 20mm, 30mm, and 40mm AA guns. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)
(The 280-mile range MD-660 *Jericho* SSM is believed to be in production.)



The Su-7 has been widely exported by the USSR. Algeria, Egypt, Iraq, Syria, and several Pact and Asian countries use this Mach 1.6 ground-attack aircraft.

Navy: 3,500 regular, 1,000 conscripts; 5,000 on mobilization.
2 submarines (3 more on order).
4 *Reshef*-class FPB with *Gabriel* SSM (2 on order).
12 *Saar*-class FPB with *Gabriel* SSM.
9 motor torpedo boats.
30 small patrol boats (less than 100 tons).
9 landing craft (3 less than 100 tons).
Naval commandos: 300.

Air Force: 15,000 regular, 1,000 conscripts; 20,000 on mobilization; 466 combat aircraft. (Equipment and aircraft figures approximate; war losses and replacements make assessment difficult.)
10 *Vautour* light bombers (in storage).
150 F-4E FB/interceptors (more on order).
25 *Mirage IIIB/C* fighter-bomber/interceptors.
180 A-4E/H *Skyhawk* FB (more on order).
23 *Mystère IVA* fighter-bombers (in reserve).
30 *Ouragan* fighter-bombers (in storage).
30 *Barak* fighters.
12 *Super Mystère B.2* interceptors.
6 RF-4E reconnaissance aircraft.
10 C-97 *Stratocruiser* (incl 2 tankers), 20 *Noratlas,* 10 C-47, 14 C-130E transports.
85 *Magister* trainers.
9 *Super Frelon,* 18 CH-53G, 20 AB-205A,

The Israeli Air Force has 180 of these McDonnell Douglas A-4s, with more on order. The A-4 carried the brunt of the attack mission in the Yom Kippur War.

25 UH-1D *Iroquois*, and 5 *Alouette II* helicopters.
10 SAM batteries with 60 *HAWK*.

Reserves (all services): 254,500.

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

JORDAN

Population: 2,640,000.
Military service: voluntary.
Total armed forces: 74,850.
Estimated GNP 1973: $0.8 billion.
Defence expenditure 1974: 44.2 million dinars
($142 million).
$1 = 0.311 dinar (1974), 0.320 dinar (1973).

Army: 70,000.
2 armoured divisions.
1 mechanized division.
2 infantry divisions.
2 special forces battalions.
2 AA brigades.
240 M-47, M-48, and M-60 and 250 *Centurion* med tks; 130 *Saladin* armd cars; 140 *Ferret* scout cars; 280 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; 10 155mm guns; 350 81mm mor; RCL; *TOW* ATGW; 200 M-42 40mm SP AA guns.

Navy: 250.
8 small patrol craft.

Air Force: 4,600; 50 combat aircraft.
2 FGA sqns with 32 *Hunter*.
1 interceptor sqn with 18 F-104A.
4 C-47, 2 *Dove*, 2 *Packet*, and 1 *Falcon* tpts.
3 *Whirlwind* and 6 *Alouette III* helicopters.
(36 F-5E and 5 SA *Bulldog* on order.)

Reserves: 20,000.

Para-Military Forces: 22,000; 7,000 Public Security Force; 15,000 Civil Militia.

KUWAIT

Population: 1,100,000.
Military service: conscription.
Total armed forces: 10,200.
Estimated GNP 1973: $4.7 billion.
Defence expenditure 1974: 47 million dinars
($162 million).
$1 = 0.291 dinars (1974), 0.296 dinars (1973).

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

Navy: 200 (Coastguard).
10 78-foot patrol boats.
8 patrol launches.
2 landing craft.

Air Force: 2,000; 28 combat aircraft.
12 *Lightning* F-53 interceptors.
4 *Hunter* FGA-57 fighters.
12 BAC-167 *Strikemaster* COIN aircraft.
2 *Caribou*, 1 *Argosy*, 1 *Devon*, 2 Lockheed L-100-20 transports.
6 AB-204B, 1 *Whirlwind* hel.
2 *Lightning* T-55, 2 *Hunter* T-67, and 6 *Jet Provost* T-51 trainers.
(20 *Mirage F1*, some 20 *Gazelle*, and 10 *Puma* hel on order.)

LEBANON

Population: 3,140,000.
Military service: 12 months selective.
Total armed forces: 15,250.
Estimated GNP 1973: $2.9 billion.
Defence expenditure 1974: £L 300 million
($133 million).
$1 = £L 2.26 (1974), £L 2.38 (1973).

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 tks; 40 AMX-13 and 18 M-41 lt tks; about 100 M-706, M-6, and AEC Mk 3 armd cars; 30 M-113, 16 M-59 APC; 6 75mm guns; 24 122mm, 20 155mm how; 25 120mm mor; 60 20mm and 30mm, 15 M-42 40mm SP AA guns.

Navy: 250.
2 patrol vessels.
6 small inshore patrol craft.
1 landing craft.
(3 coastal patrol boats on order.)

Air Force: 1,000; 18 combat aircraft.
1 FGA sqn with 8 *Hunter*.
1 interceptor sqn with 6 *Mirage IIIEL* with R-530 AAM (4 *Mirage IIIEL* and 1 *IIIBL* in storage).
1 hel sqn with 4 *Alouette II* and 6 *Alouette III*.
Some French early warning/ground control radars.

Para-Military Forces: 5,000 Gendarmerie.

LIBYA

Population: 2,240,000.
Military service: voluntary.
Total armed forces: 32,000.
Estimated GNP 1973: $5.13 billion.
Defence budget 1974: 119 million Libyan dinars
($402 million).
$1 = 0.296 dinars (1974), 0.296 dinars (1973).

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.
6 *Centurion* Mk 5, 250 T-54/55, and 15 T-34 med tks; 100 *Saladin* armd cars; *Shorland* and *Ferret* scout cars; BTR-60, *Saracen*, and 170 M-113A1 APC; 70 122mm and 75 105mm how; 300 *Vigilant* ATGW; 23mm, 57mm, L40/70 Bofors AA guns (SS-11/12 ATGW on order).

Navy: 2,000.
1 frigate (with *Seacat* SAM).
1 corvette.
3 FPB each with 8 SS-12M SSM.
2 inshore minesweepers.
8 patrol craft.
1 logistics support ship.

Air Force: 5,000; 70 combat aircraft.
2 interceptor sqns with 32 *Mirage IIIE*.
4 FGA sqns with 20 *Mirage V* (38 in Egypt).
1 recce sqn with 10 *Mirage IIIER*.
(Some *Mirage* and 8 F-5A may be in storage.)
8 C-130E and 9 C-47 medium transports.
10 *Mirage IIIB*, 3 T-33 trainers.
5 AB-206, 7 OH-13, 10 *Alouette III*, and 9 *Super Frelon* helicopters.
3 SAM regts with *Crotale*.

MOROCCO

Population: 16,810,000.
Military service: 18 months.
Total armed forces: 56,000.
Estimated GNP 1973: $5.6 billion.
Defence budget 1974: 816 million dirham
($190 million).
$1 = 4.30 dirham (1974), 3.90 dirham (1973).

Army: 50,000.
1 light security brigade.
1 parachute brigade.
3 armoured battalions.
9 motorized infantry battalions.
9 infantry battalions.
1 Royal Guards battalion.
5 camel corps battalions.

Soviet-built Sagger anti-tank missiles deployed by Egypt and Syria were highly effective in the Middle East war. The transporting vehicle is amphibious.

3 desert cavalry battalions.
5 artillery groups.
2 engineer battalions.
120 T-54 med tks; 120 AMX-13 lt tks; 36 EBR-75, 50 AML-245 and M-8 armd cars; 40 M-3 half-track and 95 Czech OT-64 APC; 25 SU-100, AMX-105, and 50 M-56 90mm SP guns; 100 76mm, 85mm, and 105mm guns; 75mm and 105mm how; 82mm and 120mm mor; 50 37mm and 100mm AA guns.

Navy: 2,000 (including 500 marines).
1 frigate.
2 coastal escorts.
1 patrol boat.
1 landing craft.
(2 patrol vessels on order.)

Air Force: 4,000; 60 combat aircraft.
2 interceptor sqns with 20 F-5A and 4 F-5B.
2 FGA sqns with 24 *Magister.*
2 transport sqns with 10 C-47 and 11 C-119G.
35 T-6 and 25 T-28 trainers.
12 AB-205A, 4 HH-43B, and 4 *Alouette II* hel.
(12 MiG-17 fighter-bombers in storage; 6 C-130A transports on order.)

Para-Military Forces: 23,000: 8,000 Gendarmerie, incl 2 mobile security bns; 15,000 Auxiliaries.

OMAN

Population: 740,000.
Military service: voluntary.
Total armed forces: 9,700 (including some 600 expatriate personnel of several nationalities, serving on contract or on secondment).
Defence budget 1974: 58.5 million rial saidi
($169 million).
$1 = 0.347 rial saidi (1974), 0.329 rial saidi (1973).

Army: 9,000.
4 infantry battalions.
1 frontier force battalion.
1 armoured cavalry squadron.
1 artillery regiment.
1 signals regiment.
Saladin, V-100 *Commando, Ferret* armoured cars; 75mm pack how; 25-pdr and 5.5 inch guns.

Navy: 200.
3 fast patrol boats.
3 armed motorized dhows.
1 patrol vessel (yacht).

Air Force: 500 (including 160 contract personnel); 12 combat aircraft.
1 FGA sqn with 12 BAC-167 (4 on order).
1 air support sqn with 4 *Caribou,* 10 *Skyvan,* and 4 *Beaver* (6 *Skyvan* on order).
1 hel sqn with 10 AB-205 and 4 AB-206A (3 AB-205A on loan from Iran, 10 on order).
1 transport flight with 5 *Viscount* (8 BN *Defender* and 3 BAC-111 to be delivered in 1974).

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

SAUDI ARABIA

Population: 8,670,000.
Military service: voluntary.
Total armed forces: 43,000.
Estimated GNP 1973: $6.8 billion.

The Iranian Air Force has seven squadrons of Northrop F-5 and RF-5 aircraft. Iran also has additional F-4Es, F-5Es, and eighty F-14 Tomcat fighters on order.

Defence expenditure 1974–75: 6,400 million saudi riyals
($1,808 million).
$1 = 3.54 riyals (1974), 3.66 riyals (1973).

Army: 36,000.
4 infantry brigades.
1 armoured battalion.
2 reconnaissance battalions.
1 parachute battalion.
1 Royal Guard battalion.
3 artillery battalions.
3 AA battalions.
10 SAM batteries with *HAWK.*
30 AMX-30, 25 M-47 med tks; 60 M-41 lt tks; 200 AML-60 and AML-90, some *Staghound* and *Greyhound* armd cars; *Ferret* scout cars; field guns; AA guns; *HAWK* SAM. (150 AMX-30, *Scorpion, Fox,* and *Improved HAWK* on order.)

Deployment: 4,000 in Jordan, 1,500 in Syria.

Navy: 1,500.
4 FPB (*Jaguar*-class).
20 patrol boats (coastguard).
8 SRN-6 hovercraft (coastguard).

Air Force: 5,500; 90 combat aircraft.
2 FB sqns with 14 F-5E and 20 F-5B.
2 FGA sqns with 21 BAC-167.
2 interceptor sqns with 35 F-52/F-53 *Lightning.*
2 tpt sqns with 9 C-130H and 2 C-140B.
2 hel sqns with 20 AB-206 and 10 AB-205.
Other ac incl 3 *Lightning* T-55, 1 T-33 trainer, 1 Cessna 310K, and 6 172G lt ac; 6 *Alouette III,* 1 AB-204 hel.
37 *Thunderbird* Mk 1 SAM.
(126 F-5E/B, 38 *Mirage IIIESA,* 9 BAC-167, 12 KC-130 on order.)

Para-Military Forces: 26,000 National Guard (formerly known as the 'White Army'), organized into regular and semi-regular battalions; 6,500 Coastguard and Frontier Force.

SUDAN

Population: 17,400,000.
Military service: voluntary.
Total armed forces: 43,600.
Estimated GNP 1973: $1.9 billion.
Defence expenditure 1974–75: £ Sudan 40 million
($118 million).
$1 = £ Sudan 0.339 (1974), £ Sudan 0.350 (1973).

Army: 40,000.
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 t
16 T-62 lt tks (Chinese); 50 *Saladin* a
45 *Commando* armd cars; 60 *Ferr*
scout cars; 50 BTR-50 and 50 BTR-152
49 *Saracen,* and 60 OT-64 APC; 55 25-
pdr, 40 105mm, and some 122mm guns
and how; 30 120mm mor; 85mm ATk
guns; 80 Bofors 40mm, some Soviet
37mm and 85mm AA guns.

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

—*Wide World Photos*

Israel's Army, which can be expanded rapidly to a strength of 375,000 troops, is well equipped with armor and artillery, including much captured Soviet equipment.

Air Force: 3,000; 51 combat aircraft.
1 interceptor sqn with 24 MiG-21.
1 FGA sqn with 17 MiG-17 (ex-Chinese).
1 COIN sqn with 5 BAC-145 Mk 5 and 5 *Jet Provost* Mk 55.
1 tpt sqn with 3 *Pembroke*, 5 AN-24, and 4 F-27.
1 hel sqn with 4 Mi-4 and 10 Mi-8.

Para-Military Forces: 5,000: 500 National Guard; 4,500 Border Guard.

SYRIA

Population: 7,130,000.
Military service: 30 months.
Total armed forces: 137,500.

The Soviets, who produce thousands of tanks each year, have provided these T-55s to their allies and clients in Europe, Asia, and Africa.

Estimated GNP 1973: $2.53 billion.
Defence expenditure 1974: £Syr 1,618 million
($460 million).
$1 = £Syr 3.52 (1974), £Syr 3.71 (1973).

Army: 125,000.
2 armoured divisions.
3 mechanized infantry divisions.
1 armoured brigade.
3 mechanized brigades.
5 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, 1,000 T-54/55, and 500 T-62 med tks, 70 PT-76 lt tks; 1,400 BTR-50/60, BTR-152 APC; 500 122mm, 130mm, and 152mm guns; 75 SU-100 SP guns; *FROG-7* and *Scud* SSM (*Scud* are believed to be under Soviet control); *Snapper, Sagger, Swatter* ATGW; 37mm, 57mm, 85mm, and 100mm AA guns; SA-2, SA-3, SA-6, and SA-7 SAM. (Equipment and aircraft figures are approximate; war losses make assessment difficult.)

Reserves: 200,000.

Navy: 2,500.
3 minesweepers.
2 coastal patrol vessels.
6 *Komar*- and *Osa*-class FPB with *Styx* SSM.
12 torpedo boats (ex-Soxiet P-4).

Reserves: 3,500.

Air Force: 10,000 men; about 300 combat ac. (Equipment and aircraft figures are approximate; war losses make assessment difficult. Some aircraft may be in storage.)
Some Il-28 lt bombers.
60 MiG-17 day fighter/ground attack aircraft.
30 Su-7 fighter/bombers.
Some MiG-23 fighters.
200 MiG-21 interceptors.
6 Il-14 and 3 An-12 transports.
About 60 hel, including 4 Mi-2, 8 Mi-4, 39 Mi-8, and 10 Ka-25.

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

TUNISIA

Population: 5,620,000.
Military service: 12 months selective.
Total armed forces: 24,000.
Estimated GNP 1973: $2.7 billion.
Defence expenditure 1974–75: 17.5 million dinars
($43 million).
$1 = 0.409 dinars (1974), 0.386 dinars (1973).

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

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

Air Force: 2,000; 12 combat aircraft.
1 fighter sqn with 12 F-86.
3 *Flamant* light tpts.
8 MB-326B, 12 T-6, and 12 Saab 91D trainers.
2 *Alouette II* and 6 *Alouette III* hel.

Para-Military Forces: 10,000: 5,000 Gendarmerie, 6 battalions; 5,000 National Guard.

YEMEN ARAB REPUBLIC (NORTH)

Population: 6,360,000.
Military service: 3 years.
Total regular forces: 26,900.
Defence budget 1974–75: 266 million riyals ($58 million).
$1 = 4.56 riyals (1974).

Army: 25,000.
6 infantry brigades.
1 parachute brigade.
1 commando brigade.
2 armoured battalions.
1 Republican Guard battalion.
2 artillery battalions.
1 AA battalion.
30 T-34 med tks; 30 *Saladin* armd cars; 70 BTR-40 APC; 50 76mm guns; 50 SU-100 SP guns; AA guns.

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

Air Force: 1,600; 28 combat aircraft.
1 fighter sqn with 12 MiG-17.
1 light bomber sqn with 16 Il-28.
1 tpt sqn with C-47 and Il-14.
1 hel sqn with Mi-4.

Para-Military Forces: 20,000 tribal levies.

YEMEN: PEOPLE'S DEMOCRATIC REPUBLIC (SOUTH)

Population: 1,610,000.
Military service: conscription, term unknown.
Total armed forces: 14,000.
Estimated GNP 1972: $500 million.
Defence expenditure 1972: 10 million South Yemeni dinars
($26 million).
$1 = 0.383 South Yemeni dinars (1972).

Army: 11,300.
6 infantry brigades, each of 3 battalions.
1 armoured battalion.
1 artillery brigade.
1 signals unit.
1 training battalion.
50 T-34, T-54 med tks; *Saladin, Ferret* armd cars; 25-pdr, 105mm pack how, 122mm how; mor; 57mm and 85mm AA guns.

Navy: 200 (subordinate to Army).
2 submarine chasers (ex-Soviet *SOI*-class).
3 minesweepers (ex-British *Ham*-class).
3 landing craft (medium).

Air Force: 2,500; about 39 combat aircraft.
1 fighter sqn with 12 MiG-21.
1 fighter-bomber sqn with 15 MiG-17.
1 COIN sqn with 4 BAC-167 and 8 *Jet Provost*.
1 tpt sqn with 4 An-24.
1 hel sqn with 8 Mi-8.

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

THE MILITARY BALANCE 1974/75

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 responsible for defence and security co-operation and the defence of the sovereignty, territorial integrity, and independence of its members, but this has rarely met.

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

There are no known formal military agreements between the white-controlled territories of Southern Africa, but links exist in practice. Periodical meetings on common security matters have taken place between the defence authorities of South Africa, Rhodesia, and Portugal; there are 'hot pursuit' agreements relating to certain frontier areas, and South Africa has given some assistance to anti-insurgent forces operating in Rhodesia.

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.

Though the Soviet Union is not known to have defence agreements with countries in the area, she has given military assistance to Guinea, Mali, Mauritania, Nigeria, and the Somali Republic.

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, and an agreement with South Africa covering the use of the Simonstown naval base. France has defence agreements with Cameroon, Gabon, Malagasy Republic, Senegal, and Toga; 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, and Portugal that of Angola, Mozambique, and Portuguese Guinea, at present overseas provinces, but to become independent.

PEOPLE'S REPUBLIC OF CONGO

Population: 1,020,000.
Military service: voluntary.
Total armed forces: 5,100.
Estimated GNP 1972: $314 million.
Defence expenditure 1974: 4.61 billion CFA francs
($19 million).
$1 = 241 CFA francs (1974), 256 CFA francs (1972).

Army: 4,750.
1 armoured regiment (5 squadrons).
1 infantry battalion.
1 para-commando battalion.
1 reconnaissance squadron.
1 artillery group.
1 engineer battalion.

Chinese T-62 med tks; PT-76 lt tks; BRDM scout cars and recce vehicles; BTR-152 APC; 100mm guns; 122mm how; 122mm mor; 57mm ATk guns; 37mm and 57mm AA guns.

Navy: 200.
12 river patrol boats.

Air Force: 150; no combat aircraft.
2 C-47 and 4 An-24 tpts; 2 *Broussard* lt tpts; 4 *Alouette II/III* hel.

Para-Military Forces: 1,400 Gendarmerie, 2,500 militia.

ETHIOPIA

Population: 26,920,000.
Military service: voluntary.
Total armed forces: 44,570.
Estimated GNP 1973: $US 2.5 billion.
Defence expenditure 1974–75: $E 165 million
($US 80 million).
$US 1 = $E 2.07 (1974), $E 2.07 (1973).

Army: 40,940.
Imperial Guard (8,000 men).
1 mech div with 1 mech, 2 inf bdes.
2 inf divs, each of 3 inf bdes, 1 arty bn.
1 tank battalion.
1 airborne infantry battalion.
4 armoured car squadrons.
4 artillery battalions.
5 air defence batteries.
2 engineer battalions.
50 M-41 med tks; about 40 APC; 30 M-9, M-20, and 56 AML-245 armd cars; 146

M-30 4.2 inch mortars; 36 75mm pack how; 52 105mm, 12 155mm guns; 6 Bell UH-1H hel.

Navy: 1,380.
1 coastal minesweeper.
1 training ship (ex-seaplane tender).
5 patrol boats (ex-US PGM type).
4 harbour defence craft (less than 100 tons).
4 landing craft (less than 100 tons, ex-US LCM).

Air Force: 2,250; 40 combat aircraft.
1 lt bomber sqn with 4 *Canberra* B.Mk 2.
1 fighter-bomber sqn with 12 F-86F.
1 fighter sqn with 8 F-5A.
1 recce sqn with 8 RT-33.
1 COIN sqn 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*, 15 T-28A, and 11 T-33A.
1 hel sqn with 5 *Alouette II* and 5 AB-204B.

Para-Military Forces: 20,400. Territorial Army active strength, 6,000; mobile emergency police force 6,800; frontier guards 1,200; commando force 3,200.

GHANA

Population: 9,620,000.
Military service: voluntary.
Total armed forces: 17,700.
Estimated GNP 1973: $2.9 billion.
Defence expenditure 1972–73: 30.9 million cedi
($24 million).
$1 = 1.15 cedi (1973), 1.30 cedi (1972).

Army: 15,000.
2 brigades comprising 6 inf bns and support units.
1 reconnaissance battalion.
1 field engineer battalion.
1 mortar battery.
Saladin armd cars; *Ferret* scout cars; heavy mortars.

Navy: 1,300.
2 corvettes.
1 coastal minesweeper.
1 inshore minesweeper.
2 seaward defence vessels.
2 landing craft.

Air Force: 1,400; 6 combat aircraft.
1 fighter sqn with 6 MB-326.
1 transport sqn with 8 BN *Islander* and 3 *Skyvan* Series 3M.
1 comms and liaison sqn with 1 HS-125.
1 hel sqn with 2 Bell 212, 3 *Alouette IIIB*.
6 SA *Bulldog* trainers.
(5 *Skyvan*, 6 F-27 on order.)

Para-Military Forces: 3,000; 3 Border Guard bns.

KENYA

Population: 12,920,000.
Military service: voluntary.
Total armed forces: 7,430.
Estimated GNP 1973: $2.4 billion.
Defence expenditure 1974: 300 million shillings
($42 million).
$1 = 7.16 shillings (1974), 7.14 shillings (1973).

Army: 6,400.
4 infantry battalions.
1 support battalion.
3 *Saladin* and 10 *Ferret* armd cars, 16 81mm and 8 120mm mor.

Navy: 350.
3 patrol craft.

Air Force: 680; 11 combat aircraft.
1 COIN sqn with 6 BAC-167 *Strikemaster*.
1 COIN sqn with 5 SA *Bulldog* armed trainers.
1 lt tpt sqn with 6 DHC-4A *Caribou*.
1 lt tpt sqn with 10 DHC-2 *Beaver*.
Other ac, incl. 2 Piper *Navajo* and 2 Bell 47G hel.
(6 Hunter FGA on order.)

Para-Military Forces: 1,800.

NIGERIA

Population: 60,960,000.
Military service: voluntary.
Total armed forces: 210,000.
Estimated GDP 1973: $7.5 billion.
Defence budget 1974–75: 336 million naira
($548 million).
$1 = 0.613 naira (1974), 0.658 naira (1973).

Army: 200,000.
3 infantry divisions.
3 reconnaissance regiments.
3 artillery regiments.
3 engineer regiments.
Garrison troops.
Saladin and 20 AML-60/90 armd cars; *Ferret* scout cars; *Saracen* APC; 25-pdr, 105mm, and 122mm guns; 40mm AA guns. (*Scorpion* lt tks and *Fox* scout cars on order.)

Reserves: 10,000.

Navy: 5,000.
1 ASW/AA frigate.
2 corvettes.
5 seaward defence boats.
4 patrol craft.
1 landing craft.

Reserves: 2,000.

Air Force: 5,000; 42 combat aircraft.
1 bomber sqn with 6 Il-28.
2 FGA sqns with 21 MiG-15/17.
1 COIN sqn with 15 L-29 *Delfin*.
2 med tpt sqns with 6 C-47, 6 F-27.
1 lt comms sqn with Do-27.
1 SAR hel sqn with 3 *Whirlwind* and 4 Bo-105.
3 training/service sqns with 20 SA *Bulldog*, 5 P-149D, up to 28 Do-27/28A/B, and 4 Piper *Navajo*.

RHODESIA

Population: 6,070,000 (280,000 white population).
Military service: 12 months (European, Asian, and coloured population).
Total armed forces: 4,700.
Estimated GNP 1973: $US 2.2 billion.
Defence budget 1974–75: $R 50 million
($US 87 million).
$US 1 = $R 0.578 (1974), $R 0.672 (1973).

Army: 3,500 Regular; 10,000 Territorial Force.
2 infantry battalions (one has *Ferret* scout cars, a third forming).
2 Special Air Service squadrons.
1 artillery battery.
1 engineer squadron.
20 *Ferret* scout cars; 25-pdr gun/how.
There is an establishment for three brigades, two based on regular infantry battalions, which would be brought up to strength by mobilizing the Territorial Force.

Air Force: 1,200; 42 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 9 *Vampire* FB-9.
1 recce sqn with 12 *Provost* T-52.
1 transport sqn with 4 C-47 and 1 Beech 55 *Baron*.
1 light transport sqn with 7 AL-60F5.
1 helicopter sqn with 8 *Alouette III*.

Reserves: 10,000 Territorial Force.
All European, Asian, and coloured citizens completing conscript service are assigned for parttime training to territorial units, which include active territorial battalions based on the cities and reserve territorial battalions based on country districts.
Army Reserves; eight infantry battalions, one field artillery regiment, and one engineer squadron.
Ground personnel servicing regular Air Force units are reservists or non-white civilians.
Reservists called up 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: 3,080,000.
Military service: voluntary.
Total armed forces: 23,050.

The Ghanaian Air Force fighter squadron is equipped with Italian-built Aermacchi MB-326s, designed in the late 1950s as a jet training aircraft.

Estimated GNP 1972: $290 million.
Defence expenditure 1974: 100 million shillings
($15 million).
$1 = 6.55 Somali shillings (1974), 6.93 Somali shillings (1972).

Army: 20,000.
6 tank battalions.
9 mechanized infantry battalions.
2 commando battalions.
5 field artillery battalions.
5 AA artillery battalions.
About 150 T-34, 70 T-54/55 med tks; 60 BTR-40 and 250 BTR-152 APC; about 100 76mm and 100mm guns; 122mm how; 14.5mm, 37mm, and 100mm AA guns. (Spares are short and not all equipment is serviceable.)

Navy: 300.
2 *SOI* coastal escorts.
4 P-6 and 6 P-4 MTB (ex-Soviet).

Air Force: 2,750; 31 combat aircraft.
1 light bomber sqn with 4 Il-28.
2 fighter sqns with 2 MiG-15, 19 MiG-17, 6 MiG-19.
1 tpt sqn with An-24, An-26.
1 hel sqn with Mi-4, Mi-8.
Other aircraft, incl 3 An-2, 4 C-47, 8 P-148.

Para-Military Forces: 3,500: 500 border guards; 3,000 People's Militia.

SOUTH AFRICA

Population: 24,490,000 (4,000,000 white).
Military service: 9–12 months in Citizen Force.
Total armed forces: 15,700 regular, 31,750 conscripts.
Estimated GNP 1973: $26.9 billion.
Defence expenditure: 1974–75: 500 million rand
($750 million).
$1 = 0.667 rand (1974), 0.672 rand (1973).

Army: 7,000 regular, 27,500 conscripts.
3 inf bdes, each of 1 tk, 1 inf, and 1 arty bn.
100 *Centurion* Mark 5, 20 *Comet* med tks; 1,000 AML-60 and AML-90 and 50 M-3 armd cars; 50 *Ferret* scout cars; 250 *Saracen*, about 100 V-150 *Commando* APC; 25-pdr gun/how, 155mm how; 35mm L-70/40 and 3.7 inch AA guns.
3 batteries of 18 *Cactus (Crotale)* SAM.

Reserves: 60,000 Citizen Force, in 9 territorial commands. Reservists serve 9 days a year for 9 years.

Navy: 3,200 regular, 1,250 conscripts.
3 submarines.
2 destroyers with *Wasp* ASW helicopters.
6 ASW frigates (3 with *Wasp* ASW helicopters).
1 escort minesweeper (training ship).
10 coastal minesweepers.
5 seaward defence boats.
1 fleet replenishment tanker.
7 *Wasp* helicopters (10 more on order).

Reserves: 9,000 trained reserves in Citizen Force (with 2 frigates and 7 minesweepers).

Air Force: 5,500 regular, 3,000 conscripts; about 100 combat aircraft.
1 bbr sqn with 6 *Canberra* B(I) Mk 12, 3 T. Mk 4.
1 lt bomber sqn with 10 *Buccaneer* S.Mk 50.
2 fighter sqns with 32 *Mirage IIIEZ* and 8 *IIIDZ*.
1 fighter/recce sqn with 16 *Mirage IIICZ*, 4 *IIIBZ*, and 4 *IIIRZ*.
2 MR sqns with 7 *Shackleton* MR3, 9 Piaggio P-166S *Albatross* (11 more P-166S on order).
4 tpt sqns with 7 C-130B, 9 Transall C-190Z, 23 C-47, 5 C-54, 1 *Viscount* 781, and 4 HS-125 *Mercurius*.
4 hel sqns: two with 20 *Alouette III* each; one with 20 SA-330 *Puma*; one with 15 SA-321L *Super Frelon* (one flight of 7 *Wasp* naval-assigned).
(1 army-assigned lt ac sqn with Cessna 185A/D and A185E to be replaced by AM-3C.)
Trainers incl *Harvard*; 160 MB-326M *Impala* (some armed in a COIN role); *Vampire* FB.Mk 6, Mk 9, T.Mk 55; TF-86; C-47 and *Alouette II/III*.
(15 MB-326K on order.)

Reserves: 3,000 Active Citizen Force.
8 sqns with 20 *Impala*; 100 *Harvard IIA, III*, T-6G (*Texan*); 20 Cessna 185A/D, A185E.
12 Air Commando sqns (private aircraft).

Para-Military Forces: 75,000 Commandos organized and trained as a Home Guard.

TANZANIA

Population: 14,730,000.
Military service: voluntary.
Total armed forces: 14,600.
Estimated GNP 1973: $1.7 billion.
Defence expenditure 1974–75: 300 million shillings
($42 million).
$1 = 7.16 shillings (1974), 7.02 shillings (1973).

Army: 13,000. (Spares are short and not all equipment is serviceable.)
1 tank battalion.
4 infantry battalions.
20 Chinese T-59 med, 14 T-62 lt tks; BTR-40 and -152 APC; 120mm Chinese mor; 24 ex-Soviet 76mm guns; 8 122mm how; 14.5mm AA guns.

Navy: 600.
6 patrol boats (ex-Chinese *Shanghai I* class).

Air Force: 1,000; 24 combat aircraft.
1 fighter sqn with 12 MiG-19 and 12 MiG-17 (ex-Chinese).
1 transport sqn with 10 DHC-4 and 1 AN-2.
2 AB-206A and 2 Bell 47G hel.
7 Piaggio P-149D trainers.

Para-Military Forces: A police marine unit.

UGANDA

Population: 11,050,000.
Military service: voluntary.
Total armed forces: 21,000.
Estimated GDP 1973: $1.8 billion.
Defence expenditure 1973–74: 350 million shillings
($49 million).
$1 = 7.16 shillings (1974), 7.02 shillings (1973).

Army: 20,000.
2 brigades each of 3 infantry battalions.
1 border guard battalion.
1 mechanized battalion.
2 parachute/commando battalions.
1 artillery regiment.
12 med tanks; 15 *Ferret* scout cars; BTR-152, 36 OT-64B APC; AA guns.

Air Force: 1,000; 29 combat aircraft.
1 fighter sqn with 29 MiG-15 and MiG-17.
10 *Magister* armed trainers.
3 DC-3 tpts; 12 L-29 *Delfin* trainers; 10 Piper lt ac.
1 helicopter sqn with 2 AB-206 and 5 AB-205.

ZAIRE REPUBLIC

Population: 24,680,000.
Military service: voluntary.
Total armed forces: 50,000.
Estimated GNP 1973: $3.1 billion.
Defence expenditure 1974: 52 million zaires
($104 million).
$1 = 0.50 zaires (1974), 0.50 zaires (1973).

Army: 49,000.
1 armoured car regiment.
1 mechanized battalion.
14 infantry battalions.
7 parachute battalions.
7 'Guard' battalions.
The above, together with support units, form 1 parachute division and 7 brigade groups.
100 AML armd cars; M-3 and 30 *Ferret* scout cars (less than half operational).

Coast, River, and Lake Guard: 200.
1 river boat.
1 patrol boat.
6 patrol craft.

Air Force: 800; 33 combat aircraft.
1 fighter wing with 17 MB-326GB, 6 AT-6G, and 10 T-28 armed trainers.
1 tpt wing with 9 C-47, 4 C-54, and 3 C-130.
1 training wing with 8 T-6 and 12 SF-260MC.
1 hel sqn with 20 *Alouette II/III* and 7 SA-330 *Puma*.
(17 *Mirage V*, 3 C-130H on order.)

Para-Military Forces: 12,000; 8 National Guard and 6 Gendarmerie battalions.

ZAMBIA

Population: 4,650,000.
Military service: voluntary.
Total armed forces: 5,800.
Estimated GNP 1973: $2.0 billion.
Defence expenditure 1974: 50 million kwacha
($78 million).
$1 = 0.644 kwacha (1974), 0.641 kwacha (1973).

Army: 5,000.
4 infantry battalions.
1 reconnaissance squadron.
2 artillery batteries.
1 SAM battery.
1 engineer squadron.
1 signals squadron.
Ferret scout cars; 105mm guns; 20mm AA guns; *Rapier* SAM.

Air Force: 800; 18 combat aircraft.
1 COIN sqn with 4 Soko J-1 *Jastreb*.
1 COIN sqn with 8 SM-260MZ.
1 COIN sqn with 6 MB-326GB armed trainers.
2 tpt sqns with 5 DHC-2 and 5 DHC-4A.
8 *Bulldog* trainers; 3 AB-205, 2 AB-47, 1 AB-212 hel.
(6 MB-326GB and 22 AB-205 on order.)

Para-Military Forces: 1,200 Home Guard.

THE MILITARY BALANCE 1974/75

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 build-up of Chinese nuclear force continued slowly but steadily during the year. One nuclear test, of about 1 MT range, took place in June 1974, the first for a year and the sixteenth since tests started in 1964. A substantial expansion of nuclear production facilities is taking place, and the stockpile of nuclear weapons (which probably now stands at two to three hundred, both fisson and fusion) could grow rapidly. A variety of delivery systems, aircraft and missiles, are available. For tactical missions there is the F-9 fighter, and for longer ranges there are some 100 Tu-16 medium bombers with a radius of action of as much as 2,000 miles. MRBM and IRBM have been deployed operationally in at least four locations at soft sites above ground, though some are reported to be in silos or caves. A multi-stage, limited-range ICBM with a range of perhaps 3,500 miles (sufficient to reach Moscow and most parts of Asia) has been produced and may be ready for operational deployment. A small missile force is now thought to be under the control of the Second Artillery, which appears to be the missile arm of the People's Liberation Army (PLA). An ICBM capable of reaching most major targets in the United States is also being developed. Its testing at full range would require impact areas in the Indian or Pacific Oceans, and an instrumentation ship which could be used for monitoring such a test has been built. China has one G-class diesel-powered submarine with ballistic missile launching tubes, but does not appear to have missiles for it; if an SLBM is to be built, this submarine might be used as a test platform. All the present missiles are liquid-fuelled. Work has been going forward on the development of solid fuel missiles, but these are unlikely to be available for deployment before 1975.

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, now becoming available from the growing armament industry. Infantry units account for most of the manpower and 119 of the 156 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 in series production include the Tu-16 medium bomber, the MiG-19, MiG-21, and F-9 fighters (the last Chinese designed); type-59 medium, type-62 light, type-60 amphibious tanks, and APC (the last three also being Chinese designed). R-class medium-range diesel submarines in some numbers, together with a new class of submarines, SSM destroyers, and fast patrol boats are being produced for the navy. A nuclear-powered attack submarine (armed with conventional torpedoes) has been under test for two 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 coastal provinces, in the Yangtse and the Yellow River basins, and in the North-East (Peking and Manchuria). Some shift of forces northward toward the Sino-Soviet frontier occurred in 1969–70, following the border incidents, and it is likely that further re-alignment in the same direction has taken place in the last two years. Despite the Laos peace agreement of February 1974, which required the withdrawal of all foreign troops within 90 days, there was no indication that Chinese construction and engineer troops, numbering 10–20,000, had been withdrawn from the northern regions of Laos.

At the end of December 1973, there was a major reshuffle of the military commanders in eight of the country's eleven military regions, including the capital. Important personalities, some of whom had been in their command for many years, were involved. 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 throughout the country.

No Defence Minister has yet been designated to replace Lin Piao, but a new Air Force commander was recently appointed. The PLA still remains without a Chief-of-Staff.

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 this may no longer be in force. There is a mutual defence agreement with North Korea, dating from 1961, and an agreement to provide free military aid. There is probably a well-defined, though unpublicized, defence commitment to North Vietnam, and certainly a long-standing agreement to give military aid. There are non-aggression pacts with Afghanistan, Burma, and Cambodia (though this last does not apply to the Khmer Republic; China has given military aid to the forces supporting Prince Sihanouk against the government). Chinese military equipment and logistic support has 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: 3,000,000.
GNP and defence expenditure—see box on opposite page.

Strategic Forces:
IRBM: 20–30.
MRBM: about 50.
Aircraft: about 100 Tu-16 medium bombers.

Army: 2,500,000.
7 armoured divisions.
119 infantry divisions.
4 cavalry divisions.
6 airborne divisions (under Air Force).
20 artillery divisions.
41 railway and construction engineer divisions.
Soviet JS-2 hy, T-34 and T-54, Chinese-produced T-59 med, T-60 (PT-76 type) amphibious and T-62 lt tks; APC; 130mm and 152mm guns; SU-76, SU-100, and JSU-122 SP arty; RL up to 140mm; 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 three infantry divisions, three artillery regiments, and, in some cases, three armoured regiments. One 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*): 50 divisions.
East and South-East China (Tsinan, Nanking, and Foochow MR): 25 divisions.
South-Central China (Canton, including Hainan Island, and Wuhan MR): 20 divisions.
Mid-West China (Lanchow MR): 15 divisions.
West and South-West China (Sinkiang, Chengtu, and Kunming 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).

*2–3 divs of border troops in each of these MR.

Chinese armored units use Soviet-built tanks and their own versions of Soviet designs, including this PT-76 amphibious tank.

50 fleet submarines (26 Soviet R-, 21 W-class. Includes older training vessels.)
6 SSM destroyers with *Styx* (more building).
1 ex-Soviet *Gordy*-class destroyer.
10 destroyer escorts (some with SSM).
15 patrol escorts.
20 submarine chasers (Soviet *Kronstadt*-type).
100 *Osa*- and *Komar*-type FPB with *Styx* SSM (more building).
27 minesweepers (20 Soviet T-43 type).
46 landing ships (ex-US).
230 MTB and hydrofoils (less than 100 tons).
315 MGB (*Shanghai-, Swatow-, Whampoa*-types).
225 armed motor junks and motor launches.
180 supply and miscellaneous vessels.

Deployment:
North Sea Fleet: about 150 vessels; deployed from the mouth of the Yalu River to Lienyunkang; major bases at Tsingtao and Lushun.
East Sea Fleet: about 500 vessels; deployed from Lienyunkang to Chaoan Wan; major bases at Shanghai and Chou Shan.
South Sea Fleet: about 200 vessels; deployed from Chaoan Wan to the North Vietnamese frontier; major bases at Huangpu and Chanchiang.

Naval Air Force: 30,000; over 600 shore-based combat aircraft, including about 100 Il-28 torpedo-carrying and some Tu-2 light bombers and some 500 fighters, incl MiG-17 and MiG-19/F-6, and some F-9; Be-6 *Madge* MR aircraft, 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.
At least 50 Tu-16 and a few Tu-4 medium bombers.
At least 200 Il-28 and 100 Tu-2 light bombers.
Some MiG-15, about 1,700 MiG-17, at least 1,300 MiG-19, about 50 MiG-21, and up to 400 F-9 fighters.
About 400 transport aircraft and 300 helicopters, including 200 An-2, Il-14, and Il-18 transports and Mi-4 and 10 SA-321JA *Super Frelon* helicopters. (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 weapons complexes. Some 3,000 naval and Air Force fighters are assigned to the AD 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

China's 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. A paper presented to the Joint Economic Committee of the Congress of the United States by A. G. Ashbrook, Jr, gave a GNP figure for 1971 of $128 billion in 1970 dollars. A recent estimate by W. Klatt, published in *Handbook on the Far East and Australasia*, has placed 1970 National Income, which is less than GNP to the extent of depreciation, at $90 billion. Both this estimate and the American paper concur on a growth rate of approximately 4–5 per cent. The application of this rate to the American figures would produce around $140 billion for 1973; in the British case it would give about $105 billion.

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 suggests a range of $4–$5 billion, whilst British estimates have been in the region of $10–$12 billion.

public security force, there is a civilian militia with an effective element of probably not more than 5 million, organized into divisions and regiments; some of its urban elements have some heavy AA weapons. There are civilian production and construction corps in a number of Military Regions, including those adjoining the northern frontier.

China's F-9 fighter is a copy of the Soviet MiG-21 (shown here), updated from later models shipped by the USSR to North Vietnam through China.

THE MILITARY BALANCE 1974/75

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, the Khmer Republic (Cambodia), Indonesia, the Republic of Korea, Laos, Malaysia, the Philippines, Thailand, and South Vietnam. She sells military equipment to many countries, notably Australia, Taiwan, and Japan. For grant military assistance purposes, the Khmer Republic, the Republic of Korea, and Taiwan are considered forward defence areas. Laos, the Khmer Republic, Thailand, and South Vietnam receive 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 People's 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.

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. The states designated by the protocol to the Treaty were Cambodia, Laos, and South Vietnam. Laos and Cambodia renounced SEATO protection in 1962 and 1964 respectively. 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.

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. New Zealand troops are to remain, as are Australian air forces in Malaysia (part of the integrated air defence system). The future of the British contingent is now under review by Britain, and the ANZUK force arrangements are being de-activated.

AFGHANISTAN

Population: 18,710,000.
Military service: 2 years.
Total armed forces: 86,500.
Estimated GNP 1972: $1.6 billion.
Defence expenditure 1973–74: 2,022 million afghanis ($45 million).
$1 = 45.0 afghanis (1973), 45.0 afghanis (1972).

Army: 78,500.
3 armoured divisions (under strength).
6 infantry divisions.
200 T-34, 250 T-54 med tks; PT-76 lt tks; 450 lt and med guns; *Snapper* ATGW.

Reserves: 150,000.

Air Force: 8,000; 150 combat aircraft.
3 light bomber sqns with 20 Il-28, 25 MiG-17.
2 fighter-bomber sqns with 20 Su-7.
4 fighter-bomber sqns with 55 MiG-15/17.
3 interceptor sqns with 30 MiG-21.
2 transport sqns with Yak-12, An-2, Il-14.
1 helicopter sqn with Mi-1 and Mi-4.
1 AD division with 37mm, 85mm, and 100mm guns.
3 SAM battalions with SA-2.

Reserves: 12,000.

Para-Military Forces: 14,000 Gendarmerie.

AUSTRALIA

Population: 13,000,000.
Military service: voluntary.
Total armed forces: 68,851.
Estimated GNP 1973: $US 57.2 billion.
Defence budget 1973–74: $A 1,346 million ($US 1,907 million).
$US 1 = $A 0.673 (1974), $A 0.706 (1973).

Army: 31,185.
1 infantry division HQ.
1 tank regiment.
1 cavalry regiment.
6 infantry battalions.
1 Special Air Service (SAS) regiment.
1 medium artillery regiment.
2 field artillery regiments.
1 light anti-aircraft regiment.
1 aviation regiment.
6 signals regiments.
3 field engineer regiments.
1 army survey regiment.
1 logistic support force.
143 *Centurion* med tks; 265 *Ferret* scout cars; 738 M-113 APC; 254 105mm how, including M-56 105mm pack how; 51 *Sioux* and Bell 206B-1 hel; 25 light aircraft; 52 watercraft.

Deployment: Singapore: logistic unit.

Reserves: 20,200. The Citizen Military Force of 19,700 is intended to form 24 infantry battalions with supporting arms and services; Emergency Reserve 500.

Navy: 16,115.
4 *Oberon*-class submarines.

The Australian Air Force has one squadron of F-111Cs. Like SAC's FB-111 bombers, the C model has a longer wing than TAC's F-111s.

1 aircraft carrier.
3 ASW destroyers with *Tartar* SAM, *Ikara* ASW msls.
6 destroyer escorts with *Ikara*.
4 coastal minesweepers.
2 minehunters.
19 patrol boats.
2 fleet support ships.
7 landing craft.

Fleet Air Arm:
1 fighter-bomber sqn with A-4G *Skyhawk*.
2 ASW sqns with S-2E *Tracker* and 2 HS-748.
2 ASW helicopter sqns with *Wessex* 31B.
1 helicopter sqn with *Iroquois* and *Kiowa*.
1 trg sqn with Aermacchi MB-326H and 2 TA-4G.
(10 *Sea King* ASW hel for delivery in 1975.)

Reserves: 6,294. Navy Citizen Military Force 5,483; Emergency Reserve 811.

Air Force: 21,551; 151 combat aircraft.
1 bomber sqn with 8 *Canberra* B-20.
1 FB sqn with 18 F-111C (6 in store).
3 interceptor/FGA sqns with 48 *Mirage IIIO* (52 in store).
1 MR sqn with 9 P-3B *Orion* and 1 MR sqn with 10 SP-2H *Neptune*.
80 MB-326 and 41 CA-25 *Winjeel* trainers (some in store).
2 tpt sqns with 24 C-130, 1 tpt sqn with 2 BAC-111, 10 HS-748, and 3 *Mystère* 20 and 2 tpt sqns with 24 *Caribou*.
2 helicopter sqns with *Iroquois*.
(12 CH-47 *Chinook*, 12 UH-1H on order.)

Deployment: 2 sqns of *Mirage IIIO* in Malaysia/Singapore.

Reserves: 1,215: Citizen Air Force 570; Emergency Reserve 645.

BANGLADESH

Population: 65,520,000.
Military service: voluntary.
Total regular forces: 26,500.
Estimated GNP 1972: $5.3 billion.
Defence expenditure 1973–74: taka 470 million
($US 65 million).
$1 = taka 7.24 (1973), taka 7.30 (1972).

Army: 25,000.
5 inf bdes with 17 inf bns, 1 tk regt, 3 arty regts, 3 engr bns, and supporting arms.
Some M-24 lt tks (only a few operational); 105mm guns.

Navy: 500.
3 patrol boats.
1 seaward defence boat.

Air Force: 1,000; 18 combat aircraft.
1 fighter sqn with 8 MiG-21.
10 F-86 *Sabre*.
1 DHC-4 *Caribou*, DC-6, and 2 F-27 tpts.
2 MiG-21UTI, 1 T-33A trainers.
1 *Alouette III* and 2 *Wessex* hel.

Para-Military Forces: 16,000 National Defence Force; 13,000 Bangladesh Rifles.

BURMA

Population: 30,160,000.
Military service: voluntary.
Total armed forces: 159,000.
Estimated GNP 1973: $2.6 billion.
Defence expenditure 1972–73: 545 million kyat
($101 million).
$1 = 4.70 kyat (1973), 5.40 kyat (1972).

Army: 145,000.
9 regional commands comprising approximately 80 infantry battalions.
The army as a whole consists of 2 armoured, 112 infantry, 4 artillery, and 1 engineer battalions and is organized chiefly for counter-insurgency and internal security duties.
Comet lt tks; Humber armd cars; *Ferret* scout cars; 25-pdr guns; 75mm, 105mm how; 120mm mor; 57mm ATk guns.

Navy: 7,000 (including 800 marines).
1 frigate.
1 escort minesweeper.
3 coastal escorts.
5 motor torpedo boats (less than 100 tons).
31 river and patrol gunboats.
7 motor gunboats (less than 100 tons).
9 transports.

Air Force: 7,000; 11 combat aircraft.
2 COIN sqns with 10 AT-33 and 1 *Vampire*.
16 C-47, 8 *Otter*, 1 Beech 18, and 5 C-45 tpts.
5 *Sioux*, 7 *Huskie*, 12 *Alouette III*, and 9 Boeing-Vertol 44A helicopters.

Para-Military Forces: 35,000 People's Police Force.

CHINA: REPUBLIC OF (TAIWAN)

Population: 16,000,000.
Military service: 2 years.
Total armed forces: 491,000.
Estimated GNP 1973: $9.4 billion.
Defence expenditure 1974–75: 29.4 billion New Taiwan dollars
($774 million).
$US 1 = $NT 38.0 (1974), $NT 38.0 (1973).

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 *HAWK*.
2 SAM bns with *Nike/Hercules*.
M-47 and M-48 med tks; 625 M-41 lt tks; 200 M-18 tk destroyers; LVT-4 and 155 M-113 APC; 350 75mm pack how; 625 105mm, 300 155mm guns and how; 225 105mm SP how, 90 240mm how; 115 40mm AA guns; *HAWK*, *Nike/Hercules* SAM; 50 UH-1H, 7 H-34, 2 KH-4 hel.

Deployment: Quemoy: 60,000; Matsu: 20,000.

Reserves: 750,000.

Navy: 36,000.
2 submarines (training).
18 destroyers.
16 escorts (4 coastal, 12 patrol).
6 torpedo boats.
13 coastal minesweepers.
9 minesweeping boats.
21 tank landing ships.
4 medium landing ships.
22 landing craft.

Reserves: 60,000.

Marines: 35,000.
2 divisions.

Reserves: 65,000.

Air Force: 80,000; 206 combat aircraft.
6 fighter-bomber sqns with 90 F-100A/D.
2 fighter sqns with 35 F-5A/B.
3 interceptor sqns with 63 F-104G.
1 recce sqn with 8 RF-104G.
1 ASW sqn with 10 S-2A.
1 SAR sqn with 10 UH-1H and 10 HU-16A.
40 C-46, 30 C-47, 35 C-119, and 10 C-123 tpts.
125 T-28, T-33, F-5B, F-100, F-104B, and PL-1 trainers.

Reserves: 130,000.

Para-Military Forces: 175,000 militia.

India developed and produced the HF-24 Marut fighter-bomber, a Mach 1.02 aircraft that was used without loss in the 1971 war with Pakistan.

INDIA

Population: 588,560,000.
Military service: voluntary.
Total armed forces: 956,000.
Estimated GNP 1973: $78.6 billion.
Defence budget 1974–75: 19,150 million rupees
($2,443 million).
$1 = 7.84 rupees (1974), 7.25 rupees (1973).

Army: 826,000.
2 armoured divisions.

14 infantry divisions.
10 mountain divisions.
5 independent armoured brigades.
7 independent infantry brigades.
1 parachute brigade.
About 20 AA artillery units.
190 *Centurion* Mk 5/7, 1,000 T-54 and T-55, and some 500 *Vijayanta* med tks; 140 PT-76 and 100 AMX-13 lt tks; OT-62, OT-64 (2A), and Mk 2/4A APC; about 3,000 guns, mostly towed and SP 25-pdr, but incl Model 56 105mm pack how, *Abbott* 105mm SP, and about 350 100mm and 350 130mm guns; 500 120mm mor; RL; SS-11 and *Entac* ATGW; AA guns; 40 *Tigercat* SAM; 60 *Krishak*, 15 *Auster* AOP-9 lt ac.

Reserves: 180,000. Territorial Army 50,000.

Navy: 30,000 (including naval air).
1 16,000-ton aircraft carrier (ex-British).
6 submarines (ex-Soviet F-class).
2 cruisers.
2 destroyers.
22 frigates (3 GP with *Seacat* SAM, 3 AA, 7 ASW; 9 ex-Soviet *Petya*-class; 3 more GP building; 1 more *Petya*-class on order).
8 *Osa*-class FPB with *Styx* SSM.
9 patrol boats (5 ex-Soviet *Poluchat*-class).
9 seaward defence boats (6 less than 100 tons).
8 minesweepers (4 inshore).
3 landing ships.
3 landing craft (2 ex-Soviet *Polocny*-class).

Naval Air Force: 1,500.
33 *Sea Hawk* attack, *10 Alizé* MR ac; 6 *Sea King*, 14 *Alouette III* hel (6 *Sea King* on order).
(10 *Sea Hawk*, 5 *Alizé*, and 2 *Alouette* can be carried in the aircraft carrier.)

Air Force: 100,000; 731 combat aircraft.
3 light bomber sqns with 60 *Canberra*.
6 FGA sqns with 77 Su-7BKL.
3 fighter-bomber sqns with 50 HF-24 *Marut* 1A.
6 fighter-bomber sqns with 130 *Hunter* F-56.
9 interceptor sqns with 220 MiG-21FL/M with *Atoll* AAM.
8 interceptor sqns with 180 *Gnat* F-1.
1 recce sqn with 8 *Canberra* PR-57.
1 MR sqn with 6 L-1049 *Super Constellation*.
11 tpt sqns with 45 HS-748, 50 C-47, 52 C-119G, 18 Il-14, 34 An-12, 30 *Otter*, and 16 *Caribou*.
About 12 sqns with 80 Mi-4, 80 *Alouette III*, and 30 Mi-8 and *Sioux* hel.
22 HJT-16 *Kirin* trainers.
20 SA-2 SAM sites.
(17 HS-748 on order.)

Para-Military Forces: About 100,000, in Border Security Force (not on Defence budget).

INDONESIA

Population: 126,780,000.
Military service: selective.
Total armed forces: 270,000.
Estimated GNP 1973: $14.3 billion.
Defence expenditure 1973–74: 188 billion rupiahs
($453 million).
$1 = 415 rupiahs (1974), 415 rupiahs (1973).

Army: 200,000. (About one-third of the army is engaged in civil and administrative duties.)
1 cavalry brigade.
15 infantry brigades.
2 airborne infantry brigades.
8 armoured battalions.
1 paracommando regiment.
6 artillery regiments.
4 air defence regiments.
Six of the above brigades are in the *Kostrad* (Strategic Reserve Command).
Stuart, AMX-13, and PT-76 lt tks; *Saladin* armd cars; *Ferret* scout cars; *Saracen* and BTR-40 APC; artillery includes 76mm, 105mm, and 25-pdr; 20mm, 40mm, and Soviet 57mm AA guns and associated radar; *Alouette III* hel.

Deployment: Egypt (UNEF), 1 battalion, 551 men.

Navy: 40,000 (incl naval air and 5,000 Marines). (Only a very small part of the navy is operational.)
5 submarines (ex-Soviet W-class).
2 destroyers (ex-Soviet *Skory*-class).
7 frigates (ex-Soviet *Riga*-class).
18 coastal escorts (14 ex-Soviet, 4 ex-US).
9 *Komar*-class patrol boats with *Styx* SSM.
30 patrol craft.
5 fleet minesweepers (ex-Soviet T-43 class).
20 coastal minesweepers (6 ex-US).
17 MGB (ex-Soviet BK-class).
35 seaward defence boats (less than 100 tons).
4 HQ/support ships.
10 amphibious warfare vessels.
2 Marine brigades.

Naval Air: 1,000.
6 C-47; 3 *Alouette III* and 4 Bell 47G hel, (4 *Nomad* MR ac on order).

Air Force: 30,000; 106 combat aircraft. (Most of the Soviet-supplied combat aircraft have not been used for some years. Few of these aircraft can be regarded as operational.)
22 Tu-16 and 10 Il-28 bombers.
1 light bomber sqn with 2 B-26 *Invader*.
1 FGA sqn with 11 F-51D *Mustang*.
1 FGA sqn with 17 CA-27 *Avon-Sabre* and 17 T-33.
4 MiG-15, 8 MiG-17, and 15 MiG-21 interceptors.
70 tpts, incl 4 Il-14, 8 C-130B, 37 C-47 and *Skyvan*.
2 hel sqns with 12 UH-34D, 5 Bell 204B, and 7 others.
Trainers include L-29, T-34, and T-41.

Para-Military Forces: A police Mobile Brigade of about 12,000; about 100,000 Militia.

JAPAN

Population: 109,330,000.
Military service: voluntary.
Total armed forces: 233,000.
Estimated GNP 1973: $439.4 billion.
Defence budget 1974–75: 1,093 billion yen ($3,835 million).
$1 = 285 yen (1974), 265 yen (1973).

Army: 154,000.
1 mechanized division.
12 infantry divisions (7,000–9,000 men each).
1 airborne brigade.
1 mixed brigade.
1 artillery brigade.
1 signal and 5 engineer brigades.
1 helicopter brigade.
6 SAM groups (each of 4 btys) with 140 *HAWK*.
500 Type 61 med tks; 40 M-24 and 150 M-41 lt tks; 430 Type 60 APC; 380 M-2 105mm and 240 M-1 155mm how; M-2 155mm guns; 30 M-52 105mm and 10

M-44 155mm SP how; 203mm how; Type 30 SSM; Type 60 twin 106mm SP RCL; Type 64 ATGW; 35mm AA guns; 120 L-19, LM-1, LR-1 lt ac; 250 UH-1B, KV-107, OH-6J, Hughes TH-55J, and H-13 hel.

Reserves: 39,000.

Navy: 38,100.
14 submarines (1 more to be completed 1975).
27 destroyers (1 with 3 hel and 1 *ASROC* [1 to be delivered 1974], 1 with *Tartar* SAM and 1 *ASROC*, 4 with 1 hel and 1 *ASROC*, 7 with 1 *ASROC*, or 1 hel [1 more to be delivered 1974], 14 GP).
16 destroyer escorts/frigates (11 ASW, 5 GP).
20 submarine chasers.
43 MCM vessels (1 command, 1 support, 3 minelayer, 32 coastal, 6 inshore).
5 MTB (1 less than 100 tons).
4 landing ships (1 medium).
6 landing craft.
42 small landing craft (less than 100 tons).

Naval Air: 110 combat aircraft.
8 MR sqns with P2V-7, P2-J, S2F-1, and PS-1.
4 sqns with 60 hel incl S-61A, KV-107A, HSS-1N, and HSS-2.

Reserves: 600.

Air Force: 40,900; 385 combat aircraft.
4 FGA sqns with 120 F-86F.
10 interceptor sqns with 130 F-104J, 40 F-4E, and 80 F-86F.
1 recce sqn with 15 RF-4E.
2 transport sqns with 20 C-46 and 10 YS-11.
350 T-1, T-33A, T-34A, and F-104DJ trainers (T-2 on order).
1 SAR wing with 16 V-107 and 7 S-62 hel.
5 SAM groups with *Nike-J*.
A Base Air Defence Ground Environment with 28 control and warning units.

THE KHMER REPUBLIC (CAMBODIA)

Population: 7,380,000.
Military service: 18 months; reserve to age 35.
Total armed forces: 220,500.
Insurgent Forces: There are also about 50,000 insurgents in Cambodia, in a number of separate groups, some organized into regiments and battalions. Equipment consists of Soviet/Chinese small arms, some 107mm and 122mm RL, and captured American 105mm how.
Estimated GNP 1971: $1.5 billion.

Mitsubishi is building a total of 128 McDonnell Douglas F-4EJs for the Japanese Air Force. The first ten were assembled in Japan. The others are being produced entirely by the Japanese.

Defence expenditure 1973: 17,800 million riels
($98 million).
$1 = 182 riels (1973), 55.5 riels (1971).

Army: 200,000.
5 light infantry divisions.
1 armoured brigade.
10 infantry brigades.
1 artillery brigade.
1 parachute brigade.
M-3 scout cars; 175 M-113, BTR-40, BTR-152 APC; 200 M-109 105mm SP how, 105mm how, and 20 155mm how; AA guns.

Navy: 11,000 (including 4,000 naval infantry).
2 coastal escort vessels.
20 patrol craft.
60 riverine craft.
30 landing craft.
8 battalions naval infantry.

Air Force: 9,500; 64 combat aircraft.
45 T-28 *Trojan* ground-attack aircraft.
13 AU-24 *Stallion* COIN aircraft.
6 AC-47 gunships.
10 Bell UH-1H gunship hel.
7 C-123K, 1 C-54, 20 C-47, and 8 U-1A *Otter* tpt ac.
13 T-41 trainers.
45 O-1 light aircraft.
30 UH-1H and 6 *Alouette II/III* helicopters.

Para-Military Forces: 150,000. 125 local defence battalions, 250 territorial companies (village security).

KOREA: DEMOCRATIC PEOPLE'S REPUBLIC (NORTH)

Population: 15,510,000.
Military service: Army 5 years, Navy and Air Force 3–4 years.
Total armed forces: 467,000.
Estimated GNP 1972: $3.5 billion.
Defence expenditure 1974: 1,578 million won
($770 million).
$1 = 2.05 won (1974), 2.05 won (1972).

Army: 410,000.
1 motorized division.
22 infantry divisions.
3 independent infantry brigades.
7 independent armoured regiments.
20 SAM battalions with 180 SA-2.
400 T-34, 500 T-54/55 and T-59 med tks; 80 PT-76 and 50 T-62 lt tks; 200 BA-64, BTR-40, -60, and BTR-152 APC; 200 SU-76 and SU-100 SP guns; 2,600 guns up to 152mm; 1,800 RL and 2,000 mor; 12 *FROG*-5/7 SSM; 2,500 AA guns, incl ZSU-57; SA-2 SAM.

Reserves: 250,000.

Navy: 17,000.
4 submarines (ex-Soviet W-class).
10 *Komar*- and 8 *Osa*-class FPB with *Styx* SSM.
16 MGB (12 *Shanghai*-, 4 *Swatow*-class).
44 light MGB.
80 torpedo boats (40 P-4, 10 P-6 class ex-Soviet).

Air Force: 40,000; 598 combat aircraft.
70 Il-28 light bombers.
28 Su-7 fighter-bombers.
300 MiG-15 and MiG-17 fighter-bombers.
130 MiG-21 and some 70 MiG-19 interceptors.
About 120 An-2 tpts.
30 Mi-4 helicopters.
70 Yak-18 and MiG-15 trainers.

Reserves: 40,000.

Para-Military Forces: 50,000 security forces and border guards; a civilian militia of 1,260,000 with small arms and some AA artillery.

KOREA: REPUBLIC OF (SOUTH)

Population: 33,740,000.
Military service: Army and Marines 2½ years, Navy and Air Force 3 years.
Total armed forces: 625,000.
Estimated GNP 1973: $12.6 billion.
Defence expenditure 1974: 221.6 billion won
($558 million).
$1 = 397 won (1974), 388 won (1973).

Army: 560,000.
23 infantry divisions.
2 armoured brigades.
40 artillery battalions.
1 SSM battalion with *Honest John.*
2 SAM bns with *HAWK* and *Nike/Hercules.*
1,000 M-4, M-47, M-48, and M-60 med tks; 400 M-113 and M-577 APC; 2,000 guns up to 203mm; *Honest John* SSM; *HAWK* and *Nike/Hercules* SAM.

Reserves: 1,000,000.

Navy: 20,000.
6 destroyers.
3 destroyer escorts.
15 coastal escorts.
19 patrol boats.
8 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; 210 combat aircraft.
2 fighter-bomber sqns with 30 F-4D.
5 fighter-bomber sqns with 100 F-86F.
4 fighter-bomber sqns with 70 F-5A.
1 recce sqn with 10 RF-5A.
4 tpt sqns with 40 C-46, C-54, C-123, and UH-1N.
15 hel, incl 6 UH-19, 7 UH-1D/N.

Reserves: 35,000.

Para-Military Forces: A local defence militia, Homeland Defence Reserve Force, 2,000,000.

LAOS

Population: 3,260,000.
Estimated GNP 1972: $211 million.
$1 = 600 kip (1974), 600 kip (1973).

1. Royal Lao Forces
Military service: 18 months.
Total strength: 62,800.
Defence expenditure 1974–75: 16.0 billion kip
($27 million).

Army: 60,000.
48 infantry battalions.
4 parachute battalions.
30 irregular battalions.
6 artillery battalions.
4 M-24 and 6 PT-76 lt tks; 29 M-706 scout cars; M-113 APC; 85mm guns and 75mm, 105mm, and 155mm how; mor.

Navy: about 500.
4 river squadrons consisting of:
20 patrol craft; 16 landing craft/transports (all under 100 tons, about half are operational).

Air Force: 2,300; 81 combat aircraft.
71 T-28A/D light attack aircraft.
10 AC-47 gunships.
Tpts incl 24 C-47, 1 *Aero Commander,* 5 Cessna 185.
5 T-41D trainers.
About 28 UH-34D hel.

2. Pathet-Lao Forces
Total strength about 35,000 men (incl dissident neutralists).
PT-76 lt tks; BTR-40 armd cars; 105mm how.

MALAYSIA

Population: 17,370,000.
Military service: voluntary.
Total armed forces: 66,200.
Estimated GNP 1973: $US 6.7 billion.
Defence budget 1974: $M 746.1 million
($US 311 million).
$US 1 = $M 2.40 (1974), $M 2.37 (1973).

Army: 56,100.
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 VTT/M-3 APC; 25-pdr and 5.5 in. guns; 60 105mm how; 35 40mm AA guns.

Reserves: about 26,000.

Navy: 4,800.
1 ASW frigate with *Seacat* SAM.
1 training frigate.
6 coastal minesweepers.
8 FPB (4 with SS-11/12 and 4 with *Exocet* SSM).
24 patrol craft (less than 100 tons).
1 landing ship.

Reserves: 444.

Air Force: 5,300; 36 combat aircraft.
2 fighter-bomber sqns with 16 CA-27 *Sabre.*
2 COIN sqns with 20 CL-41G *Tebuan.*
3 transport and 1 liaison sqns with 16 DHC-4A, 8 *Herald* 401, 5 *Dove,* 2 *Heron,* and 2 HS-125.
4 hel sqns with 15 S-61A and 25 *Alouette III.*
1 training sqn with 14 SA *Bulldog* 102.

(14 F-5E, 2 F-5B, 16 SF-260, and 14 DHC-4 on order. 2 F-28-100 tpts to be delivered early 1975.)

Para-Military Forces: Police Field Force of 13,000, with 17 bns and 40 patrol boats.

MONGOLIA

Population: 1,400,000.
Military service: 2 years.
Total armed forces: 29,000.
Estimated GNP 1973: $2.7 billion.
Defence expenditure 1974: 234 million tugrik
($70 million).
$1 = 3.32 tugrik (1974), 3.32 tugrik (1973).

Army: 28,000.
2 infantry brigades.
30 T-34 and 100 T-54/55 med tks; 10 SU-100 SP guns; 40 BTR-60 and 50 BTR-152 APC; 100mm and 130mm guns; 152mm gun/how; *Snapper* ATGW; 37mm and 57mm AA guns.

Reserves: 30,000.

Air Force: 1,000 men; no combat aircraft.
30 An-2, Il-14, and 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: 11,890,000.
Military service: voluntary.
Total armed forces: 20,500.
Estimated GNP 1972: $1.0 billion.
Defence expenditure 1973–74: 83.2 million Nepalese rupees
($8 million).
$1 = 10.6 rupees (1973), 10.1 rupees (1972).

Army: 20,000.
5 infantry brigades (1 Palace Guard).
1 parachute battalion.
1 artillery regiment.
4 3.7 in. pack how; 4 4.2 in. mor, 18 120mm mor; 2 40mm AA guns.

Deployment: Egypt (UNEF): 1 battalion, 571 men.

Air Force: 500; no combat aircraft.
2 *Skyvan* 3M, 1 DC-3.
1 *Alouette III* hel.

NEW ZEALAND

Population: 3,026,900.
Military service: voluntary, supplemented by Territorial service of 12 weeks for the Army.
Total armed forces: 12,630.
Estimated GNP 1973: $US 10.7 billion.
Defence budget 1974–75: $NZ 159 million ($US 231 million).
$US 1 = $NZ 0.688 (1974), $NZ 0.754 (1973).

Army: 5,553.
1 infantry battalion.
1 artillery battery.
Regular troops also form the nucleus of a combat brigade group, a logistic group, and a reserve brigade group. These units would be completed by the mobilization of Territorials.
10 M-41 lt tks; 8 *Ferret* scout cars; 59 M-113 APC; 16 25-pdr, 10 5.5 in. guns; 28 105mm how.

Deployment: Singapore: 1 inf bn (less 1 coy).

Reserves: 2,664 Regular, 3,018 Territorial.

Navy: 2,845.
4 frigates with *Seacat* SAM (2 with *Wasp* hel).
2 escort minesweepers.
1 survey ship.
1 research ship.

New Zealand's Air Force has a marine reconnaissance squadron flying Lockheed P-3B Orion antisubmarine patrol aircraft.

14 patrol craft (11 less than 100 tons, 5 on order).

Reserves: 2,765 Regular, 273 Territorial.

Air Force: 4,232; 29 combat aircraft.
1 FB sqn with 10 A-4K *Skyhawk*.
1 FB sqn with 10 BAC 167 and 4 TA-4K.
1 MR sqn with 5 P-3B *Orion*.
4 med tpt sqns with 5 C-130H, 9 Bristol *Freighter*, 6 *Dakota*, and 2 *Devon*.
13 UH-1D/H *Iroquois* and 12 OH-13H *Sioux* hel.
19 *Harvard*, 14 *Devon*, 4 *Airtourer*, 4 *Sioux* trainers.
(6 BAC-167, 13 CT-4 on order.)

Deployment: Singapore: 1 transport squadron (2 Bristol *Freighter* tpts and 4 *Iroquois* hel).

Reserves: 1,291 Regular, 142 Territorial.

PAKISTAN

Population: 58,760,000.
Military service: 2 years selective.
Total armed forces: 392,000.
Estimated GNP 1973: $8.6 billion.
Defence budget 1974–75: 5,580 million rupees
($575 million).
$1 = 9.70 rupees (1974), 9.77 rupees (1973).

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; 140 M-24, 50 M-41, and 20 PT-76 lt tks; 350 M-113 APC; about 900 25-pounder, 100mm, 105mm, 122mm, and 155mm how and 130mm guns; 120mm mor; *Cobra* ATGW; 23mm and 57mm AA guns; Cessna 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).
1 light cruiser/training ship.
4 destroyers.
2 frigates (2 more on order).
7 coastal minesweepers.
9 patrol boats (6 Chinese *Shanghai*-class).
2 UH-19 SAR hel (6 *Sea King* on order).

Reserves: 5,000.

Air Force: 17,000; 283 combat aircraft.
1 light bomber sqn with 10 B-57B.
2 fighter-interceptor sqns with 21 *Mirage IIIEP*.
1 fighter-bomber sqn with 28 *Mirage V*.
5 fighter-bomber/interceptor sqns with 75 F-86.
7 FGA sqns with 140 MiG-19/F6.
1 recce sqn with 4 RT-33A, 2 RB-57, and 3 *Mirage IIIRP*.
Transports include 6 C-130B, 1 *Falcon* 20, and 1 F-27.
6 HH-43B, *Alouette III*, and 2 UH-19 hel.

Reserves: 8,000.

Para-Military Forces: 40,000: Civil Armed Forces, 30,000; National Guard, about 10,000.

PHILIPPINES

Population: 41,420,000.
Military service: selective.
Total armed forces: 55,000.
Estimated GNP 1973: $10.6 billion.
Defence expenditure 1973–74: 925 million pesos
($136 million).
$1 = 6.75 pesos (1974), 6.79 pesos (1973).

Army: 35,000.
2 light infantry divisions.

3 independent infantry brigades.
1 artillery group.
10 engineer construction battalions.
8 M-41 lt tks; 20 M-113 APC; 60 105mm and 5 155mm how.

Navy: 11,000 (incl marines and naval engineers).
1 destroyer escort.
9 patrol gunboats.
40 patrol craft.
4 hydrofoil patrol vessels.
4 minesweepers.
11 landing ships.
3 marine battalion landing teams.

Air Force: 9,000; 36 combat aircraft.
1 FGA sqn with 16 F-5A/B.
2 fighter sqns with 20 F-86F.
5 tpt sqns with 24 C-47, 8 F-27, 4 C-130, and 15 C-123K.
Trainers incl 12 T-28 and 10 T-33.
25 UH-1D, 2 MS-62A, and 2 H-34 hel.
(16 SF-260W *Warrior* COIN ac on order.)

Reserves: 218,500.

Para-Military Forces: 34,900 Philippine Constabulary, organized in 10 bns.

SINGAPORE

Population: 2,230,000.
Military service: 24–36 months.
Total armed forces: 21,700.
Estimated GDP 1973: $US 3.4 billion.
Defence budget 1973–74: $S 554 million ($US 235 million).
$US 1 = $S 2.46 (1974), $S 2.36 (1973).

Army: 19,000.
1 armoured brigade (1 tk bn, 2 mech bns).
3 infantry brigades, incl 9 infantry, 3 artillery, 3 engineer, and 1 signals bns.
75 AMX-13 tks; V-200 *Commando* APC; 25-pdr guns; 32 106mm RCL; 120mm mor.

Reserves: 30,000; 2 reserve brigades.

Navy: 1,100.
1 seaward defence boat (ex-British *Ford*-type).
9 fast patrol boats (6 *Jaguar*-class fitting with *Gabriel* SSM).
1 patrol boat.
1 landing ship.
4 landing craft.

Air Force: 1,600; 65 combat aircraft.
2 FGA/recce squadrons with 20 *Hunter*.
1 FGA sqn with 16 A-4S *Skyhawk* forming (24 more A-4 on order).
1 COIN sqn with 15 BAC-167 and 14 SF-260M.
2 tpt/liaison sqns, 1 with 8 Cessna 170 and 2 *Airtourer*, 1 with 6 *Skyvan* SAR ac.
1 helicopter SAR sqn with 8 *Alouette III*.
Trainers include *Hunter*, 6 WA-7, 4 *Airtourer*, and 16 SF-260MS.
28 *Bloodhound* SAM (*Rapier* on order).

Para-Military Forces: 2 police companies; 9,000 People's Defence Force.

SRI LANKA (CEYLON)

Population: 13,640,000.
Military service: voluntary.
Total armed forces: 13,600.
Estimated GNP 1973: $2.4 billion.
Defence budget 1974: 128 million rupees ($20 million).
$1 = 6.52 rupees (1974), 6.40 rupees (1973).

Army: 8,900.
2 brigades, each of 3 battalions.
1 reconnaissance regiment.
1 artillery regiment.
6 *Saladin* armed cars; 12 *Ferret* scout cars; 10 BTR-152 APC; 76mm pack how; 25-pdr and 105mm guns.

Reserves: 12,000.

Navy: 2,400.
1 frigate (ex-Canadian *River*-class).
5 fast gunboats (ex-Chinese *Shanghai*-class).
21 small patrol craft.

Air Force: 2,300; 12 combat aircraft.
1 FGA sqn with 5 MiG-17, 1 MiG-15UTI, and 6 *Jet Provost* Mk 51.
1 tpt sqn with 2 Riley, 2 *Heron*, 1 *Dove*, 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 with 7 *JetRanger*, 2 KA-26, and 6 Bell 47-G2 gunships.

Reserves: 1,100; 4 sqns Air Force Regt, 1 sqn Airfield Construction Regt.

Para-Military Forces: 16,300.

THAILAND

Population: 38,570,000.
Military service: 2 years.
Total armed forces: 195,500.
Estimated GNP 1973: $9.2 billion.
Defence budget 1974–75: 7.4 billion baht ($365 million).
$1 = 20.3 baht (1974), 20.5 baht (1973).

Army: 130,000.
5 infantry divisions (including 4 tank battalions).
2 independent regimental combat teams.
20 M-24 and 175 M-41 lt tks; about 200 M-113 APC; 130 105mm and 12 155mm how; 3 *JetRanger*, 77 UH-1H, 4 CH-47, and 17 OH-13 hel.

Reserves: 200,000.

Navy: 23,500 (including 9,000 marines).
7 frigates (1 with *Seacat* SAM, 1 on order).
14 patrol vessels.
1 escort minesweeper.
4 coastal minesweepers.
2 coastal minelayers.
24 gunboats.
38 patrol boats.
7 landing ships (3 med, 1 support).
8 landing craft.
1 MR sqn with 10 S-2F, 2 HU-16B, and 3 C-47.

Air Force: 42,000; 105 combat aircraft.
1 fighter-bomber sqn with 11 F-5A.
10 COIN sqns with 30 AT-28D, 19 AT-6, 16 OV-10, 11 AU-23A *Peacemaker*, and 16 A-37.
2 RT-33A reconnaissance aircraft.
3 tpt sqns with 25 C-47 and 21 C-123B.
3 hel sqns with 30 CH-34C and 22 UH-1H.
4 battalions of airfield defence troops.
(30 A-4B, 30 F-5E, 17 A-1, 22 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: 23,070,000.
Military service: 2 years minimum.
Total armed forces: 583,000.
Estimated GNP 1972: $1.8 billion.
Estimated defence expenditure 1970: 2,150 million dong ($584 million).
$1 = 3.60 dong (1972), 3.68 dong (1970).

Army: 570,000.
18 infantry divisions (inf divs normally total about 10,000 men, incl 3 inf regts, 1 arty regt, and support elements) plus 2 training divisions.
1 artillery division (of 10 regiments).
4 armoured regiments.
About 20 independent infantry regiments.
15 SAM regiments (each with 18 SA-2 launchers).
24 AA artillery regiments.
900 T-34, T-54, and T-59 med tks; PT-76

The Soviet Union has supplied large numbers of SA-2 Guideline SAMs to North Korea, North Vietnam, India, Afghanistan, and Mongolia.

and Type 60 lt tks; BTR-40 APC; SU-76 and JSU-122 SP guns; 76mm, 800 122mm, and 175 130mm guns; 122mm and 152mm how; 57mm, 75mm, 82mm, and 107mm RCL; 82mm, 100mm, 107mm, 120mm, 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: 210,000 in South Vietnam and Laos and Cambodia border areas, and 10,000 in Cambodia.

Navy: 3,000.
3 coastal escorts.
28 MGB (*Shanghai/Swatow*-class).
18 MTB (6 Chinese P-6, 12 Soviet P-4).
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: 10,000; 203 combat aircraft.
1 light bomber sqn with 8 Il-28.
4 interceptor sqns with 60 MiG-21F/PF with *Atoll* AAM.
2 interceptor sqns with 30 MiG-19 (ex-Chinese).
6 fighter-bomber sqns with 105 MiG-15/17.
20 An-2, 4 An-24, 12 Il-14, and 20 Li-2 transports.
12 Mi-4 and 8 Mi-6 helicopters.
About 50 training aircraft.

Para-Military Forces: 20,000 Frontier, Coast Security, and People's Armed Security Forces; Armed Militia of about 1,500,000.

VIETNAM: REPUBLIC OF (SOUTH)

Population: 20,320,000.
Military service: 2 years minimum.
Total armed forces: 565,000.
Estimated GNP 1973: $2.7 billion.
Defence expenditure 1974: 336 billion piastres ($672 million).
$1 = 500 piastres (1974), 500 piastres (1973).

Army: 450,000.
11 infantry divisions.
1 airborne division.
2 independent infantry regiments.
3 independent armoured battalions.
18 armoured cavalry squadrons.
45 ranger battalions.
14 independent artillery battalions.
600 M-48 med and M-41 lt tks; 1,000 M-113 APC; 400 *Commando* armd cars; 1,200 105mm and 300 155mm how (some SP); 175 175mm SP guns; 57mm and 106mm RCL; *TOW* ATGW; 4.2 inch mor; AA guns.

Navy: 40,000.
9 frigates (2 radar picket).
8 patrol vessels.
46 patrol gunboats.
7 coastal minesweepers.
21 landing ships (6 tk, 6 med, 4 gun, and 5 inf).
19 landing craft, utility.
800 riverine craft: patrol boats, monitors (190mm how), armoured troop carriers, minesweepers, and support ships.
250 diesel junks and small patrol boats.

Marines: 15,000.
1 division.

Air Force: 60,000; 509 combat aircraft.
4 FGA sqns with 72 F-5A (plus 36 in storage; 68 F-5E on order).
11 FB sqns with 220 A-37B (plus 8 in storage).
3 FB sqns with 60 A-1H/J.
2 recce sqns with 30 EC-47, 10 RC-47, 10 RC-119, and 7 RF-5A.
1 gunship sqn with 16 AC-47.
2 gunship sqns with 40 AC-119G/K.
3 tpt sqns with 10 C-47 and 32 C-130E.
10 lt tpt sqns with 53 C-7, 10 U-6A, and 80 U-17A/B.
8 lt observation sqns with 220 O-1 and O-2A.
18 hel sqns with 625 Bell UH-1 and 60 CH-47.
Training aircraft include 24 T-37 and 24 T-41.

Para-Military Forces:
Regional Forces—325,000; about 350 rifle bns on province security duties.
Popular Forces—200,000; about 7,500 platoons, with light arms; district security force.
People's Self Defence Force—1,400,000; part-time village militia.
Police Field Force—15,000, including internal security units with AFV and hel.

NOTE: The strength of the People's Liberation Armed Forces (PLAF) in South Vietnam is estimated at 30,000 regulars and 30,000 guerrillas.

THE MILITARY BALANCE 1974/75

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, 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 also 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.)

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: 24,640,000.
Military service: Army and Air Force, 1 year; Navy, 14 months.
Total armed forces: 135,000.
Estimated GNP 1973: $71.8 billion. (High inflation has not been matched by exchange rate movements, thus giving a large increase in $ GNP.)
Defence budget 1974: 6.39 billion pesos ($1,286 million).
$1 = 4.97 pesos (1974), 4.99 pesos (1973).

Army: 85,000.
2 mechanized brigades.
2 motorized infantry brigades.
3 infantry brigades.
2 mountain infantry brigades.
1 airborne brigade.
2 air defence regiments.
Aviation battalions.
120 M-4 *Sherman* med tks; 120 AMX-13, some M-41 *Bulldog* lt tks; 250 M-113, some AMX, *Mowag*, M-3, and M-16 APC; 200 105mm and 155mm guns; 105mm pack how, 155mm how, and 24 French Mk F3 and US M-7 155mm SP how; 120mm mor; 75mm, 90mm, 105mm RCL; AS-11/12, *Cobra* ATGW; 30mm, 40mm AA guns, *Tigercat* SAM; 3 DHC-6 *Twin Otter;* 7 Bell UH-7F and 7 FH-1100 hel.

Reserves: 250,000: 200,000 National Guard and 50,000 Territorial Guard.

Navy: 33,000 (incl Naval Air Force and Marines).
6 submarines (2 in reserve).
1 aircraft carrier.
3 cruisers.
11 destroyers (2 more under construction).
5 escorts (2 for river service).
6 coastal minesweepers/minehunters.
2 fast patrol boats.
11 patrol vessels (3 coastal).
5 landing ships (1 more under construction).
33 landing craft (4 LCT).
(*Gabriel* SSM on order.)

Naval Air Force: 3,000; 40 combat aircraft.
1 FB sqn with 16 A-4Q *Skyhawk.*
1 FB sqn with 8 MB-326GB and 4 AT-28.
6 S-2A *Tracker,* 3 P-2H *Neptune* MR aircraft.
3 HU-16B *Albatross* SAR aircraft.
1 hel sqn with 9 *Alouette III,* 4 *Sea King* ASW/SAR.
2 tpt sqns with 8 C-47, 3 C-54, 3 L-188, and 5 *Skyvan.*
32 T-28 *Fennec,* 12 T-6 trainers.
Some Beech B-80 (*Queen Air*), C-45; 1 HS-125, PC-6, and 8 DHC-6 GP ac; 5 S-55, 6 Bell 47 hel (2 Westland *Sea Lynx* on order).

Marines: 4,800.
4 marine 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, *Tigercat* SAM.

Air Force: 17,000; 132 combat aircraft.
1 bbr sqn with 9 B-62 and 2 *Canberra* T.Mk 64.
2 FB sqns with 47 A-4P *Skyhawk.*
1 fighter sqn with 12 *Mirage IIIE* and *IIIB.*
3 FGA sqns with 20 F-86F *Sabre,* 30 MS-760A *Paris I.*
1 recce sqn with 12 IA-35IV *Huanquero.*
60 T-34 trainers.
5 tpt sqns with 5 C-130E, 5 DHC-6 *Twin Otter,* 11 F-27 Mk 400/600, 10 C-47, 6 C-45, and 4 DC-6 med tpts; 20 *Dove,* 24 Dinfia *Guarani II,* 14 *Aero Commander, Beaver,* and *Huanquero* lt tpts.
1 hel sqn with 14 Hughes 500M; 6 Bell UH-1H; 4 UH-1D; 6 UH-19 and 4 Bell 47 hel.
(F-5E, 8 MB-326GB, 50 IA-58 *Pucará,* 120 Hughes OH-6A on order.)

Para-Military Forces: 19,000. Gendarmerie: 11,000 men, 10 hel, under Army command, mainly for frontier duties; National Maritime Prefecture: 8,000, 1 frigate, 8 hel, 5 *Skyvan,* subordinate to the Navy, performs coastguard duties.

BOLIVIA

Population: 5,460,000.
Military service: 12 months' selective.
Total armed forces: 24,000.
Estimated GNP 1973: $1.0 billion.
Defence expenditure 1974: 691 million pesos
($35 million).
$1 = 20 pesos (1974), 20 pesos (1973).

Army: 18,000.
2 cavalry regiments.
12 infantry regiments.
2 motorized regiments.
1 ranger regiment.
1 paratroop battalion.
3 artillery regiments.
5 engineer battalions.
VM-706 and M-113 APC; light mor; 20 105mm how and 25 75mm pack how.

Navy: Some lake patrol craft.

Air Force: 6,000; 61 combat aircraft.
1 fighter sqn with 12 T-33 and 3 F-86.
1 fighter sqn with 10 F-51D *Mustang.*
1 COIN sqn with 12 AT-6G and 6 T-28A.
1 COIN sqn with 18 AT-26 *Xavante.*
18 C-47, 1 C-54, and 5 CV-440 transports.
3 Cessna 172, 6 PT-19, 8 Fokker T-21, and 14 U-17A communications aircraft.
13 T-33A, 20 T-6, and 4 T-28 trainers.
12 Hughes 500M and 3 Hiller OH-23C/D hel.

Para-Military Forces: About 5,000 armed police and frontier guards.

BRAZIL

Population: 104,670,000.
Military service: 1 year.

Total armed forces: 208,000.
Estimated GNP 1973: $63.3 billion.
Defence budget 1974: 8.193 billion cruzeiros.
($1,207 million).
$1 = 6.79 cruzeiros (1974), 6.05 cruzeiros (1973).

Army: 130,000. (The Army is re-organizing. The data given must be regarded as interim.)
7 divs, each with up to 4 armd, mech, or mot inf bdes.
2 independent infantry brigades.
Some light 'jungle' infantry brigades.
1 parachute brigade.
150 M-4 and 40 M-47 *Patton* med tks; M-3A1 *Stuart* and 200 M-41 lt tks; M-3A1 *White*, M-4, M-8, 120 EE-9 *Cascavel*, EE-11 *Urutu* AFV; M-113 and M-59 APC; 75mm, 105mm, 155mm how; 105mm SP how; 40mm, 90mm AA guns; *HAWK* SAM (4 *Roland* SAM on order).

Navy: 43,000 (including Naval Air Force, Marines, and Auxiliary Corps).
7 submarines (2 more on order).
1 ASW aircraft carrier.
1 cruiser.
21 destroyers (1 with *Seacat* SAM).
3 destroyer escorts.
6 fast patrol boats.
10 corvettes (rescue ships).
6 coastal minesweepers.
7 gunboats.
5 river patrol ships (1 monitor).
2 LST.
(6 frigates on order; 2 with twin *Exocet* SSM, 4 with *Ikara* ASW.)

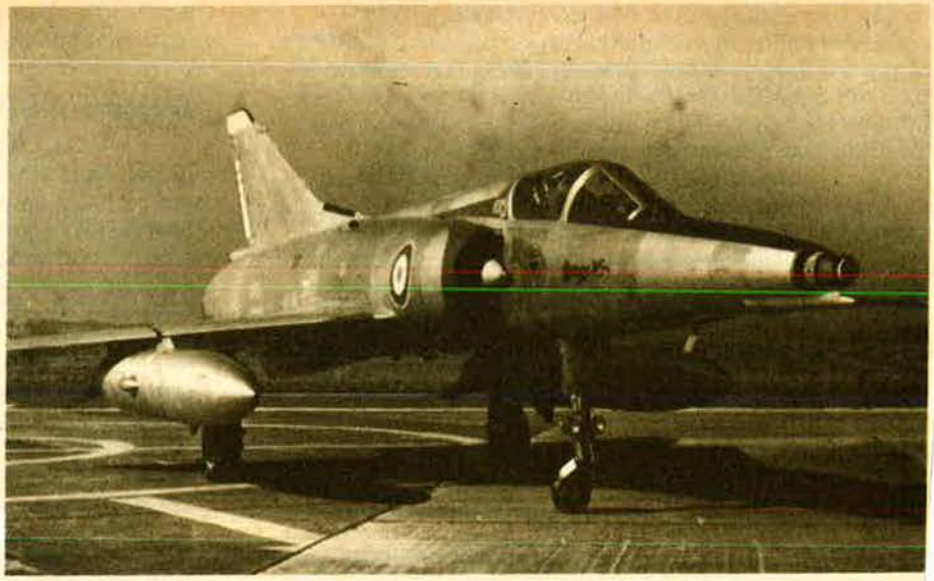
Naval Air Force:
3 SH-3D, 4 SH-1-5-58 (S-58), 3 UH-2 *(Wasp)*, 4 UH-4 (Hiller FH-1100), 5 UH-5 *(Whirlwind)*, 10 IH-2A (Hughes 200), and 1 IH-2B (Hughes 300). (18 Bell 206B on order.)

Air Force: 35,000; 230 combat aircraft.
1 lt bomber sqn with 12 B-26K *Invader*.
1 interceptor sqn with 12 *Mirage IIIERR*, 4 *DBR*.
6 COIN sqns with 20 AT-33A, 25 AT-37C, 100 AT-26 *Xavante* (operate with Army).
13 *Tracker*, 12 *Neptune*, 15 *Albatross*, 8 PBY-5 *Catalina*, and 9 RC-130E *Hercules* MR aircraft.
110 L-42 *Regente* and 15 L-6 *Paulistinha* observation/liaison aircraft (with Army).
About 180 transports, incl 55 C-47, 4 C-118, 12 C-119F, 10 C-130E, 11 HS-125, 12 HS-748, 2 BAC-111, 24 DHC-5, and 5 Pilatus *Porter*. (C-45 and C-47 being replaced by 80 C-95 *Bandeirante;* 12 Fokker F27/F28 and 6 HS-748 on order.)
90 T-23 *Uirapuru*, 50 T-25 *Universal*, 63 Cessna T-37C, 7 *Magister*, and 50 Fokker S-11/12 trainers.
60 Bell 47, 42 UH1D/H, 11 Bell 206A hel.
(36 F-5E, 6 F-5B, and 30 *Gazelle* hel on order.)

Para-Military Forces: Various public security forces total about 150,000. There are State militias in addition.

CHILE

Population: 10,430,000.
Military service: 1 year.
Total armed forces: 60,000.
Estimated GNP 1973: $18.3 billion. (High inflation has not been matched by exchange rate movements, thus giving a large increase in $ GNP.)
Defence budget 1974: 159.7 billion escudos
($213 million).



The Mirage V, a Mach 2.0 ground-attack aircraft, is flown by the Peruvian and Colombian air forces. It also is a capable interceptor.

$1 = 750 escudos (1974), 46.0 escudos (1973).

Army: 32,000.
5 divisions, incl 6 cav regts (2 armd, 3 horsed, 1 helborne), 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, Model 56 105mm pack how; 106mm RCL; AA arty. (Armd cars and mor on order.)

Reserves: 160,000.

Navy: 18,000.
2 submarines (2 *Oberon*-class on order).
3 cruisers (2 ex-US *Brooklyn*-class).
6 destroyers.
1 *Leander*-class frigate (1 on order).
3 destroyer escorts (ex-US APD transport).
4 motor torpedo boats.
6 patrol vessels.
6 landing ships/craft.
5 C-45 and 3 C-47 tpts; 4 *JetRanger* hel.

Air Force: 10,000; 50 combat aircraft.
1 lt bomber sqn with 10 B-26.
2 fighter sqns with 32 *Hunter* F-71.
1 MR sqn with 5 HU-16C and 3 PBY-5A *Catalina*.
1 SAR sqn with 4 UH-19, 2 UH-1D hel.
About 70 tpts, incl 10 C-45, 8 DHC-6, 9 Beechcraft 99A, 10 C-47, 4 C-118, 6 DC-6B, and 2 C-130E.
5 *Twin Bonanza*, 4 Cessna 180, 4 Cessna O-1, and 5 T-6 liaison aircraft.
45 T-34, 10 T-37B, 8 T-33A, 11 *Vampire* T-22/55, and 10 F-80C trainers.
30 hel incl 7 Bell OH-13H, 2 Sikorsky UH-19, 16 Hiller OH-23G, and 4 Bell UH-1D/H (9 hel on order).

Para-Military Forces: 30,000 *Carabineros*.

COLOMBIA

Population: 23,950,000.
Military service: 2 years.
Total armed forces: 63,200.
Estimated GNP 1973: $11.0 billion.
Defence expenditure 1974: 2,730 million pesos
($117 million).
$1 = 23.4 pesos (1974), 22.0 pesos (1973).

Army: 50,000.
10 infantry brigades ('Regional Brigades').
1 Presidential Guard anti-guerrilla battalion.
1 airborne battalion.
20 motorized infantry, 5 artillery, and engineer units.
M-4A3 med tks; M-3A1 lt tks; M-8 and M-20 armd cars; 105mm how; mor.

Reserves: 250,000.

Navy: 7,200.
2 70-ton midget submarines (2 German Type 209 on order).
4 destroyers.
1 destroyer escort.
4 destroyer/transports (1 hospital ship).
4 river gunboats.
21 patrol motor launches (16 less than 100 tons).

Air Force: 6,000; 18 combat aircraft.
1 fighter sqn with 14 *Mirage V*, 4 *Mirage IIIR/D* (F-5 on order).
About 50 tpts incl 2 C-130E, 6 C-47, 10 C-54, 10 *Beaver*, 4 *Otter*, *Aero Commander*, 1 F-28, and 4 HS-748.
Trainers incl 10 T-37, 30 T-41D, 30 T-34, and some 10 T-33.
16 Bell 47, 12 Hughes OH-6A, 6 Kaman *Huskie*, 6 TH-55, 6 Bell UH-1B, and 4 Hiller H-23.

Para-Military Forces: 35,000 National Police Force.

CUBA

Population: 9,110,000.
Military service: 3 years.
Total armed forces: 116,500.
Estimated GNP 1970: $4.5 billion.
Estimated defence expenditure 1971: 290 million pesos
($290 million).
$1 = 1 peso (1971), 1 peso (1970).

Army: 90,000.
15 infantry 'divisions' (brigades).

Venezuela is buying a squadron of sixteen Rockwell International OV-10 COIN aircraft to replace its obsolete B-25 light bombers.

2 armoured brigades.
Some independent 'brigades' (battalion groups).
Over 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; 100 SU-100 assault guns; 122mm and 152mm guns; 30 *FROG*-4 SSM; 57mm, 76mm, and 85mm ATk guns; *Snapper* ATGW; 27mm, 57mm, 85mm, 100mm AA guns.

Reserves: 90,000.

Navy: 6,500.
3 frigates (ex-US).
2 escort patrol vessels (ex-US).
18 submarine chasers (ex-Soviet *SOI, Kronstadt*).
2 *Osa*- and 18 *Komar*-class FPB with *Styx* SSM.
24 MTB (ex-Soviet P-4 and P-6).
23 armed patrol boats (under 100 tons).
18 Mi-4 hel.
Samlet coastal defence SSM.

Air Force: 20,000 (including the Air Defence Forces); 205 combat aircraft.
1 fighter-bomber sqn with 15 MiG-15.
5 interceptor sqns with 80 MiG-21.
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 24 Mi-4 and 30 Mi-1 helicopters.
24 SAM bns with 144 SA-2.

Para-Military Forces: 10,000 State Security troops; 3,000 border guards; 200,000 People's Militia.

DOMINICAN REPUBLIC

Population: 4,550,000.
Military service: selective.
Total armed forces: 15,800.
Estimated GNP 1973: $2.3 billion.
Defence expenditure 1974: 36 million pesos
($36 million).
$1 = 1 peso (1974), 1 peso (1973).

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, lt arty.

Navy: 3,800.
3 frigates.
2 corvettes.
2 fleet minesweepers.
10 patrol craft (5 under 100 tons).
1 landing ship (medium).
2 landing craft.

Air Force: 3,000; 35 combat aircraft.
1 light bomber sqn with 3 B-26 *Invader.*
1 fighter-bomber sqn with 10 *Vampire* Mk I.
1 fighter-bomber sqn with 20 F-51D.
2 PBY-5A maritime patrol aircraft.
1 tpt sqn with 6 C-46, 6 C-47, 3 DHC-2, and 3 Cessna 170.
30 trainers, incl T-6 *Texan,* T-11 *Kansan,* BT-13 *Valiant,* and PT-17 *Kaydet.*
2 Bell OH-13, 2 Sikorsky H-19, 2 Hiller UH-12, 7 Hughes OH-6A, and 3 *Alouette II/III* hel.

Para-Military Forces: 10,000 Gendarmerie.

ECUADOR

Population: 6,960,000.
Military service: selective for 2 years.
Total armed forces: 22,300.
Estimated GNP 1973: $2.6 billion.
Defence budget 1973: 1,280 million sucres ($52 million).
$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 and M-41 and 41 AMX-13 lt tks; Panhard AML-60 armd cars; some APC incl amphibians; 105mm how; 40mm AA guns.
1 *Skyvan,* 1 Cessna T-41, and 3 *Piper Cub* lt ac.

Navy: 3,800.
4 destroyer escorts (1 transport).
2 coastal escorts.
2 motor gunboats.
3 motor torpedo boats.
6 patrol craft.
2 landing ships (medium).

Air Force: 3,500; 21 combat aircraft.
1 bomber sqn with 5 *Canberra.*
1 interceptor sqn with 8 *Meteor* FR-9.
1 COIN sqn with 8 BAC-167 *Strikemaster.*
1 tpt sqn with 6 C-45, 8 C-47, 4 DC-6B, 2 *Skyvan* 3M, and 3 HS-748.
25 trainers including T-28, T-33, and 12 T-41.
3 Bell 47G, 1 FH-1100, and 6 *Alouette III* hel.
(4 BAC-167, 4 SA-315B on order.)

Para-Military Forces: 5,800.

MEXICO

Population: 56,380,000.
Military service: voluntary, with part-time conscript militia.
Total armed forces: 82,000 regular; 250,000 conscripts.
Estimated GNP 1973: $50.1 billion.
Defence budget 1974: 5,292 million pesos ($423 million).
$1 = 12.5 pesos (1974), 12.5 pesos (1973).

Army: 65,000, plus 250,000 part-time conscripts.
1 mechanized brigade group (Presidential Guard).
1 infantry brigade group.
1 parachute brigade.
Zonal Garrisons incl:
21 indep cav regts, 50 indep inf bns, 2 arty bns.
Anti-aircraft, engineer, and support units.
M-3 lt tks; APC; 100 armd cars; 75mm, 105mm how.

Navy: 11,000 (incl Naval Air Force and Marines).
2 destroyers.
9 frigates (2 transports, 1 training).
15 escort and fleet minesweepers.
12 patrol boats (21 on order).
2 landing ships (rescue).

Naval Air Force: 336; 5 combat aircraft.
5 PBY-5 MR; 5 Bell 47G/J, and 4 *Alouette III* hel.

Marines: 1,900 men; organized in 16 companies.

Air Force: 6,000; about 27 combat aircraft.

Canberra jet bombers are still found in the air forces of several Latin American countries, among them Argentina, Ecuador, Peru, and Venezuela.

1 fighter-bomber sqn with 12 *Vampire*.
1 COIN sqn with 15 T-33A.
1 SAR sqn with 18 LASA-60 lt ac.
130 trainers, including 45 T-6, 13 AT-11 *Kansan*, 32 T-28 *Trojan*, and 10 T-34 *Mentor* (some armed).
About 50 tpts, incl 6 C-47, 5 C-54, 20 C-45, 2 C-118, 3 *Islander*, 1 *Jetstar*, 3 *Arava* ambulance, and 1 MU-2S (2 *Arava* on order).
About 30 hel: 14 Bell 47, 1 Bell 212, 3 *Puma*, 5 *JetRanger*, 6 *Alouette III*, and 1 Hiller UH-12E.
1 parachute battalion.

PARAGUAY

Population: 2,760,000.
Military service: 2 years.
Total armed forces: 14,900.
Estimated GNP 1973: $1.0 billion.
Defence budget 1973: 2,336 million guaranies ($19 million).
$1 = 125 guaranies (1974), 125 guaranies (1973).

Army: 11,000.
1 cavalry brigade.
6 infantry regiments.
5 motorized engineer battalions.
3 artillery batteries.
9 M-4 med tks; APC; 75mm and 105mm how.

Navy: 1,900 (including marines).
1 support ship (LSM) with 2 UH-13 hel.
2 river gunboats.
3 patrol boats (ex-Argentinian minesweepers).
2 patrol launches.
3 river patrol boats.

Air Force: 2,000; 10 combat aircraft.
About 20 trainers incl 10 T-6 (some fitted for bombs), PT-17, and MS-760.
Tpts incl 10 C-47, 2 C-54, 3 C-45, 1 DHC-6.
20 hel, incl 6 Bell 47C, 3 Hiller UH-12E, 4 L-4.
(20 T-23 *Uirapuru* trainers on order.)

Para-Military Forces: 8,500 security forces.

PERU

Population: 15,370,000.
Military service: 2 years.
Total armed forces: 54,000.
Estimated GNP 1973: $8.2 billion.
Defence budget 1974: 9,932 million soles ($226 million). (Peru now uses a biennial defence budget system. This estimate represents the 1974 portion of a total 20,125 million soles budget for 1 Jan. 1972–31 Dec. 1974.)
$1 = 44.0 soles (1974), 42.4 soles (1973).

Army: 39,000.
1 armoured brigade ('division').
7 infantry brigades ('divisions').
1 para-commando brigade ('airborne division').
1 jungle brigade ('division').
Artillery and engineer battalions.
200 T-55, 60 M-4 med tks; 100 AMX-13 lt tks; 106 HWK-11 armd cars, 50 M-3A1 scout cars; 105mm, 122mm, 152mm, and 155mm guns. 8 Bell 47G hel.

Deployment: Syria (UNDOF): 1 bn 353 men.

Navy: 8,000.
4 submarines (2 more on order).
3 light cruisers.
4 destroyers.
3 destroyer escorts.
2 submarine chasers.
2 coastal minesweepers.
6 fast patrol craft.
3 patrol boats.
8 gunboats.
7 landing ships/craft (2 LST, 1 med, 1 utility).
2 Bell 47G and 2 *Alouette III* helicopters.
(4 frigates on order.)

Air Force: 7,000; 90 combat aircraft.
1 light bomber sqn with 5 B-26.
1 lt bbr sqn with 15 *Canberra*.
1 fighter sqn with 14 *Mirage V*.
1 fighter sqn with 10 F-86F and 6 *Hunter* F-52.
1 FGA sqn with 20 T-33A.
1 photo-recce sqn with 10 C-60.
1 maritime recce sqn with 6 PV-2 *Harpoon*.
4 HU-16A maritime patrol aircraft.
Tpt and comms ac, incl 6 C-130, 4 C-54, 6 DC-6, 19 C-47, 12 DHC-6, 21 *Queen Air*, and 16 DHC-5.
Trainers incl 2 *Hunter* T-62, 2 *Mirage IIIB*, 8 T-33, 26 T-37B, and 20 Cessna T-41A.
Hel, incl 4 Bell 47G, 10 *Alouette III*, 8 Mi-6, 5 Bell 212, 13 UH-1H, 9 UH-1D, and 2 UH-12B.
(8 *Canberra*, 8 *Mirage V*, 25 IA-58 *Pucará*, 14 Bell 212 hel on order.)

Para-Military Forces: 20,000 *Guardia Civil*.

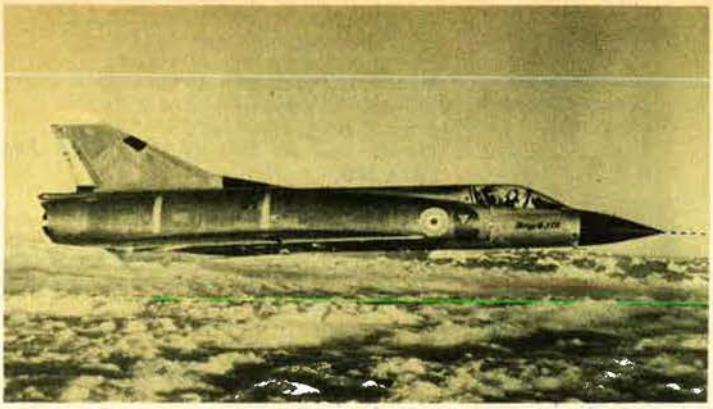
URUGUAY

Population: 3,040,000.
Military service: voluntary.
Total armed forces: 21,000.
Estimated GNP 1973: $2.7 billion.
Defence budget 1973: 61.1 billion pesos ($68 million).
$1 = 1,124 pesos (1974), 895 pesos (1973).

Army: 16,000.
2 armoured regiments.
5 infantry regiments (of 3 battalions each).
9 cavalry squadrons.
4 artillery battalions.
5 engineer battalions.
8 M-24 lt tks; 10 M-3A1 scout cars; 18 M-113A1 APC; 105mm how.

Reserves: 100,000.

Navy: 3,000.
3 destroyer escorts.
2 escorts (1 training).
2 patrol vessels.
1 coastal minesweeper.
3 S-2A maritime patrol aircraft.
2 Bell 47G and 4 OH-23 helicopters.



Fighter or reconnaissance versions of the Mirage III are used by Argentina, Brazil, Colombia, and Venezuela.

Air Force: 2,000; 12 combat aircraft.
1 fighter sqn with 6 F-80C.
About 30 trainers incl 20 T-6 and 6 armed AT-33A.
Tpt ac incl 13 C-47, 1 DHC-2, 2 *Queen Air*, 8 U-17, 5 C-45, and 4 F-27.
2 Bell UH-1H and 2 Hiller UH-12 hel.

Para-Military Forces: 22,000.

VENEZUELA

Population: 11,730,000.
Military service: 2 years.
Total armed forces: 39,500.
Estimated GNP 1973: $16.2 billion.
Defence expenditure 1973: 1,450 million bolivares ($337 million).
$1 = 4.27 bolivares (1974), 4.30 bolivares (1973).

Army: 24,000.
1 armoured brigade. } being reorganized
1 cavalry regiment. }
1 tank battalion group. }
11 infantry battalions.
13 ranger battalions.
6 artillery groups.
5 engineer and anti-aircraft battalions.
16 AMX-30 med tks; 15 AMX-13 lt tks; M-18 tank destroyers; some M-8 and *Shorland* armd cars (142 AMX-30, 20 AMX-155 SP guns on order).

Navy: 7,500 (including 4,000 marines).
2 submarines (2 on order).
4 destroyers.
6 destroyer escorts.
10 patrol craft.
1 FPB (5 on order, for end-1974, 3 with *Otomat* SSM).
5 landing ships.
(*Albatros* SAM on order.)

Air Force: 8,000; about 100 combat aircraft.
1 bomber sqn with 26 B-2 *Canberra*.
1 lt bbr sqn with 15 B-25 (being replaced by 16 OV-10E COIN ac).
1 fighter sqn with 20 CF-5A/D (F-5E on order).
2 fighter sqns with F-86K (1 being re equipped with 13 *Mirage IIIEV*).
4 HU-16 SAR and 2 *Canberra* recce ac.
2 tpt sqns with 47 tpt ac incl 12 C-47, 13 C-123B, 4 C-130H, and 1 HS-748.
Trainers incl 2 *Mirage*, 20 T-34, 12 T-5 *Jet Provost*.
Hel incl 20 *Alouette III* and 16 UH-1B/D/M, 4 UH-19.

Para-Military Forces: The National Guard a volunteer force with a total strength o 10,000, employed chiefly on internal se curity duties.

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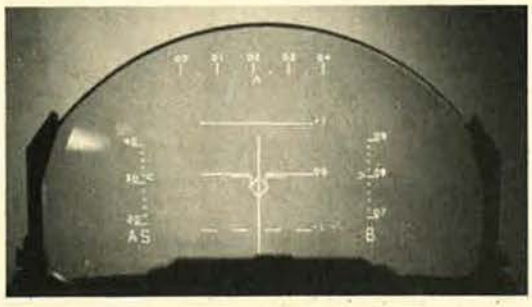

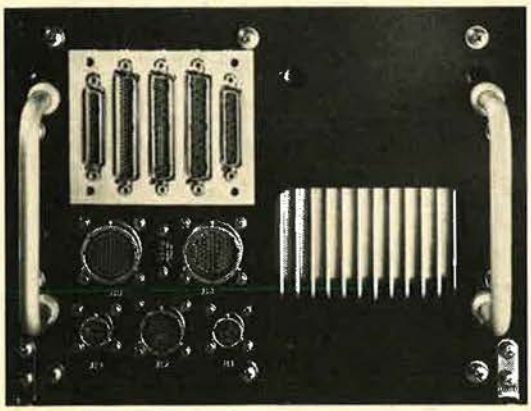

THE MILITARY BALANCE 1974/75

Tables of Comparative Strengths

1. NUCLEAR DELIVERY VEHICLES COMPARATIVE STRENGTHS AND CHARACTERISTICS

(i) *Missiles and Artillery*

(A) UNITED STATES AND SOVIET UNION

		United States					Soviet Union				
	Category[a]	Type	Max. range[b] (statute miles)	Estimated warhead yield[c]	First de-ployed	No. de-ployed (July 1974)	Type[d]	Max. range[b] (statute miles)	Estimated warhead yield[c]	First de-ployed	No. de-ployed (July 1974)
Land-based missiles	ICBM	LGM-25C *Titan 2*	7,250	5–10 MT	1962	54	SS-7 *Saddler*	6,900	5 MT	1961	209
		LGM-30B *Minuteman 1*	7,500	1 MT	1962	21	SS-8 *Sasin*	6,900	5 MT	1963	
		LGM-30F *Minuteman 2*	8,000	1–2 MT	1966	450	SS-9 *Scarp*	7,500	20–25 MT[e]	1965	288[f]
		LGM-30G *Minuteman 3*	8,000	3 × 200 KT	1970	529					
							SS-11[g]	6,500	1–2 MT or 3 × KT range[h]	1966	1,018[i]
							SS-13 *Savage*[g]	5,000	1 MT	1968	60
	IRBM						SS-5 *Skean*[j]	2,300	1 MT	1961	100
	MRBM						SS-4 *Sandal*[k]	1,200	1 MT	1959	500
	SRBM	MGM-29A *Sergeant*[l,m]	85	KT range	1962	(500)	SS-1b *Scud A*[l]	50	KT range	1957	(300)
		MGM-31A *Pershing*	450	KT range	1962	(250)	SS-1c *Scud B*[l]	185	KT range	1965	
		MGM-52A *Lance*[l]	70	KT range	1972	12	SS-12 *Scaleboard*	500	MT range	1969	
	Long-range cruise missiles						SS-N-3 *Shaddock*	450	KT range	1962	(100)
	Unguided rockets	MGR-1B *Honest John*[l,m]	25	KT range	1953	n.a.	*FROG* 1-7[l]	10–45	KT range	1957–65	(600)
Sea-based missiles	SLBM (nuclear subs)	UGM-27C *Polaris A3*	2,880	3 × 200KT	1964	304	SS-N-5 *Serb*	750	MT range	1964	24
		UGM-73A *Poseidon*[n]	2,880	10 × 50 KT	1971	352	SS-N-6 *Sawfly*[o]	1,750	MT range	1969	528
							SS-N-8	4,800	MT range	1972	108
	SLBM (diesel subs)						SS-N-4 *Sark*	350	MT range	1961	27
							SS-N-5 *Serb*	750	MT range	1964	33
	Long-range cruise missiles: submarines						SS-N-3 *Shaddock*	450	KT range	1962	314
	surface vessels										48
Artillery	Self-propelled	M-110 203mm (8in) how[l]	10	KT range	1962	102					
		M-109 155mm how[l]	10	2 KT	1964	306					
	Towed	M-115 203mm (8in) how[l]	10	KT range	1950s	n.a.	M-55 203mm gun/how[l]	18	KT range	1950s	n.a.

n.a. = not available.

(ii) *Aircraft*[n]

	United States						Soviet Union					
Category	Type	Max. range[r] (statute miles)	Max. speed (Mach no.)[s]	Max. weapons load (lb)	First de-ployed	No. de-ployed (July 1974)	Type	Max. range[r] (statute miles)	Max. speed (Mach no.)[s]	Max. weapons load (lb)	First de-ployed	No. de-ployed (July 1974)
Long-range bombers[q]	B-52 D-F B-52 G/H	11,500 12,500	0.95 0.95	60,000 75,000	1956 1959	437[u]	Tu-95 *Bear* Mya-4 *Bison*	7,800 6,050	0.78 0.87	40,000 20,000	1956 1956	100 40[v]
Medium-range bombers[q]	FB-111A	3,800	2.5	37,500	1969	66	Tu-16 *Badger*	4,000	0.8	20,000	1955	800[w]
Strike aircraft (incl. short-range bombers): land-based	F-105D F-4 F-111 A/E A-7D	2,100 2,300 3,800 3,400	2.25 2.4 2.2/2.5 0.9	16,500 16,000 25,000 15,000	1960 1962 1967 1968	(1,600)[x]	Il-28 *Beagle* Su-7 *Fitter* Tu-22 *Blinder* Yak-28 *Brewer* MiG-21MF *Fishbed J* MiG-23 *Flogger*	2,500 900 1,400 1,750 1,150 1,800	0.81 1.7 1.5 1.1 2.2 2.5	4,850 4,500 12,000 4,400 2,000 n.a.	1950 1959 1962 1962 1970 1971	(1300)[y]
Strike aircraft: carrier-based	A-4 A-6A A-7A/B/E F-4	2,055 3,225 3,400 1,997	0.9 0.9 0.9 2.4	10,000 18,000 15,000 1,600	1956 1963 1966 1962	(1,000)[z]						

(iii) *Historical Changes of Strength 1964–1974 (mid-years)*

		1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
USA	ICBM	834	854	904	1,054	1,054	1,054	1,054	1,054	1,054	1,054	1,054
	SLBM	416	496	592	656	656	656	656	656	656	656	656
	Long-range bombers[q]	630	630	630	600	545	560	550	505	455	442	437
USSR	ICBM	200	270	300	460	800	1,050	1,300	1,510[f]	1,527[i]	1,527[i]	1,575
	SLBM	120	120	125	130	130	160	280	440	560	628	720
	Long-range bombers[q]	190	190	200	210	150	150	150	140	140	140	140

[a] ICBM = inter-continental ballistic missile (range 4,000+ miles); IRBM = intermediate-range ballistic missile (range 1,500–4,000 miles); MRBM = medium-range ballistic missile (range 500–1,500 miles); SRBM = short-range ballistic missile (range under 500 miles); SLBM = submarine-launched ballistic missile. Long-range cruise missile = range over 250 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 = megaton = million tons of TNT equivalent (MT range = 1 MT or over); KT = kiloton = thousand tons of TNT equivalent (MT range = less than 1 MT); figures given are estimated maxima.

[d] Numerical designations of Soviet missiles (e.g. SS-7) are of US origin; names (e.g., *Saddler*) are of NATO origin.

[e] SS-9 missiles exist in four modes: single 20 MT warhead; single 25 MT warhead; test vehicle (not deployed) for depressed trajectory ICBM (DICBM) or fractional orbit bombardment systems (FOBS); 3 MRV of 4–5 MT each.

[f] There are also 25 silos under construction, possibly to receive the SSX-18, an ICBM of the SS-9 class fitted with 5–8 MIRV in the MT range or a single large warhead in the 25 MT range.

[g] There are other, smaller, silos under construction which are expected to receive either SSX-16 missiles, a follow-on to the solid-fuel SS-13, or SSX-17 or -19 ICBM, follow-ons to the liquid-fuel SS-11.

[h] A version of the SS-11 with three re-entry vehicles may be replacing some of the single warhead versions in the SS-11 force.

[i] Including 100 deployed within IRBM/MRBM fields.

[j] A mobile IRBM (SS-XZ *Scrooge*) has been displayed and tested but is not known to be deployed operationally.

[k] A mobile missile (SS-14 *Scapegoat*), apparently with MRBM range, has been displayed and tested but is not known to be deployed operationally.

[l] Dual capable (i.e., capable of delivering conventional or nuclear warheads).

[m] To be replaced by *Lance*.

[n] *Poseidon* can carry up to 14 RV over a reduced range.

[o] SS-N-6 has been tested with 3 MRV but is not known to be deployed in this form.

[p] All aircraft listed are dual-capable and many, especially in the categories of strike aircraft, would be more likely to carry conventional than nuclear weapons.

[q] Long-range bomber = maximum range over 6,000 miles; medium-range bomber = maximum range 3,500–6,000 miles, primarily designed for bombing missions.

[r] 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., the combat *radius* of A-7 at operational height and speed, with typical weapons load, is approximately 620 miles).

[s] Mach 1 (M = 1.0 = speed of sound).

[t] Names of Soviet aircraft (e.g., *Bear*) are of NATO origin.

[u] Including 40 B-52 aircraft in active storage.

[v] Excluding approximately 50 Mya-4 aircraft configured as tankers.

[w] Including approximately 300 Tu-16 aircraft in the Naval Air Force, configured for attacks on shipping, which could, in theory, deliver nuclear weapons.

[x] These aircraft are nuclear-capable but may not necessarily have a nuclear role.

(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[e]	First deployed	Number deployed (July 1974)	Warsaw Pact (excluding USSR) Type[f]	Operated by[c]	Max. range[d] (statute miles)	Estimated warhead yield[e]	First deployed	Number deployed (July 1974)
Land-based missiles	IRBM	SSBS S-2	FR	1,875	150 KT	1971	18						
	SRBM	*Sergeant*[g]	GE	85	KT range	1962	19	SS-1b *Scud A*[h]	All	50	KT range	1957	n.a.
		Pershing[g]	GE	450	KT range	1962	72	SS-1c *Scud B*[h]	All	185	KT range	1965	n.a.
		Pluton	FR	75	15 KT	1974	6						
	Unguided rockets	*Honest John*	[i]	25	KT range	1953	(150)	*FROG* 1-7[h]	All	10–45	KT range	1957–65	n.a.
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	Self-propelled	M-110 203mm (8in) how	[j]	10	KT range	1962	n.a.						
		M-109 155mm how	[k]	10	2 KT	1964	n.a.						
	Towed	M-115 203mm (8in) how	[j]	10	KT range	1950s	n.a.						

[a] IRBM = intermediate-range ballistic missile (range 1,500–4,000 miles); SRBM = short-range ballistic missile (range under 500 miles); SLBM = submarine-launched ballistic missile.

[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] Operational range depends upon the payload carried; use of maximum payload may reduce missile range by up to 25 per cent.

[e] KT = kiloton = thousand tons of TNT equivalent (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* is dual-capable (i.e., capable of delivering conventional or nuclear weapons).

[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 how is dual-capable and is operated by Belgium, Britain, Denmark, West Germany, the Netherlands, Italy 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 1974)	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 1974)
Medium-range bombers	*Vulcan* B2	BR	4,000	0.95	21,000	1960	50							
Strike aircraft (incl. short-range bombers)[h]	F-104	[i]	1,300	2.2	4,000	1958	n.a.[j]	Il-28 *Beagle*[k]	PO	2,500	0.81	4,850	1950	30
	F-4	BR/GE	1,600	2.4	16,000	1962	n.a.[j]	Su-7 *Fitter*	CZ/HU/PO/RU	900	1.7	4,500	1959	n.a.[j]
	Buccaneer S2	BR	2,000	0.95	8,000	1962	n.a.[j]							
	Mirage IVA	FR	2,000	2.2	8,000	1964	52							
	Jaguar	BR/FR	1,000	1.1	8,000	1973/1974	36/30							

[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, HU = Hungary, PO = Poland, RU = Rumania.

[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 (M = 1.0 = speed of sound).

[g] Warsaw Pact aircraft of Soviet origin; names (e.g., *Beagle*) 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 warheads of 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 weapons.

2. DEFENCE EXPENDITURES AND NATIONAL ECONOMIES

Country	GNP[a]	Defence Expenditure or Budget						
	$ billion	$ million		Per capita $	As a percentage of GNP[b]			
	1971	1973	1974	1973	1970	1971	1972	1973
United States	1,055.5	79,500	85,800	377	7.7	7.2	6.4	6.2
Soviet Union[c]	547.0	33,042	33,056	134	6.1	5.9	5.7	5.4
WARSAW PACT								
Bulgaria	10.4	316	345	37	2.5	2.5	2.4	2.5
Czechoslovakia	32.1	1,336	1,384	92	3.8	3.7	3.8	3.8
Germany, East	33.9	2,032	2,171	119	5.1	5.2	5.2	5.3
Hungary	15.3	424	457	41	2.7	2.7	2.6	2.5
Poland	42.6	1,890	2,073	57	4.1	4.1	3.9	3.7
Rumania	25.3	528	572	25	2.1	2.0	1.9	1.7
NATO								
Belgium	28.5	990	1,079	101	2.6	2.1	2.0	2.0
Britain	137.0	8,673	8,721	155	4.8	4.8	4.9	4.9
Canada	91.3	2,154	2,429	106	2.1	1.9	1.9	1.8
Denmark	17.1	568	551	113	2.5	2.3	2.3	1.9
France	163.1	8,438	7,913	162	3.5	3.5	3.4	3.1
Germany, West*	216.9	11,291	10,764[d]	182	2.9	2.9	3.1	2.9
Greece	11.0	552	602	62	3.5	3.8	3.9	3.4
Italy	101.1	3,997	3,673	73	2.7	3.0	3.0	2.9
Luxembourg	1.1	17	18	49	0.9	0.9	0.9	1.0
Netherlands	36.3	2,102	2,303	156	3.5	3.4	3.3	3.3
Norway	12.4	666	680	168	3.5	3.4	3.3	3.3
Portugal	6.5	523	n.a.	61	6.1	5.8	5.2	4.7
Turkey	12.9	803	995	21	3.5	3.8	3.6	3.7
OTHER EUROPEAN COUNTRIES								
Austria	16.7	291	323	39	1.1	1.0	1.0	0.9
Eire	4.6	88	64[e]	29	1.1	1.2	1.3	1.3
Finland	11.3	256	261	55	1.4	1.5	1.6	1.5
Spain	36.4	1,131	n.a.	32	1.8	1.9	1.8	1.9
Sweden	35.4	1,722	1,641	211	3.5	3.3	3.4	3.1
Switzerland	24.6	790	884	122	2.1	2.0	1.9	1.7
Yugoslavia	14.4	826	1,298	39	4.5	4.1	4.4	4.5
MIDDLE EAST AND THE MEDITERRANEAN								
Algeria	4.9	376	404	24	3.5	3.9	3.8	4.5
Egypt	7.1	2,757[f]	3,117[f]	77	18.9	21.1	20.2	32.8[f,g]
Iran	12.8	2,097	3,225	67	7.2	8.3	7.7	9.3
Iraq	3.6	467	803	45	7.7	9.7	8.7	9.4
Israel	6.7	4,153	3,688	1,310	19.9	23.6	20.9	47.8[g]
Jordan	0.7	125	142	49	14.8	14.8	15.5	15.3
Libya	3.6	145	402	67	3.1	2.3	2.9	2.8
Morocco	3.8	195	190	12	2.9	2.9	3.2	3.5
Saudi Arabia	4.0	1,478	1,808	175	7.0	15.1	17.9	21.8
Sudan	1.8	114	118	7	6.0	5.9	6.4	5.9
Syria	2.0	377	460	55	11.9	11.8	12.4	14.9[g]
AFRICA								
Ethiopia	1.9	70	80	3	2.5	2.6	2.6	2.8
Nigeria[h]	12.0	n.a.	548	n.a.	13.7	8.8	7.2	n.a.
Rhodesia	1.7	58	87	10	1.8	1.7	1.8	2.6
South Africa	18.9	665	750	28	2.1	2.4	2.2	2.5
ASIA AND AUSTRALASIA								
Australia	36.1	1,907	n.a.	144	3.9	3.8	3.6	3.3
China (Taiwan)	6.2	878	774	56	10.3	10.0	9.7	9.4
India	55.6	2,418	2,443	4	3.0	3.4	3.1	3.1
Indonesia	9.9	452	n.a.	4	3.3	3.2	3.3	3.2
Japan	222.1	3,530	3,835	32	0.8	0.8	0.9	0.8
Korea, South	10.0	475	558	14	3.9	4.1	4.4	3.8
Malaysia	3.9	287	311	26	6.9	4.8	4.6	4.3
New Zealand	7.1	186	231	63	2.0	1.9	1.9	1.7
Pakistan	11.3	471	575	8	6.4	6.9	7.2	5.5
Philippines	7.7	136	n.a.	3	1.8	1.5	1.4	1.3
Singapore[i]	2.1	235	n.a.	107	5.8	7.5	9.5	6.8
Thailand	6.9	332	365	9	3.5	3.9	3.8	3.6
Vietnam, South	8.3	570	672	29	19.4	21.0	21.1	21.4
LATIN AMERICA								
Argentina	31.0	958	1,286	39	1.9	1.6	1.5	1.3
Brazil	43.8	1,344	1,207	13	2.7	2.6	2.5	2.1
Chile	8.3	500	213	49	2.2	2.8	2.8	2.7
Colombia	7.5	109	117	5	1.4	2.6	1.2	1.0
Mexico	35.9	353	423	6	0.6	0.7	0.7	0.7
Peru	6.7	240	226	16	3.2	3.7	3.3	2.9
Uruguay	3.0	68	n.a.	23	2.1	3.0	3.3	2.5
Venezuela	11.5	337	n.a.	30	2.7	2.3	2.3	2.1

[a] GNP figures are given for 1971, since this is the latest year in which there is wide coverage of official standardized statistics, permitting comparison of the size of national economics.

[b] Percentages calculated in local currency. Where official GNP figures are not available estimates have been made.

[c] The dollar figures have been converted from rouble estimates at the 1973 official rate of 0.72 roubles=$1. The conversion at this constant rate has been made simply to show a trend.

[d] The 1974 budget has been calculated on a slightly different basis from previous years.

[e] Nine month figure only.

[f] Including provisions for Emergency Funds.

[g] These figures should be interpreted with caution; they may not fully reflect expenditure connected with the recent war. In particular, budgetary data may be incomplete, and GNP figures may not reflect recent international cash transfers.

[h] Gross Domestic Product (GDP) at market prices, not GNP.

[i] GDP at factor cost, not GNP.

* Financial assistance to West Berlin, if included would make the entry read:

216.9 14,044 13,588 219 3.4 3.6 3.8 3.6

n.a.=not available

3. COMPARISONS OF MILITARY MANPOWER 1974[a]

Country	Total armed forces (regulars & conscripts)	Para-Military forces	Estimated number of trained reservists	Estimated total men of military age (i.e. 18–45)	Total armed forces as % of men of military age
Europe					
Belgium	89,700	15,000	15,600	1,870,000	4.8
Bulgaria	152,000	20,000	285,000	1,790,000	8.5
Britain	345,300	—	429,500	10,220,000	3.4
Czechoslovakia	200,000	35,000	350,000	2,950,000	6.8
Denmark	37,100	—	80,500	990,000	3.7
France	502,500	70,000	450,000	10,270,000	4.9
Germany, East	145,000	70,000	260,000	3,230,000	4.5
Germany, West	490,000	20,000	630,000	12,260,000	4.0
Greece	161,200	99,000	275,000	1,700,000	9.5
Hungary	103,000	25,000	163,000	2,140,000	4.8
Italy	421,000	80,000	645,000	10,850,000	3.9
Netherlands	113,900	3,700	338,300	2,750,000	4.1
Norway	34,900	—	174,500	730,000	4.8
Poland	303,000	73,000	600,000	7,130,000	4.2
Portugal	217,000	9,700	562,000	1,700,000	12.8
Rumania	171,000	40,000	435,000	4,380,000	3.9
Sweden	86,100	—	663,900	1,570,000	5.5
Turkey	453,000	75,000	775,000	7,500,000	6.0
Soviet Union	3,525,000	310,000	3,000,000	51,500,000	6.8
Middle East					
Egypt	323,000	100,000	534,000	7,190,000	4.5
Iran	238,000	70,000	300,000	5,940,000	4.0
Israel	145,500	9,000	254,500	617,000	23.5
Asia and Australasia					
Australia	68,851	—	27,709	2,640,000	2.6
China	3,000,000	300,000	n.a.	175,000,000	1.7
India	956,000	100,000	230,000	111,550,000	0.9
Indonesia	270,000	12,000	n.a.	17,860,000	1.5
Japan	233,000	—	39,600	24,990,000	0.9
Africa					
South Africa	47,450	75,000	72,000	790,000[b]	6.0
Latin America					
Argentina	135,000	19,000	250,000	4,830,000	2.8
Brazil	208,000	150,000	n.a.	19,500,000	1.1
Mexico	82,000	n.a.	250,000	9,560,000	0.9
North America					
Canada	83,000	—	17,700	4,510,000	1.8
United States	2,174,000	—	902,200	39,630,000	5.5

[a] Figures are not comparable between countries mainly because reserve structures are not the same.
[b] White population only.

4. COMPARATIVE DEFENCE EXPENDITURE, GROSS NATIONAL PRODUCT AND MANPOWER FIGURES, 1953–1973

DEFENCE EXPENDITURES[a]

	USA[b]	Japan		West Germany[b]		France[b]		Britain[b]		USSR[c]
Year	$ m	Y bn	$ m	DM m	$ m	Fr m	$ m	£ m	$ m	R m
1953	49,377	126	350	6,195	1,475	13,865	3,961	1,681	4,727	11,270
1954	42,786	135	375	6,287	1,497	11,710	3,346	1,571	4,376	11,250
1955	40,371	135	375	7,383	1,752	11,020	3,149	1,567	4,365	11,320
1956	41,513	143	397	7,211	1,717	14,690	4,197	1,615	4,499	10,470
1957	44,159	144	400	8,962	2,133	15,600	3,184	1,574	4,423	10,520
1958	45,096	149	414	6,853	1,640	16,569	3,381	1,591	4,460	10,670
1959	45,833	156	433	11,087	2,654	17,926	3,658	1,589	4,472	10,900
1960	45,380	160	444	12,115	2,905	18,940	3,865	1,655	4,641	11,060
1961	47,807	184	511	13,175	3,297	19,932	4,068	1,709	4,800	13,610
1962	52,381	214	594	17,233	4,310	21,460	4,380	1,814	5,085	14,860
1963	52,295	248	689	19,924	5,012	22,849	4,663	1,870	5,231	16,500
1964	51,213	281	781	19,553	4,917	24,280	4,955	2,000	5,581	16,280
1965	51,827	305	847	19,915	4,975	25,300	5,163	2,091	5,839	16,000
1966	63,572	345	958	20,254	5,093	26,732	5,456	2,153	6,007	16,780
1967	75,448	387	1,075	21,408	5,353	28,912	5,900	2,276	5,462	18,180
1968	80,732	422	1,172	19,310	4,828	30,200	6,163	2,332	5,560	20,840
1969	81,443	495	1,375	21,577	5,847	31,700	5,703	2,303	5,529	22,110
1970	77,854	570	1,592	22,573	6,217	33,200	6,014	2,444	5,850	22,810
1971	74,862	671	1,880	25,450	7,278	35,000	6,346	2,800	6,715	23,170
1972	77,638	800	2,658	28,720	8,975	36,800	7,360	3,272	7,923	23,380
1973	78,462	936	3,530	31,597	13,165	41,460	10,112	3,481	8,972	23,790

[a] Expenditure figures are presented in local currency, to permit a comparison over time, and then (except for USSR) in dollars at the exchange rates ruling in each year, to permit a comparison between countries.
[b] NATO definition of defence expenditure. Figures for 1973 are NATO forecasts.
[c] Soviet expenditure is derived in this table by adding 75% of the All-Union Science budget to the defence budget and has not been converted to $ because of the difficulty of establishing a suitable conversion rate. This method is adopted here purely for the purpose of showing a trend. For a fuller discussion of the problems of establishing a figure for Soviet defence expenditure and the dollar equivalent see *The Military Balance 1973–74*, pp. 8–9.

5. DEFENCE EXPENDITURES OF NATO COUNTRIES 1969–1973[a]
(millions of 1973 dollars)

Country	1969	1970	1971	1972	1973 (forecast)	Defence expenditure growth 1969–73[b]	Inflation 1969–73[c]
Belgium	942	1,042	1,102	1,226	1,364	9.7	6.0
Britain	5,936	6,299	7,216	8,433	8,972	10.9	7.7
Canada	1,909	2,071	2,143	2,249	2,403	6.0	4.6
Denmark	469	490	567	601	659	9.0	6.8
France	7,732	8,098	8,537	8,976	10,112	7.0	6.0
Germany	8,990	9,405	10,604	11,967	13,165	9.9	5.2
Greece	426	475	517	575	651	11.2	6.2
Italy	2,439	2,698	3,199	3,734	4,119	14.0	6.4
Luxembourg	11	12	12	14	16	9.7	5.0
Netherlands	1,416	1,526	1,718	1,913	2,173	11.2	6.6
Norway	477	529	577	618	691	9.7	7.5
Portugal	473	551	646	705	682	9.5	9.8
Turkey	395	456	621	729	913	23.3	13.1
United States	81,443	77,854	74,862	77,638	78,462	−0.9	4.8

[a] These defence expenditure figures follow the NATO definition, which is comprehensive and common to all NATO countries. They therefore differ from those in Table 2. Exchange rates are those ruling on 1 July 1973.
[b] Average annual compound growth of expenditure at current prices between 1969 and 1973.
[c] Annual rate derived from consumer price indices. The figures indicate the rough magnitude of inflation affecting defence expenditures, but not the actual rate within the defence sectors.

6. COMPARATIVE STRENGTHS OF ARMED FORCES 1953–1973
(in thousands)

Year	USA	Japan	West Germany	France	Britain[a]	USSR
1953	3,480	119[b]	—	695	902	4,750
1954	3,350	146[c]	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

[a] Excluding forces enlisted outside Britain. [b] Security Force. [c] Self-Defence Forces.

7. STRENGTH OF MILITARY FORMATIONS

Country	Division (in men)			Mechanized brigade (in men)	Squadron (in aircraft)		
	Mechanized	Armoured	Airborne		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	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*.)

8. GUIDED MISSILES[a]

(A) LAND AND AIR SERVICE[b]

Anti-tank

Country of origin	Designation	Length (cm)	Launch weight (kg)	Warhead		Range		Guidance		Carriage	ASM version
				Type[c]	Weight (kg)	Minimum (metres)	Maximum (metres)	Missile	Warhead		
Britain	*Swingfire*	106	n.a.	HC	n.a.	150	4,000	WG/O	—	veh/hel	*Hawkswing*
	Vigilant	100	14	HC	5	200	1,400	WG/O	—	man/veh	
France	*ENTAC*	82	12.2	S	4	400	2,000	WG	—	man/veh	
	Harpon	121	30.4	AP	n.a.	400	3,000	WG/aut	IR	veh	
	SS-11	120	29.9	AP	n.a.	500	3,000	WG/O	—	veh/hel	AS-11
	SS-12	187	75	AP/S	30	n.a.	6,000	WG/O	IR	veh/hel	AS-12
France/ Germany	*Milan*	75	6.3	S	n.a.	25	2,000	WG/O	IR	man	
	Hot	127	20	HC	n.a.	75	4,000	WG/O/aut	IR	veh/hel	
Germany	*Cobra* 2000	95	10.2	HC	2.5	400	2,000	WG/O	—	man	
Italy	*Mosquito*	111	14.1	HC	n.a.	360	2,400	WG/O	—	man/veh/hel	
Japan	KAM-3D	102	15.7	AP	n.a.	350	1,800	WG/O	—	man/veh/hel	
	KAM-9	150	n.a.	AP	n.a.	n.a.	n.a.	WG/O	IR	man/veh/hel	
Sweden	*Bantam* Rb-53	88	7.5	HC	1.9	250	2,000	WG	—	man/veh/hel	
USA	*Dragon*	74	6.13	—	n.a.	500	1,500	WG/O	—	man	
	Shillelagh	114	27	S	n.a.	n.a.	+5,200	O/CG/aut	—	AFV	
	TOW	117	18	S	n.a.	63	3,000	O/WG	—	veh/hel	
USSR	*Snapper*	114	22.25	HC	5.25	500	2,000	O/WG	IR	veh/AFV	
	Sagger	76	11	?HC	2.7	500	3,000	O/WG	—	man/veh	
	Swatter	112	15	HC	n.a.	n.a.	n.a.	O/WG	?IR	veh/AFV	

Surface-to-air

Country of origin	Designation	Length (cm)	Launch weight (kg)	Slant range (metres)	Effective height		Guidance		Carriage and remarks
					Minimum (metres)	Maximum (metres)	Missile	Warhead	
Britain	*Blowpipe*	135	12.7	3,000	n.a.	n.a.	CG	PF	man/naval (SLAM)
	Bloodhound Mk 2	846	n.a.	80,000	n.a.	n.a.	SAHR	PF	Sweden = Rb-65
	Thunderbird Mk 2	635	n.a.	75,000	n.a.	n.a.	SAHR	PF	towed
	Rapier	221	65	5,500	50	5,000	CG/TV	n.a.	towed
	Tigercat	148	60	3,500	50	n.a.	CG	PF	towed/naval
France	*Crotale*	289	80	8,500	50	3,000	CG	IR/PF	veh; S. Africa = *Cactus*
France/Germany	*Roland* Mk 1	240	63	8,000	500	6,500	CG/O	PF	AFV (Mk 2: AFV/naval)
Italy	*Indigo*	320	121	10,000	1,000	5,000	CG	IR/PF	veh/naval
Japan	*Nike-Hercules J*	1,265	4,720	140,000	n.a.	45,000	CG	CD/CG	HE warhead; fixed
USA	*Chapparal*	291	84	n.a.	n.a.	n.a.	O	IR	veh/naval
	HAWK	503	587	35,000	30	11,000	SAHR	PF	towed/AFV
	Improved HAWK	n.a.	n.a.	41,000	n.a.	n.a.	n.a.	n.a.	
	Nike-Hercules	1,265	4,720	140,000	n.a.	45,000	CG	CD/CG	HE or nuc; fixed
	Redeye	120	13	2,000	n.a.	1,500	O	IR	man. Sweden = Rb-69
USSR	SA-2 *Guideline*	1,070	2,300	45,000	n.a.	18,000	CG/aut	PF/CD	towed/naval
	SA-3 *Goa*	590	n.a.	25,000	n.a.	12,200	n.a.	radar	veh/naval
	SA-4 *Ganef*	915	1,000	70,000	n.a.	24,400	CG	n.a.	AFV, also SSM
	SA-5 *Griffon*	1,650	10,000	250,000	n.a.	29,000	radar	AHR	HE or nuc
	SA-6 *Gainful*	600	n.a.	30,000	100	15,000	CG/O	SAHR	AFV
	SA-7 *Grail*	135	n.a.	3,500	50	3,000	O	IR	man

Air-to-surface

Country of origin	Designation	Length (cm)	Launch weight (kg)	Warhead		Range (km)	Guidance		Launch aircraft and remarks
				Type[c]	Weight (kg)		Missile	Warhead	
Britain	*Blue Steel*	1,067	n.a.	nuc	n.a.	320	inertial	n.a.	
France	AS-20	260	143		30	7	O/CG	IR	
	AS-30	390	520		230	12	O/CG/aut	IR	
	AS-30L	360	380		115	n.a.	O/CG/aut	IR	
France/Britain	*Martel* AS-37	400	n.a.		n.a.	60	PHR	PF	AJ-168 TV/CG
Germany	*Kormoran*	440	580		n.a.	'37	inertial	AHR/PHR	
Italy/France	*Albatros*	n.a.	n.a.		n.a.	80	rad alt	AHR	
Sweden	*Robot* Rb-04D/E	445	600		300	n.a.	CG	? radar	
	Rb-05A	360	n.a.		n.a.	n.a.	CG	PF	
USA	*Bullpup* A	320	260	HC/frag	113	16	O/CG	rad alt	
	Bullpup B	414	810	HE/nuc	455/n.a.	16.5	CG/aut	laser	
	Hound Dog	1,295	4,350	nuc	n.a.	965	inertial	n.a.	B-52G/H
	Maverick	246	227		216	n.a.	O/TV	TV/aut	
	Quail	391	545	decoy	n.a.	400	aut	n.a.	B-52
	Shrike	305	182		n.a.	16	—	A/PHR	anti-radar
	SRAM	427	1,000	nuc	1,900	167	inertial	—	B-52/FB111A
	Standard	450	816		n.a.	25	inertial	PH/ARHM	also naval SAM, SSM
USSR	AS-1 *Kennel*	850	n.a.		n.a.	90	?BR/CG	P/AHR	Tu-16B
	AS-2 *Kipper*	950	n.a.	nuc	n.a.	213	?CG	n.a.	Tu-16C
	AS-3 *Kangaroo*	1,490	n.a.	nuc	n.a.	650	?CG/inertial	n.a.	Tu-95B
	AS-4 *Kitchen*	1,090	n.a.	nuc	n.a.	740	inertial	n.a.	Tu-22B

Naval Surface-to-Surface

Country of origin	Designation	Length (cm)	Launch weight (kg)	Warhead		Range		Guidance		Remarks
				Type[c]	Weight (kg)	Minimum (km)	Maximum (km)	Missile	War-head	
France	*Exocet*	520	720		100	n.a.	35	inertial	AHR	also coastal
Israel	*Gabriel*	335	400		180	2	22	BR/O	SAHR	also 41 km range version
Italy	*Sea Killer* Mk 1	375	168	frag	35	n.a.	10	BR/CG	PF	(*Nettuno*)
	Mk 2	470	270	semi-AP	70	n.a.	28	BR/CG	PF	(*Vulcano*)
Italy/France	*Otomat*	440	700	semi-AP	200	n.a.	80	inertial	AHR	also ASM, coastal
Norway	*Penguin*	300	330		n.a.	n.a.	20	inertial	IR	*Bullpup* warhead
Sweden	Rb.08A	572	1,215		250	n.a.	n.a.	aut/radar	? radar	also coastal
USA	*Harpoon*	475	500		n.a.	n.a.	55	inertial	AHR	
USSR	SS-N-1 *Scrubber*	760	3,000		n.a.	27.8	240	CG	IR	(*Strela* ?)
	SS-N-2 *Styx A*	650	1,000–3,000		n.a.	11	42	aut/?CG	AHR	
	SS-N-7	760	n.a.		n.a.	n.a.	56	n.a.	n.a.	*Styx*-type
	SS-N-9						275	n.a.	n.a.	
	SS-N-10	850	n.a.		n.a.	n.a.	70	n.a.	n.a.	
	SS-N-11	670	n.a.		n.a.	n.a.	70	? radar	n.a.	
	Samlet	820	3,000?		n.a.	n.a.	100	BR/CG	radar	*Kennel* variant

Naval Surface-to-Air

Country of origin	Designation	Length (cm)	Launch weight (kg)	Warhead		Slant range (km)	Effective height		Guidance		Remarks
				Type[c]	Weight (kg)		Minimum (km)	Maximum (km)	Missile	War-head	
Britain	*Seacat*	148	60		n.a.	n.a.	n.a.	3.5	O/CG	PF	also SSM
	Sea Dart	436	550		n.a.	30	n.a.	n.a.	SAHR	PF	also SSM
	Sea Slug Mk 1	600	n.a.		n.a.	45	n.a.	15	BR	PF	also SSM
	Mk 2	610	n.a.		n.a.	58	n.a.	n.a.	BR	PF	also SSM
Canada	*Sea Sparrow*	366	204		27	13	n.a.	n.a.	SAHR	PF	
France	*Masurca* Mk 2										
	Mod 2	529	1,850		48	40	n.a.	n.a.	BR/CG	PF	
	Mod 3	n.a.	2,080		48	50	n.a.	n.a.	SAHR	SAHR	
Italy	*Sea Indigo*	320	121		n.a.	10	1	6	BR/CG	IR/PF	
USA	*Standard MR*	457	590		n.a.	24	n.a.	20	SAHR	PF	} also SSM
	Standard ER	823	1,360		n.a.	56	low	20	SAHR	PF	
	Talos	953	1,542	HE/nuc	n.a.	26.5	n.a.	112	BR	SAHR/PF	SSM (ARHM)
	Tartar	457	545		n.a.	16	n.a.	n.a.	SAHR	PF	
	Terrier	800	n.a.	HE/nuc	n.a.	35	n.a.	20	BR/SAHR	PF	
USSR	SA-N-1 *Goa*	590	n.a.		n.a.	24	1	12	CG	radar	(SA-3)
	SA-N-2 *Guideline*	1,070	2,300		130	45	3	18	CG/aut	PF/CD	(SA-2)
	SA-N-3 *Goblet*	n.a.	n.a.		n.a.	20	n.a.	n.a.	n.a.	n.a.	

Anti-Submarine

Country of origin	Designation	Length (cm)	Launch weight (kg)	Warhead		Range		Guidance	
				Type	Weight (kg)	Minimum (km)	Maximum (km)	Missile	Warhead
Australia	*Ikara*	330	n.a.	US Mk 44 torpedo	n.a.	n.a.	n.a.	CG	AC
France	*Malafon* Mk 2	615	1,500	torpedo	n.a.	n.a.	13	CG	AC
USA	*Asroc* 1	460	435	Mk 46 torpedo/nuc	n.a.	2	10	nil	AC
	UUM-44A *Subroc*	625	1,853	nuc	n.a.	40	56	inertial	nil

[a] Missiles listed here are those in production or about to enter production. For the purpose of this Table a missile is defined as a weapon having its own propellant and a guidance system for the vehicle, warhead, or both. Nuclear delivery missiles (listed in Table 1) and anti-ballistic-missile missiles are not included.
[b] Includes Naval Air.
[c] High-explosive, unless otherwise stated.

ABBREVIATIONS (applicable to this Table only).

AC	acoustic	CG	command guidance	PHR	passive homing radar
AHR	active homing radar	HC	hollow charge	rad alt	radar altimeter
AP	armour-piercing	HE	high explosive	S	shaped
ARHM	anti-radar (radiation) homing missile	frag	fragmentation	SAHR	semi-active homing radar
		IR	infra-red	TV	television optical
aut	automatic	nuc	nuclear	VEH	vehicle
BR	beam-riding	O	optical	WG	wire-guided
CD	command detonation	PF	proximity fuse		

THE MILITARY BALANCE 1974/75

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—such as geographical advantages, development, training, and logistic support—and differences in doctrine and philosophy.

Certain qualitative factors are of special importance. For a variety of reasons, the Soviet Union is likely to have 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 much of it might not meet NATO qualitative standards, is standardized, whereas that of NATO is not, and is thus subject to limitations on interchange and flexibility. NATO has certain strengths, such as the striking power of its tactical air force, but there is little depth in the NATO central area, 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 doubt about the political reliability of some of its members.

The appraisal which follows should therefore be regarded as primarily a quantitative guide, since there are difficulties in giving values to qualitative factors and deciding on their relevance in so short a space. 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: NATO forces are designed 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 over-simplifies 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 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 Soviet or 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, notably in the Leningrad

area and in the Kola Peninsula, would undoubtedly be directed towards Norway. Northern and Central Europe are therefore grouped together in the tables which follow. Southern Europe is shown separately.

COMPARISON OF 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 a number of 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, 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	33	21	6	7	3
Infantry, mechanized, and airborne	13	37	22	32	23	4

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 Rumania. 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 Rumania and such Soviet units normally stationed in Hungary and 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.)
["The Military Balance" was compiled prior to the official notification that Greek military forces would not be available to NATO. This should be taken into consideration in relation to NATO's Southern European forces.—The Editors]

French formations are not in the table; 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 there has been no agreement on the military strategy under which they might be employed. On the other hand, 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 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 therefore show what is, from a NATO viewpoint, the worst case.

The table conceals a marked imbalance in North Norway. In Norway there are only Norwegian forces, a brigade group being located in the north. The Soviet forces facing them, or which could be brought against them from north-western Russia, probably amount to at least four divisions. This 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.

Two further imbalances are worth noting. The first, a legacy from the post-war occupation zones, is a certain maldeployment in the NATO Central European Command, where the well-equipped and strong American formations are stationed in the southern

part of the front, an area which for the most part geographically lends itself to defence, while in the north German plain, across which the routes to allied capitals run and where there is little depth and few major obstacles, certain of the forces are less powerful. The second is that the whole of the Italian land forces, which are 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.

COMPARISON OF 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 under-manning as well—many NATO and Warsaw Pact divisions are kept well below strength in peacetime. Also, 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. 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) . .	620	910	610	550	355	105

The table still reveals an 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 Pact 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 200,000 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.

THE MOVEMENT OF 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 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.

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 formations stationed elsewhere in peacetime.

	Divs			Indep bdes/regts			Marines	
	Armd	Mech	Other	Armd	Mech	Other	Divs	Bdes
Active Forces								
United States	1	1	4	—	2	2	2	—
Britain	—	—	1	—	—	4	—	1
Canada	—	—	—	—	—	3	—	—
Belgium	—	—	—	—	—	—	—	—
Netherlands	—	—	—	2	3	—	—	—
West Germany	—	—	—	—	—	—	—	—
France	—	3	1	—	—	—	—	—
Totals	1	4	6	2	5	9	2	1
Reserve Forces								
United States	2	1	5	3	7	11	1	—
Britain	—	—	—	—	—	—	—	—
Canada	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	1	1	—	—
Netherlands	—	—	1	—	—	1	—	—
West Germany	—	—	—	—	—	8	—	—
Totals	2	1	6	3	8	21	1	—
Grand Totals	3	5	12	5	13	30	3	1

In the above, British and Belgian divisions are calculated on a 3-brigade basis. 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.

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 wartime 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, 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 very quickly, using the very considerable airlift capacity available. There are in the United States at least another 6 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 21 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 about a quarter 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. 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	10	21	5	22	28	47	3	2	2	—	—	—
Soviet totals	24	21	5	35	28	47	3	2	2	—	—	—

Included among divisions listed elsewhere are 4 Category 1 divisions in Hungary and also a number of divisions that might reinforce Southern Europe, rather than the central sector.

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 70–80 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, should be able in the early weeks to move reinforcements with heavy equipment faster overland than the United States could by sea. 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 combat divisions lies in the inevitable time lag before the American follow-up formations, dependent for their heavy weapons on sealift, 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 2,692 (3,023 including France); Warsaw Pact 2,654. 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 achieving a rate of reinforcement to counter this.

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	20,000	12,400	3,000	6,500	1,700

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 1,500 tanks in Europe. There may be tanks in reserve in the Warsaw Pact area, but in general in the Pact reinforcement system the tanks in formations form the reserves.

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 coming into service may increasingly give more strength to the defence. NATO probably also has more effective airborne anti-tank weapons carried by fighter aircraft and helicopters. In conventional artillery the Warsaw Pact is stronger, perhaps by 2 : 1, though this advantage is partly redressed by the greater lethality of NATO ammunition and its greater logistic capability to sustain higher rates of fire. This capability stems from a significantly higher transport lift, about half as high again in a NATO division as a Warsaw Pact one. NATO has, however, 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 be no better off.

NUMBERS OF 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, surface-to-air weapons and fighter aircraft. In much of this ground-air environment NATO is well prepared; in numbers of aircraft it is inferior. NATO 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. 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 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.

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	165	250	200	8	30	30
Fighter/ground-attack ..	1,250	1,500	1,100	450	225	50
Interceptors	350	2,100	1,100	225	600	200
Reconnaissance	275	500	350	125	50	40

The area of Northern and Central Europe in the table above is slightly wider than for ground troops as 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 more 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 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 give 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; that for the Soviet Union is 4,500.

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 on pp. 88–90. 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 comparisons 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 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 change the balance also remains to be seen.

MUTUAL FORCE REDUCTIONS

Negotiations on the mutual reduction of forces and armaments and associated measures in Central Europe (the full acronym for the talks is MUREFAAMCE but MFR is used here as a more convenient one) 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 table below 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.

NATO	Man-power	Tanks	Air-craft	Warsaw Pact	Man-power	Tanks	Air-craft
United States	190	2,100	240	Soviet Union	460	7,850	1,250
Britain	55	600	130	Czechoslovakia	155	2,900	500
Canada	3	30	40	East Germany	100	1,650	330
Belgium	65	375	140	Poland	220	3,100	730
Netherlands	77	500	160				
West Germany	340	2,950	600				
	730	6,555	1,310				
France	58	325	400				
Total	788	6,880	1,710	Total	935	15,500	2,810

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 leave 161,000 American troops (a reduction of 29,000) 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 59,000 and by the Warsaw Pact of 166,000.

The Warsaw Pact proposal covered both ground and air forces in the area. The base figures from which it might start (these are Western estimates) would be: NATO, 906,000; Warsaw Pact, 1,110,000. The proposal envisaged cuts in three stages: an initial reduction of 20,000 by both sides by 1975, leaving figures of 886,000 and 1,090,000; a second reduction of 5 per cent by 1976, leaving 841,000 and 1,035,000; and a third and final reduction of 10 per cent by 1977. The figures would then be 750,000 air and ground forces for NATO and 924,000 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 on pp. 88–90 for details of types and some numbers). NATO has an interest in reducing the considerable disparity in tanks that the table above shows.

THE MILITARY BALANCE 1974/75

Problems of Comparing Defence Expenditure And Gross National Product

A widely-used indicator of the economic burden of defence is a country's defence expenditure expressed as a percentage of Gross National Product (GNP). If given without explanation, such a figure can be ambiguous; both defence expenditure and GNP can be variously defined, resulting in a wide range of possible percentages. For international comparisons in particular, therefore, this indicator should be used with full awareness of the bases on which it has been calculated.

DEFENCE EXPENDITURE

Differences can occur principally in determining the scope of defence activities and their valuation. Establishing their *scope* means determining which expenditure can be reasonably described as defence-related—and countries have their own versions of this, which are not immediately comparable. As a rule the defence budget of a country will simply be the expenditure of the Ministry of Defence. However, not all defence-related activities may be within its sphere of responsibility; for instance, military pensions may be in the social security budget, and defence-related research and development in that for science; the cost of para-military forces may be borne by the Ministry of the Interior, and certain military infra-structure costs by the Transport Ministry. Because of this, NATO has devised certain criteria which attempt to itemize what defence expenditure should include to enable budgetary comparisons to be made (though countries may well find these criteria difficult to follow in practice). For NATO countries, therefore, there can be two defence expenditure figures: one based on NATO criteria, the other using national definitions. (National definitions are used throughout this report, except in Tables 4 and 5 where the NATO definition is used.)

Differences in the valuation of defence activities principally concern the valuation of military manpower. In countries with conscription the conscript is invariably paid less than his true economic worth and so is, in effect, being taxed during his compulsory service—which is a hidden cost of defence. Defence expenditure comparisons between countries with conscript forces and those with volunteer forces are therefore not strictly valid. However, comparisons between conscript countries are also dubious, since the effective tax rate on the conscript is likely to differ.

In addition to these points other factors also have to be taken into account. Firstly, national financial years do not necessarily coincide with calendar years and in any case differ between countries (NATO criteria adjust expenditure to a calendar year basis, to improve comparability). Secondly, a distinction has to be made between estimated and audited defence expenditures—that is, between the amount it is envisaged will be spent in a given year (which may require parliamentary approval) and that actually spent. The extent to which estimates will differ from audited figures will vary between countries, especially under conditions of differential inflation. Moreover, not all countries raise their funds and spend them in the same year, as the United Kingdom does; some, like the

United States, can carry forward unspent amounts. In the latter case, one must determine whether a quoted defence expenditure figure is (1) simply the amount requiring current parliamentary approval, (2) that amount plus a sum brought forward, or (3) an estimate of final expenditure after allowance has been made for carrying forward a fraction of the permitted expenditure to the following year.

A comparison of figures for 1973 calculated on NATO criteria and on national definitions shows just some of the disparities that can occur in the presentation of defence expenditure:

Defence expenditure criteria	$m Britain	$m France	$m Germany	$m USA
NATO	8,972	10,112	13,165	78,462
National	8,673	8,438	11,291	79,500
National as % of NATO	96.7	83.4	85.8	101.3

In this table, the NATO figures are for calendar year; British National figure is for the financial year 1 April–31 March; and the National figure for the USA is Estimate of Outlay for the financial year 1 July 1973–30 June 1974. Figures converted at mid-year exchange rates and based on 1973 estimates (not audited figures).

GROSS NATIONAL PRODUCT

GNP is valued according to one or both of two major criteria: at market prices (reflecting the value of the product as it appears to the final consumer) or factor cost, which is a real resource measure that deducts indirect taxes and adds subsidies to the market prices version. Factor cost—which NATO uses—is invariably lower than market price, which means that defence expenditure appears as a higher proportion of GNP.

Whilst these are the two major presentations of GNP, there are a great variety of accounting practices, both within countries and international organizations which produce GNP figures. The use of different practices will give different results, sometimes significantly so. The figures used in the table below are from the European Statistical Office, but except in the case of the United States differ little from the International Monetary Fund figures generally used in Table II on p. 91.

COMPARISONS

The following table takes four NATO countries as an example and gives the variety of figures for defence expenditure expressed as a percentage of GNP that can result from calculating both expenditure and GNP by two different methods.

		Defence expenditure									
		NATO criteria (%)					National criteria (%)				
Country	GNP	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Britain	Market prices	5.39	4.96	4.81	4.99	5.26	5.28	4.88	4.84	4.82	4.88
France	Market prices	4.79	4.32	4.05	3.87	3.67	3.86	3.53	3.50	3.47	3.37
Germany	Market prices	3.58	3.57	3.29	3.35	3.47	3.20	3.15	2.92	2.94	3.06
USA	Market prices	9.18	8.60	7.84	7.0	6.55	8.70	7.87	7.34	7.30	6.78
Britain	Factor cost	6.26	5.83	5.65	5.79	6.05	6.13	5.74	5.68	5.59	5.62
France	Factor cost	5.51	4.99	4.64	4.44	4.20	4.44	4.08	4.01	3.98	3.85
Germany	Factor cost	4.07	4.11	3.74	3.81	3.95	3.64	3.63	3.31	3.34	3.48
USA	Factor cost	10.07	9.41	8.62	7.72	7.21	9.54	8.61	8.07	8.05	7.47

In this table, in the entries for Germany, financial assistance to Berlin is excluded.

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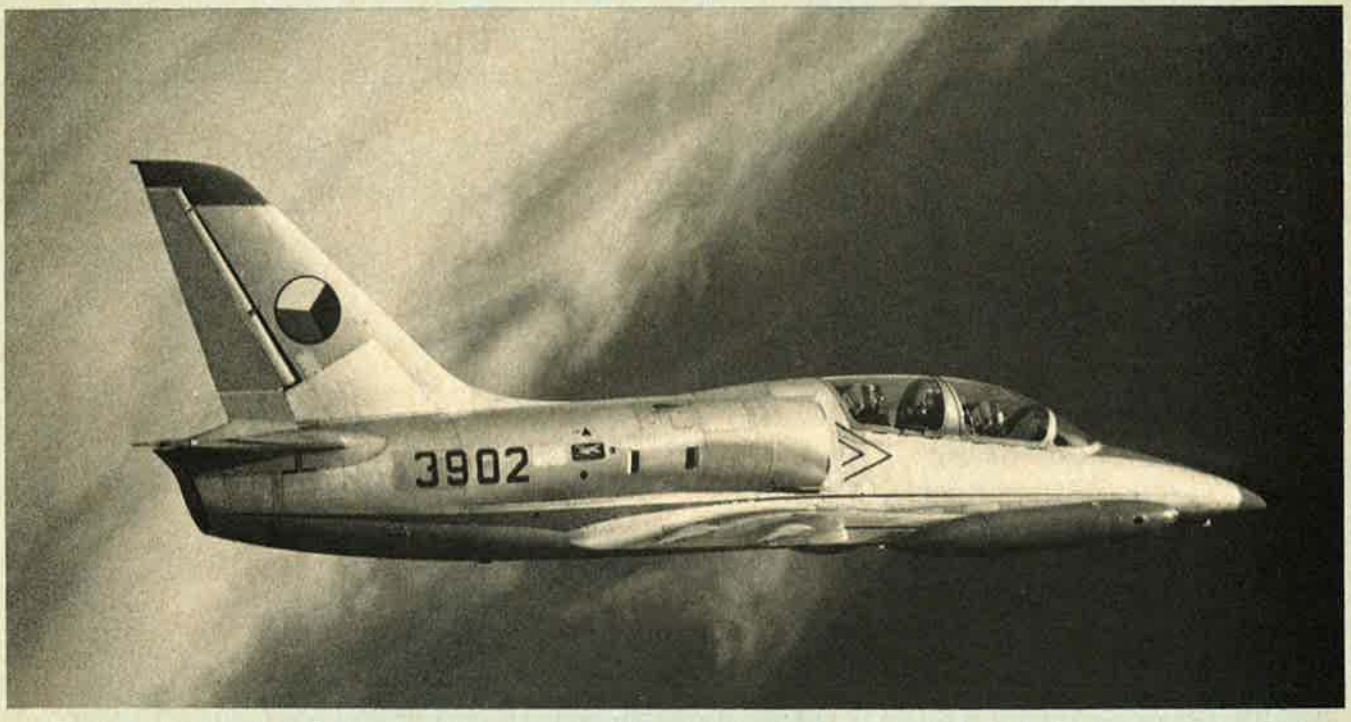


Aero L-39 two-seat trainer in its production form (licence-built Ivchenko A1-25-TL turbofan engine)

AERO
AERO VODOCHODY NARODNI PODNIK (Aero Vodochody National Corporation); Head Office and Works: Vodochody, p Odelena Voda, near Prague, Czechoslovakia

AERO L-39

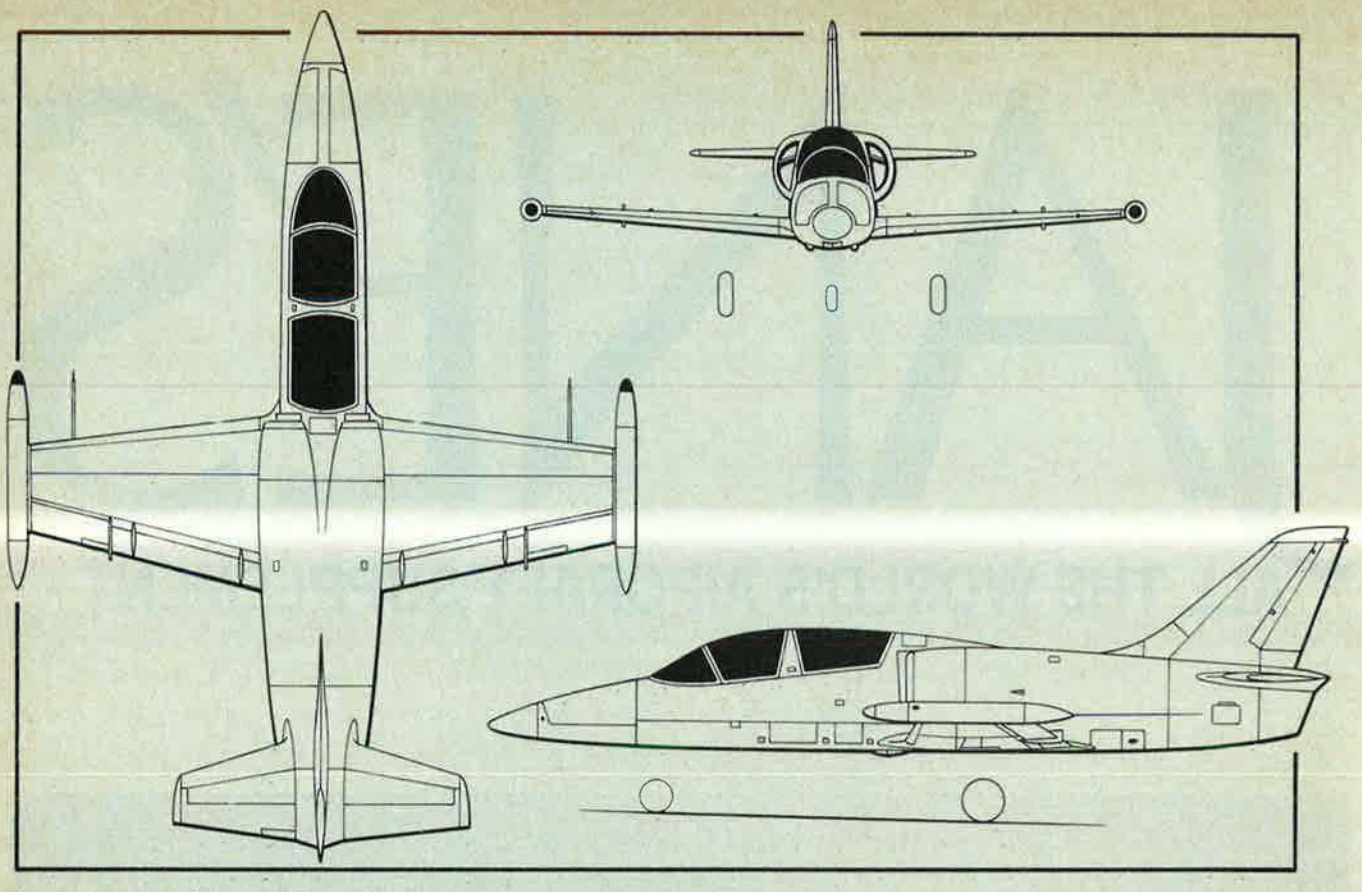
The L-39 basic and advanced jet trainer was developed in the Aero works at Vodochody by a team led by the chief designer, Dipl Ing Jan Vlcek. Two prototype airframes had been completed by 4 November 1968 when the No 02 aircraft flew for the first time. The 01 airframe was utilised for structural testing. By the end of 1970, five flying prototypes and two for ground testing had been completed. Slightly larger and longer air intake trunks were fitted after preliminary flight tests.

The fourth prototype has been flown with underwing rocket pods and air-to-air missiles, to evaluate the L-39 as a light ground attack aircraft, and this version, which is designated **L-39Z**, is reported to have been ordered by Iraq in addition to the standard L-39 trainer.

A pre-production batch of 10 aircraft began to join the flight test programme in 1971, and series production started in late 1972, following official selection of the L-39 to succeed the L-29 as the standard jet trainer of all Warsaw Pact countries except Poland. Service acceptance trials, in Czechoslovakia and the USSR, took place in 1973, and by the Spring of 1974 the L-39 had begun to enter service with the Czech Air Force.

TYPE: Two-seat basic and advanced jet trainer.

WINGS: Cantilever low-wing monoplane, with 2° 30′ dihedral from roots. Wing section NACA 64A012 mod. 5. Incidence 2°. One-



Aero L-39 two-seat basic and advanced jet trainer (Michael Badrocke)

piece all-metal stressed-skin structure, with all-metal hydraulically-operated double-slotted trailing-edge flaps. Airbrake under each leading-edge. Small fence above and below each trailing-edge beween flap and aileron. Trim tab in each aileron. Non-jettisonable wingtip fuel tanks incorporating landing lights.

FUSELAGE: All-metal semi-monocoque structure, built in four sections. Front portion houses electrical and radio equipment and nose landing gear. Next comes the pressurised compartment for the crew. The third section contains fuel tanks and the engine bay. The rear fuselage, carrying the tail unit, can be removed quickly to provide access for engine servicing.

TAIL UNIT: Conventional all-metal cantilever structure, with sweepback on vertical surfaces. Variable-incidence tailplane. Trim tab in port elevator.

LANDING GEAR: Retractable tricycle type, with single wheel on each unit. Hydraulic retraction, main wheels inward into wings, nosewheel rearward into fuselage. Oleo-pneumatic shock-absorbers and low-pressure tyres on all units. Hydraulic disc brakes on main wheels. Pneumatic ram-air system for emergency extension.

POWER PLANT: One 3,792 lb (1,720 kg) st Walter Titan (Motorlet-built Ivchenko AI-25-TL) turbofan engine mounted in rear fuselage, with semi-circular lateral air intake, fitted with splitter plate, on each side of fuselage above wing centre-section. Fuel in rubber bag-type main tanks aft of cockpit, capacity 1,816 lb (824 kg), and two non-jettisonable wingtip tanks with total capacity of 344 lb (156 kg).

ACCOMMODATION: Crew of two in tandem on zero-height ejection seats beneath individual transparent canopies which hinge sideways to starboard. Seats ensure safe

The Aero L-39, selected as the next basic and advanced trainer of all the Warsaw Pact nations except Poland

ejection at speeds between 81 knots (94 mph; 150 km/h) and 491 knots (565 mph; 910 km/h). Dual controls standard, with rod-actuated control surfaces. Cabin air-conditioned.

SYSTEMS: High-pressure hydraulic system for landing gear retraction and control of flaps, airbrakes, and wheel brakes.

ELECTRONICS: Standard equipment includes RTL-11 VHF com, RKL-41 ADF, radio altimeter, MRP-56-P/S marker beacon receiver and IFF.

ARMAMENT: Provision for bombs and rockets. ASP-3-NMU-39 gunsight and FKP-2-2 camera gun standard.

DIMENSIONS, EXTERNAL:

Wing span	31 ft 0½ in (9.46 m)
Wing chord (mean)	7 ft 0½ in (2.15 m)
Wing aspect ratio	4.4
Length overall	40 ft 5 in (12.32 m)
Height overall	15 ft 5½ in (4.72 m)
Tailplane span	14 ft 5 in (4.40 m)
Wheel track	8 ft 0 in (2.44 m)
Wheelbase	14 ft 4¾ in (4.39 m)

AREAS:

Wings, gross	202.4 sq ft (18.8 m²)
Ailerons (total)	13.26 sq ft (1.23 m²)
Flaps (total)	28.89 sq ft (2.68 m²)
Airbrakes (total)	5.38 sq ft (0.50 m²)
Fin	29.78 sq ft (2.77 m²)
Rudder	7.68 sq ft (0.71 m²)
Tailplane	42.30 sq ft (3.93 m²)
Elevators	12.27 sq ft (1.14 m²)

WEIGHTS AND LOADINGS:

Weight empty	7,055 lb (3,200 kg)
Normal T-O weight	9,083 lb (4,120 kg)
Max T-O weight	9,998 lb (4,535 kg)
Max wing loading	44.65 lb/sq ft (218 kg/m²)
Max power loading	2.74 lb/lb st (2.74 kg/kg st)

PERFORMANCE (at normal T-O weight):

Max limiting Mach number	0.80
Max level speed at 16,400 ft (5,000 m)	405 knots (466 mph; 750 km/h)
Cruising speed at 16,400 ft (5,000 m)	367 knots (423 mph; 680 km/h)
Stalling speed, flaps up	97 knots (112 mph; 180 km/h)
Stalling speed, flaps down	84 knots (97 mph; 155 km/h)
Max rate of climb at S/L	4,330 ft (1,320 m)/min
Service ceiling	37,075 ft (11,300 m)
T-O run	1,475 ft (450 m)
T-O to 50 ft (15 m)	2,180 ft (665 m)
Landing from 50 ft (15 m)	2,885 ft (880 m)
Landing run	2,035 ft (620 m)
Range with tip-tanks empty, 5% reserve of main fuel	491 nm (565 miles; 910 km)

Artist's impressions of the USAF's C-12 (CX-X), above, and US Army's Huron (UX) pressurised transport aircraft, below, derived from the Beechcraft Super King Air

BEECHCRAFT

BEECH AIRCRAFT CORPORATION; Head Office and Works: Wichita, Kansas 67201, USA

BEECHCRAFT MODEL A200

This derivative of the Super King Air T-tail pressurised turboprop transport has been selected for service with the US Army and USAF as a result of the joint-service competition for UX/CX-X aircraft, in which turbofan-powered types were also entered. The initial $20.6 million contract, announced by Beech on 13 August 1974, covers the manufacture and support of two military versions of the A200, as follows:

C-12. USAF CX-X version, for use in air attaché military assistance groups and for cargo transportation. Fourteen ordered, with an option on 16 more.

Huron. US Army UX utility transport. Twenty ordered. Contract includes an option for both services to purchase worldwide aircraft servicing, including on-site personnel, facilities for inspection and maintenance, and for stocking spare parts at strategic points.

These aircraft are described as "standard off-the-shelf Super King Air types, modified slightly to meet military flight requirements and to orient the control systems for two-pilot operation which is standard military practice". Accommodation will be provided for eight passengers, plus two pilots, with easy conversion to cargo missions. The large baggage area will have provisions for storing survival gear.

Worldwide deployment of the C-12s and Hurons is scheduled to begin in July 1975 and to be completed by May 1976. Standard power plant will comprise two 750 shp United Aircraft of Canada PT6A-38 turboprop engines, each driving a Hartzell three-blade fully-feathering and reversible-pitch constant-speed propeller. Usable fuel capacity will be 348 US gallons (1,318 litres). In other respects, the details given for the Super King Air in the 1974–75 *Jane's* apply generally to the C-12 and Huron, with the following exceptions:

DIMENSIONS, EXTERNAL:

Length overall	43 ft 10 in (13.36 m)
Height overall	14 ft 10 in (4.52 m)

DIMENSION, INTERNAL:

Cabin: Length	16 ft 5 in (5.00 m)

WEIGHTS AND LOADINGS:

Basic empty weight	7,755 lb (3,518 kg)
Max T-O and landing weight	12,000 lb (5,443 kg)
Max ramp weight	12,085 lb (5,481 kg)
Max zero-fuel weight	10,400 lb (4,717 kg)
Max wing loading	39.6 lb/sq ft (193 kg/m²)
Max power loading	8.0 lb/shp (3.6 kg/shp)

PERFORMANCE (estimated at max T-O weight):

Max level speed at 15,000 ft (4,570 m)	263 knots (303 mph; 488 km/h)
Max cruising speed at 30,000 ft (9,140 m)	227 knots (262 mph; 421 km/h)
Service ceiling	29,200 ft (8,900 m)
Service ceiling, one engine out	17,600 ft (5,365 m)
T-O to 50 ft (15 m)	2,820 ft (860 m)
Landing from 50 ft (15 m)	2,514 ft (766 m)
Range at max cruising speed	1,085 nm (1,250 miles; 2,010 km)

SUKHOI

GENERAL DESIGNER IN CHARGE OF BUREAU: Pavel Osipovich Sukhoi, USSR

SUKHOI Su-15
NATO code name: "Flagon"

There are now known to be five variants of this twin-jet Mach 2.5 all-weather interceptor, as follows:

"Flagon-A". Basic single-seat interceptor, in standard service with the Soviet Air Force and described in the 1974–75 *Jane's.* Simple delta wings, identical in form to those of the Su-11 ("Fishpot-C").

"Flagon-B". The STOL version appeared in the Soviet Aviation Day display at Domodedovo Airport in 1967, with three lift-jet engines mounted vertically in the centre-fuselage and wings of compound sweep similar to, but different in detail from, those of the "Flagon-D/E" combat aircraft. This version is unlikely to be more than an R and D prototype; it was described briefly in the 1970–71 *Jane's.*

"Flagon-C". Two-seat training version.

"Flagon-D" and **"Flagon-E".** Generally similar to "Flagon-A", but with wings of compound sweep, produced by reducing the sweepback at the tips without increasing the span.

BOEING

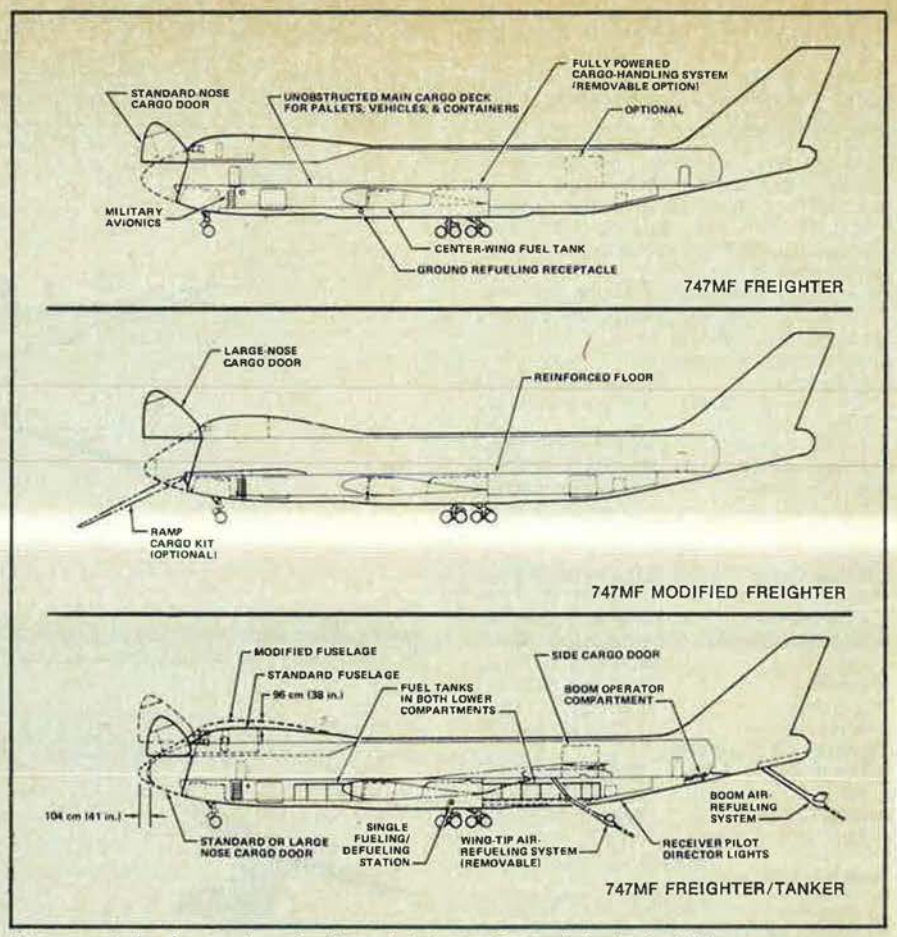
THE BOEING COMPANY; Head Office: PO Box 3707, Seattle, Washington 98124, USA

BOEING 747MF MILITARY FREIGHTER

In late August 1974 The Boeing Company announced that it was studying an improved military freighter version of the basic Boeing 747F. This latter aircraft, as described in the 1974–75 *Jane's,* is available with Pratt & Whitney JT9D-7A turbofan engines (747-200F) and will also become available with General Electric CF6-50 turbofan engines (747-200F(CF6)). Take-off weight of the CF6-powered version will be 800,000 lb (362,870 kg), a significant "stretch" of 12.7% over the 710,000 lb (322,050 kg) take-off weight of the 747-100 which introduced the type to the world's airways in 1970.

Boeing has made a careful study of the application of the 747F to military freighting, and has given details of three proposals under the following designations:

747MF Freighter: a military version of the existing 747F civil freighter;



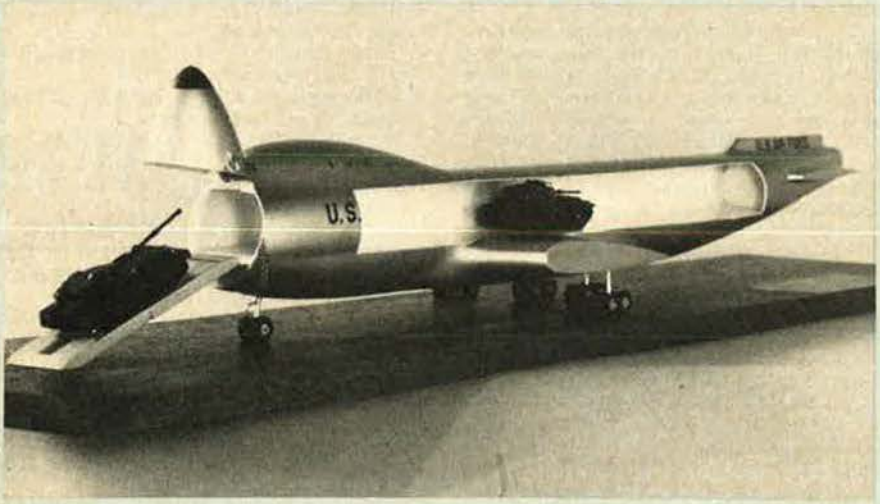
Diagrams of the three projected military freighter versions of the Boeing 747 heavy transport

747MF Freighter/Tanker: a freighter/tanker similar to the existing 747F civil freighter, but which could become available optionally with the nose-loading door and flight deck changes proposed for the

747MF Modified Freighter: a longer-term specialised military freighter, with larger nose-loading door, flight deck changes, reinforced floor, "kneeling" nosewheel gear, and stowable ramp.

Further details of the three variants are as follows:

Model depicting the loading of US Army M-60 and British Chieftain tanks on the 747MF modified freighter with increased-height nose door and stowable ramp



747MF FREIGHTER

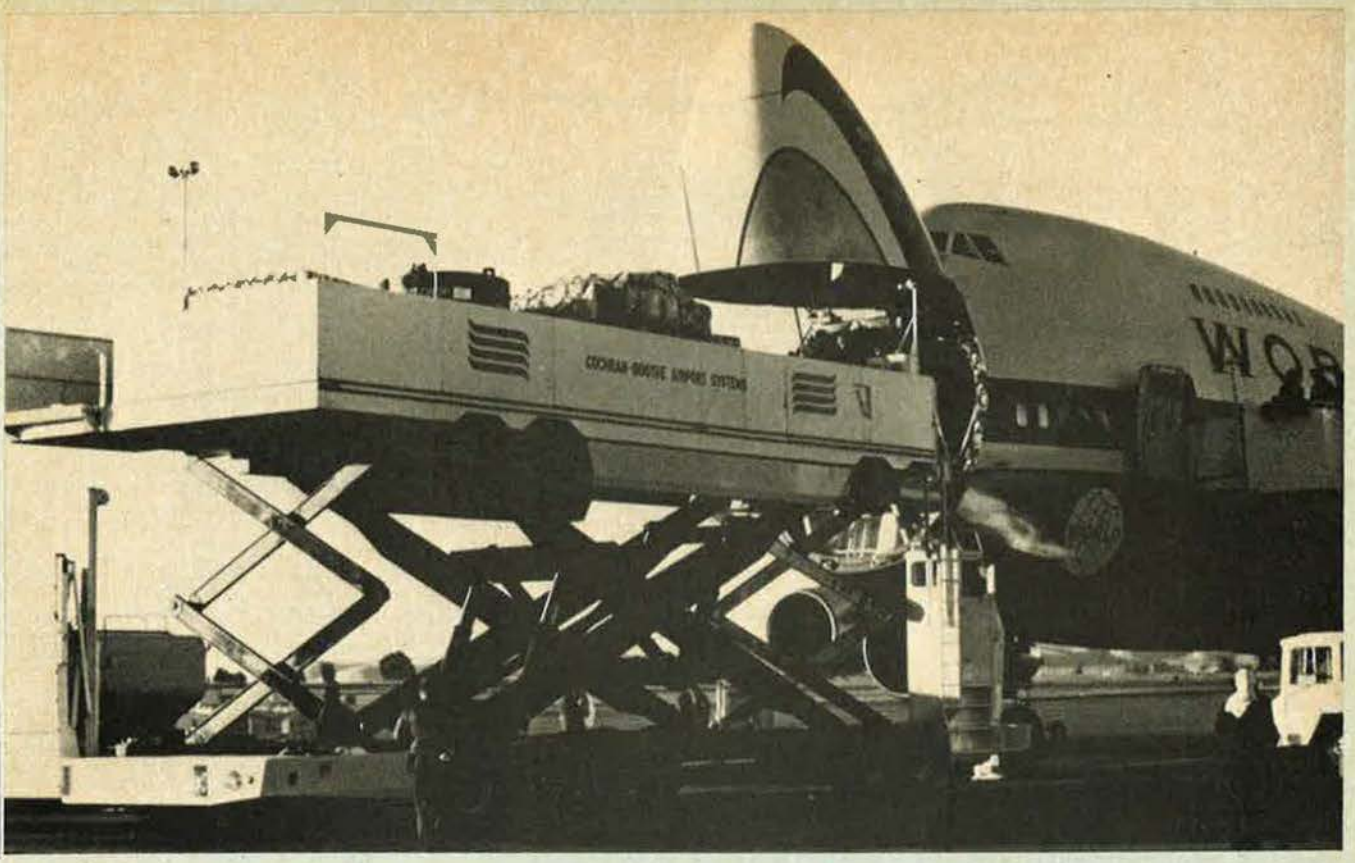
This is an interim proposal that would allow the supply of a military freighter virtually "off the shelf". It would be essentially the same as the 747-200F as described in the 1974–75 *Jane's,* requiring a Cochran-Boothe or modified military Type K loader, or conventional freight dock for loading and unloading of the cargo. Once on board the aircraft, the load can be handled easily by two men, using the installed powered cargo handling system. With a combination of power drive units, castors, sill rollers, and lock/roller trays, this proven and effective system enables an aircraft to be loaded or unloaded in little more than 20 minutes.

Essential modifications necessary for this version to enter service would include military avionics and a navigator's station, but Boeing estimates that delivery of the first of such aircraft could be made within 18 months of a contract award. Maximum take-off weight would be 820,000 lb (371,950 kg).

747MF FREIGHTER/TANKER

Next within the time scale of the proposals, an interim version of the freighter/tanker could be supplied. In this case, a multiple wingtip and tail-mounted flight refuelling system would be applied to the 747MF, with fuel tanks installed in the lower cargo compartments, and provision of a station for the flight refuelling boom operator.

Such a variant could also be produced from the basic 747F, without the need to wait for major structural changes. At a later stage of development a rather different freighter/tanker would emerge, and it should then prove possible to apply the new equipment to interim versions by retrospective modification. Time scale for delivery of the



Loading typical military cargo on to a World Airways 747 by means of a Cochran-Boothe transporter-loader

first interim tanker/freighter versions would be approximately 3 years from contract award.

Utilisation of a Boeing 747 in a tanker role would allow the transfer of fuel to three tactical fighters simultaneously, drawing supplies from one tail and two wingtip refuelling booms. By using the tanker to refuel a 747MF en route to a distant base, the freighter would be enabled to carry a 200,000 lb (90,720 kg) payload for 6,300 nm (7,250 miles; 11,675 km), and return without having to refuel from destination supplies.

Any of the freighter versions could be used for the transfer of bulk fuel in palletised bladders, and could deliver 31,000 US gallons (117,345 litres) per sortie over a range of 2,800 nm (3,225 miles; 5,190 km), operating from and to runways less than 6,000 ft (1,828 m) in length. With a turnround time of about 30 minutes, the aircraft could then return to its base without needing to refuel from theatre supplies.

Maximum take-off weight of the freighter/tanker would be 880,000 lb (399,160 kg), representing a 10% increase over the maximum take-off weight of the 747F(CF6).

747MF MODIFIED FREIGHTER

This is regarded as the ultimate version of the military freighter based on the 747, and is a longer-term project requiring some 3 years 9 months from receipt of a go-ahead.

It is intended primarily for the transport of outsize loads, the word outsize being used to specify loads too large for carriage by C-141 StarLifters. To fulfil such a role it would have a larger nose-loading door, to provide a vertical opening of 11 ft 4 in (3.45 m), compared with 8 ft 2 in (2.49 m) on the 747F, and a floor-level width of 12 ft 10 in (3.91 m), which is 1 ft 3 in (0.38 m) wider than that of the civil freighter. To allow for the increased height, the familiar hump of the flight deck would need to be raised 3 ft 2 in (0.97 m), imposing a minor drag penalty, which it is calculated would affect range and payload by only 5%.

Two additional features are necessary to give this version the versatility intended by Boeing's designers: a "kneeling" system for the nose landing gear, and a stowable ramp to make the aircraft independent of external facilities for the loading or unloading of vehicles and cargo.

"Kneeling" of the nose gear would be accomplished by a hydraulically-powered screwjack, which would swing the gear forward and upward to lower the aircraft's nose a total of 6 ft 6 in (1.98 m). This would provide a sill height of 9 ft 6 in (2.90 m), putting the aircraft's main deck at an angle of 4°, which presents no difficulty for loading by winch or vehicle power.

Complementary to the above is the proposed stowable ramp, deployed hydraulically and which, depending on its finalised design, would be set at an angle of between 19 and 22 degrees. If used in conjunction with the "kneeling" nose gear modification, the ramp angle in relation to the ground would be only 11°.

The ramp itself is not envisaged as a simple inclined loading platform. Although it will be so designed that wheeled and tracked vehicles can embark and disembark under their own power, an integral transfer mechanism powered by the aircraft's electrical system will make easy the handling of pallets and non-wheeled equipment. It is estimated that the weight of such a ramp would not exceed 10,000 lb (4,536 kg).

In addition, the floor of the cargo compartment would be reinforced to accept maximum military loads, and the combination of these proposals would allow the 747MF to embark and carry two US Army M-60 or British Chieftain tanks, a load which only the Lockheed C-5 can airlift at the present time. A more typical resupply load could comprise three loaded ¾-ton trucks, four loaded 2½-ton trucks, an armoured personnel carrier, three loaded ¼-ton trucks, and three ¾-ton trailers. This payload of some 140,415 lb (63,690 kg) could be delivered over a range of more than 5,600 nm (6,450 miles; 10,380 km). Maximum take-off weight of this version would be 880,000 lb (399,160 kg).

In the 747MF Modified Freighter project an interesting use has been suggested for the accommodation available in the hump area aft of the flight deck. This could be converted to provide quarters for personnel when the aircraft was operating at remote bases. Dining, recreation, and shower facilities could be included, with ample space for bunks, tables, and other stowable accessories. This would allow for the self-support of the crews of six fighter aircraft, those of the 747MF, and key maintenance personnel for all seven aircraft.

WESTLAND

WESTLAND HELICOPTERS LTD; Head Office: Yeovil, Somerset BA20 2YB, UK

WESTLAND 606

Westland 606 is the designation of the civil version of the Lynx military helicopter, referred to briefly in the *Jane's Supplement* in the April 1974 issue of AIR FORCE Magazine. First details were announced at the end of August 1974. It is now in an advanced stage of design; a full-size mockup has been completed, and first flight of a prototype 606 is scheduled for December 1975.

Westland anticipates an initial market for more than 100 of these aircraft, of which

Full-scale mockup of the Westland 606 multi-purpose civil helicopter, derived from the military Lynx

about half would be sold in the United States. The major application of the 606 is considered to be in support of worldwide offshore oil and gas industry operations, where its twin engines, semi-rigid rotor, all-weather capability, and full blind-flying instrumentation, combined with an operational radius of 200 nm (230 miles; 370 km), should prove particularly advantageous. Added features of special value in such operations are the 606's automatic stabilisation equipment, optional automatic transition from cruising flight to hover, and the capability to run the main rotor in negative pitch. This last feature provides a downthrust of 4,000 lb (1,814 kg) to help hold the helicopter down when it may be obliged to operate on a wind-lashed rig deck.

For this role the cabin can accommodate 12 or 13 passengers, according to whether one or two pilots are carried, and can be adapted quickly to mixed passenger/cargo configurations or to a three-stretcher aero-medical configuration with space also for up to four sitting patients and a medical attendant.

Alternative applications include those of business or VIP transport (typically with five or eight passenger seats), or for such public service roles as emergency rescue, coastal search and rescue, or winching operations from high-rise buildings.

Westland is investing £1 million in development of the 606, in which its French partner Aérospatiale is also taking part. Aérospatiale, which currently undertakes some 25% of the production of the military Lynx (including the monobloc rotor hub forging), will build about 20% of the Westland 606, and an eventual joint output of eight Lynx and two 606 per month is foreseen. Certification by the CAA is anticipated in 1976, with deliveries to begin in the same year, within nine months of order. Based on 1974 prices, the flyaway cost is estimated at £292,000 ($700,000).

The same rotors, gearboxes, and transmission systems will be common to both the Lynx and the 606, and most of the fuselage components will also be common to both types. As can be seen from the accompanying illustrations, the fuselage configuration of the 606 is essentially similar to that of the Lynx, except for an increase in overall length. The 606 will be offered initially with either two 900 shp (max) Rolls-Royce Gem turboshaft engines, or with two United Aircraft of Canada PT6B-34 turboshafts having the same rating. Landing gear will be of the tubular skid type, similar to that fitted to the British Army version of the Lynx.

TYPE: Twin-turboshaft multi-purpose civil helicopter.

ROTOR SYSTEM AND ROTOR DRIVE: As for Lynx.

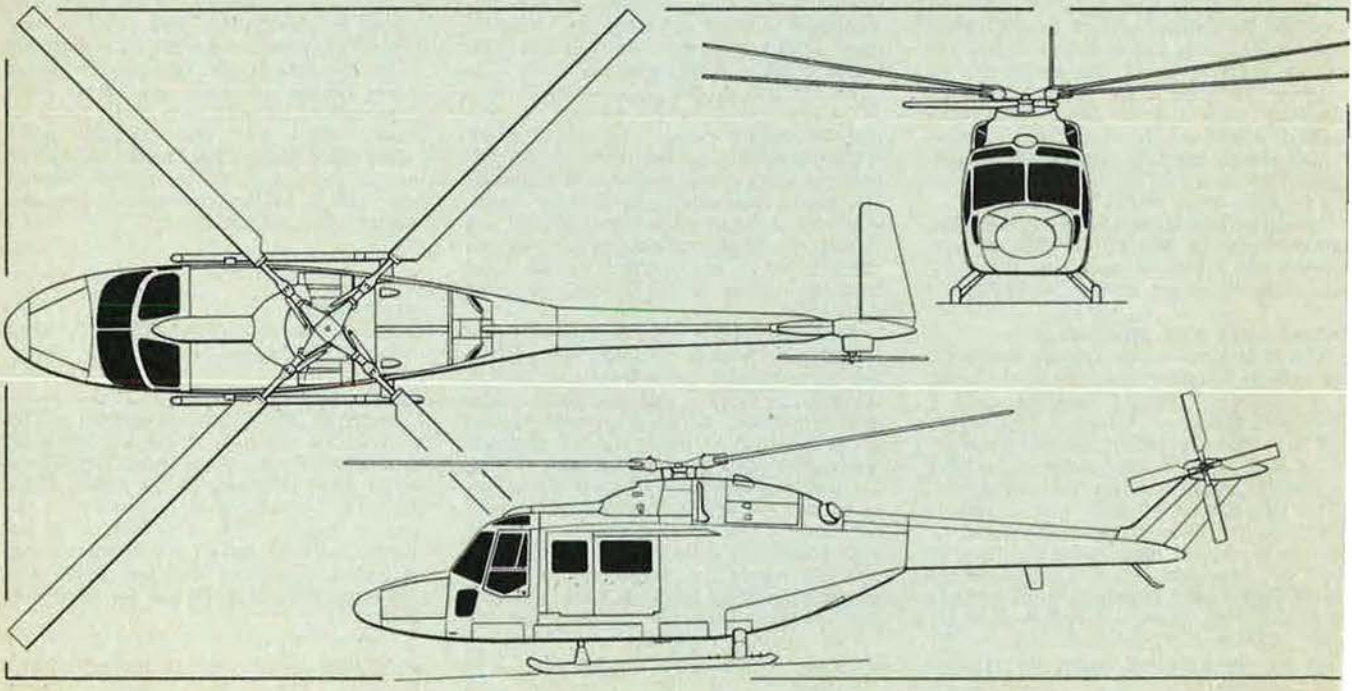
FUSELAGE AND TAIL UNIT: Generally similar to Lynx, possibly with greater use of glass-fibre components.

POWER PLANT: Two 900 shp (max contingency rating)/750 shp (max continuous rating) Rolls-Royce Gem or United Aircraft of Canada PT6B-34 turboshaft engines, limited to a combined transmission max rating of 1,385 shp. Standard fuel load of 1,598 lb (725 kg); max fuel load, with auxiliary tanks, 3,196 lb (1,450 kg).

ACCOMMODATION: One or two pilots side by side on flight deck; cabin accommodation for up to 12 or 13 persons accordingly, or three stretchers, four sitting patients, and a medical attendant *(see introductory copy)*. Executive/VIP versions can be furnished with desks, tables, cabinets, and other in-flight amenities to customer's requirements.

ELECTRONICS AND EQUIPMENT: Standard avionics equipment includes automatic stabilisation equipment (ASE); three-axis autopilot; acceleration control computer system for stability at high speeds; full blind-flying instrumentation; and facility to run main rotor in negative pitch. Automatic transition from cruising flight to hover available optionally. External cargo hook, stressed for loads of up to 3,000 lb (1,360 kg). Provision for quickly-installed rescue hoist, hinged to swing out through side door of cabin. Other specialised equipment (*e.g.*, firefighting materials, mountain rescue gear, and the like) according to role.

Westland 606 fourteen-seat helicopter (two 900 shp Rolls-Royce Gem or UACL PT6B-34 turboshaft engines) (Pilot Press)



DIMENSIONS, EXTERNAL: As for Lynx, except:
Fuselage length, tail rotor turning
47 ft 6¾ in (14.50 m)
Height overall, both rotors turning
11 ft 10¼ in (3.61 m)
DIMENSIONS, INTERNAL:
Cabin: Min length 7 ft 8¼ in (2.34 m)
Max floor width 5 ft 10 in (1.78 m)
Max height 4 ft 8 in (1.42 m)
WEIGHT:
Max T-O weight 9,500 lb (4,309 kg)
PERFORMANCE (estimated, at max T-O weight except where indicated):
Max cruising speed at max T-O weight:
S/L, ISA
148 knots (170 mph; 275 km/h)
S/L, ISA + 20°C
138 knots (158 mph; 255 km/h)
at 8,200 ft (2,500 m), ISA
108 knots (124 mph; 200 km/h)
at 4,925 ft (1,500 m), ISA + 20°C
112 knots (129 mph; 208 km/h)
Max cruising speed at up to 8,000 lb (3,630 kg) AUW:
S/L, ISA to ISA + 20°C
164 knots (189 mph; 303 km/h)
at 8,200 ft (2,500 m), ISA
108 knots (124 mph; 200 km/h)
at 4,925 ft (1,500 m), ISA + 20°C
112 knots (129 mph; 208 km/h)
Single-engine speed range at S/L, ISA, at AUW of 9,000 lb (4,080 kg)
18–144 knots (21–166 mph; 33–267 km/h)
Hovering ceiling in ground effect:
ISA 10,660 ft (3,250 m)
ISA + 20°C 7,220 ft (2,200 m)
Hovering ceiling out of ground effect:
ISA 8,530 ft (2,600 m)
ISA + 20°C 4,590 ft (1,400 m)
Range at S/L, ISA, with allowances for T-O, landing, 15 min loiter, and 5% reserve fuel:
zero payload 340 nm (390 miles; 630 km)
with 2,204 lb (1,000 kg) payload
300 nm (345 miles; 556 km)

SEPECAT

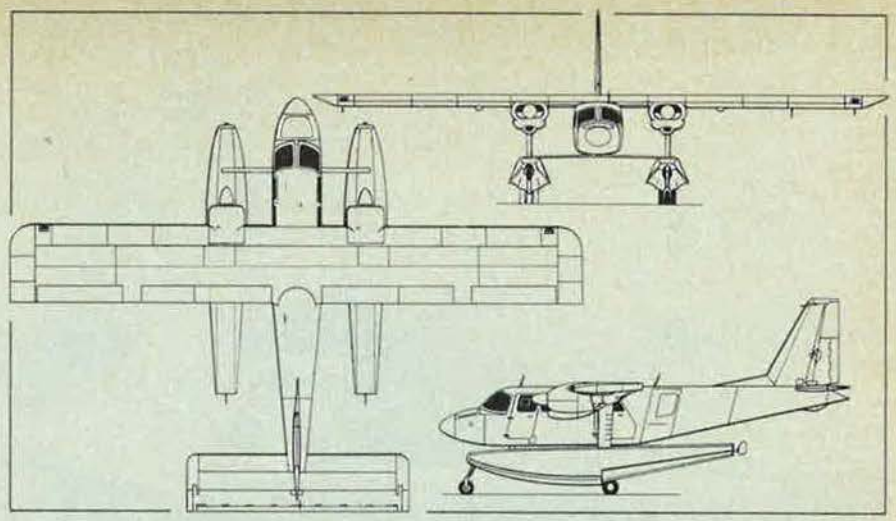
SEPECAT; Addresses: British Aircraft Corporation Ltd, Brooklands Road, Weybridge, Surrey KT13 0RN, UK; and Avions Marcel Dassault/Breguet Aviation, BP 32, 92420—Vaucresson, France

SEPECAT JAGUAR

The following new version has been announced:

Jaguar International. This export version of the Jaguar was announced by BAC on 28 August 1974, with the news of orders worth £80 million from two overseas customers: these are the Sultan of Oman's Air Force, which has ordered 12, and the Ecuadorean Air Force.

The Jaguar International differs little from the standard single-seat Jaguar S strike version, except in having a more powerful version of the Adour turbofan engine—the RT. 172-26 Adour Mk 804—which increases total S/L thrust by nearly 10% for take-off and by 27% at Mach 0.8/0.9. All export Jaguars will be fitted with this mark of engine; other customer options being developed include overwing pylons compatible with Magic or similar dogfight missiles; a multi-purpose nose radar; anti-shipping weapons such as Exocet and Kormoran; and night sensors such as low light level television.



Amphibious floatplane version of the Britten-Norman Islander, announced simultaneously with the PADC licensing agreement (Pilot Press)

PADC

PHILIPPINE AEROSPACE DEVELOPMENT CORPORATION; Address: Philcomcen Building, Ortigas Avenue, Pasig, Rizal, Republic of the Philippines

PADC (BRITTEN-NORMAN) ISLANDER

In one of the largest single orders ever placed for a British civil aircraft, the PADC has purchased, for progressive assembly and manufacture in the Philippines, 100 Britten-Norman BN-2A Islander twin-engined transport aircraft from the UK. It is already involved in a similar type of programme with the German MBB BO 105C helicopter.

The Islanders will be produced under a four-phase, five-year programme, due to begin in November 1974 with the delivery of six 300 hp Islanders to PADC as pattern aircraft. Phase 2 involves 14 unpainted aircraft, which will be delivered to Manila without cabin trim, furnishings, and avionics; PADC will fit these out, from February 1975, initially at one per month but rising to two per month by May 1975. This phase will be completed in December 1975. Phase 3 involves 20 aircraft to be assembled by PADC from knock-down kits supplied by Britten-Norman. The final phase (60 aircraft) will include the manufacture of sub-assemblies and other aircraft components by PADC, using jigs and detailed parts supplied from the UK. Twenty-five of these 60 aircraft will be repurchased by Britten-Norman for sale throughout the world.

PADC will also become the sole installation centre in Australasia for the amphibious floats which are to be developed for the Islander, once this version becomes operational.

SCOTTISH AVIATION

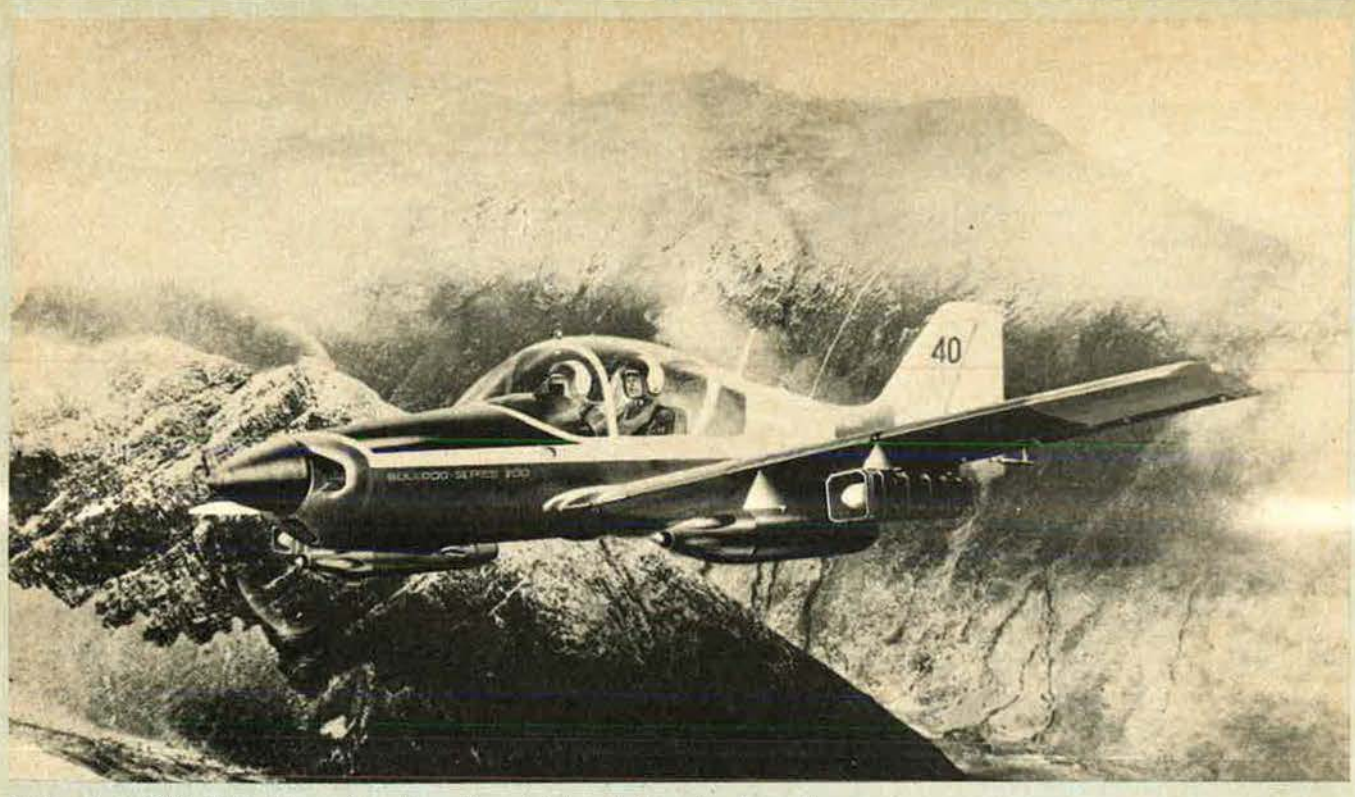
SCOTTISH AVIATION LTD; Head Office and Works: Prestwick International Airport, Ayrshire KA9 2RW, Scotland

SCOTTISH AVIATION SA-3-200 BULLDOG SERIES 200

The current production version of the Bulldog two/three-seat military trainer, as described in the 1974–75 *Jane's*, is the Series 120, which to date has been ordered by the Royal Air Force (130 Model 121), the Ghana Air Force (six Model 122), the Nigerian Air Force (20 Model 123), and the Jordanian Royal Academy of Aeronautics (five Model 125). These were preceded by two flying prototypes (first flight 19 May 1969) and 98 Series 100 aircraft (see 1972–73 *Jane's*); both production series were fitted with a non-retractable tricycle landing gear.

In the Autumn of 1974, Scottish Aviation announced that a further version of the Bulldog was under development. This is the Series 200, in which the major differences are a fully-retractable landing gear, a choice of either a 200 hp or a 210 hp fuel-injection engine, and provision for an optional fourth seat. Other improvements, compared with the Series 120, include a longer and cleaner engine cowling; deepened and repositioned firewall, giving more space for avionics and instrumentation, with easier access; an additional fuel tank in the fin; a plug-type cockpit canopy of revised contours; and increased aerobatic and non-aerobatic weights. In addition to basic, aerobatic, and weapons training roles, the Series 200 is suitable for military observation, liaison, reconnaissance, forward air control, light strike, and supply dropping duties, as well as for sport flying.

Artist's impression of the Scottish Aviation Bulldog Series 200, with retractable landing gear and four seats



Bulldog Series 200 in light strike configuration, with underwing missiles and rocket pods

A prototype of the Series 200 is scheduled to fly during the second half of 1975, with first deliveries of production aircraft to follow in 1976.

The description of the Bulldog Series 120 applies generally to the Series 200, except in the following respects:

TYPE: Two/four-seat light aircraft.

LANDING GEAR: Tricycle type, generally similar to that of Series 120, but fully retractable.

POWER PLANT: One 200 hp Lycoming IO-360-A1B6 four-cylinder engine and two-blade constant-speed Hartzell propeller, as in Series 120; or one 210 hp Rolls-Royce Continental IO-360 six-cylinder horizontally-opposed aircooled engine, driving an appropriate two-blade constant-speed propeller. Four metal wing fuel tanks, as in Series 120, with combined capacity of 32 Imp gallons (145.5 litres); plus a 3 Imp gallon (13.5 litre) metal tank in the fin. Total fuel capacity 35 Imp gallons (159 litres).

ACCOMMODATION: As Series 120, but provision for up to four seats in cabin.

ARMAMENT: Standard aircraft is unarmed, but has provision for installation of four underwing hardpoints to which various weapon loads can be attached if required. Maximum underwing load 640 lb (290 kg).

DIMENSIONS, EXTERNAL:

Wing span	32 ft 11.6 in (10.048 m)
Length overall	24 ft 1.06 in (7.342 m)
Height overall	8 ft 11.03 in (2.718 m)
Tailplane span	11 ft 0 in (3.35 m)
Wheel track	6 ft 8 in (2.03 m)
Wheelbase	5 ft 9 in (1.75 m)
Propeller diameter	6 ft 2 in (1.88 m)

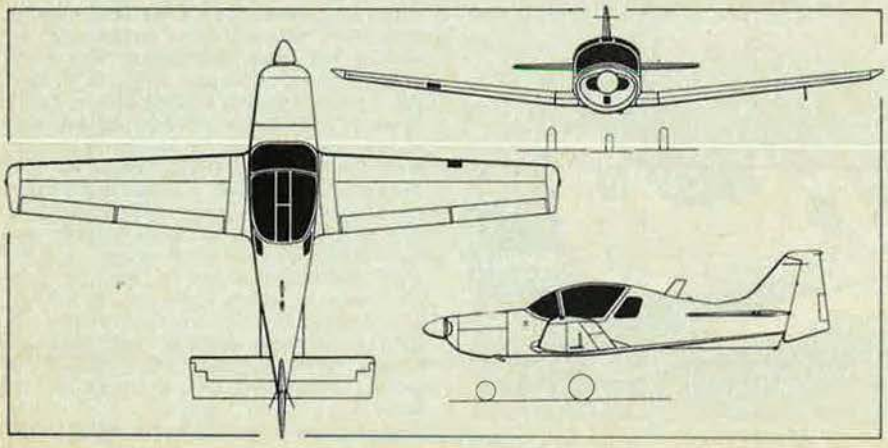
WEIGHTS:

Typical operating weight empty	1,810 lb (821 kg)
Max aerobatic T-O weight	2,293 lb (1,040 kg)
Max T-O weight	2,601 lb (1,179 kg)

PERFORMANCE (estimated, at 2,293 lb; 1,040 kg AUW, ISA):

Max level speed at S/L	150 knots (173 mph; 278 km/h)
Max cruising speed at 4,000 ft (1,220 m)	140 knots (162 mph; 260 km/h)
Max rate of climb at S/L	1,160 ft (353 m)/min
Service ceiling	18,500 ft (5,640 m)
T-O to 50 ft (15 m) at S/L	1,280 ft (390 m)
Landing from 50 ft (15 m) at S/L	1,238 ft (377 m)
Range (55% power) with max fuel	590 nm (680 miles; 1,094 km)
Max endurance	5 hr

Scottish Aviation Bulldog Series 200 (200 hp Lycoming or 210 hp Rolls-Royce Continental IO-360 engine) (Pilot Press)



FUJI

FUJI HEAVY INDUSTRIES LTD; Head Office: Subaru Building, 7-2, 1-chome, Nishishinjuku, Shinjuku-ku, Tokyo, Japan

FUJI FA-300

Design and development of the FA-300 is now to proceed as a collaborative venture between Fuji and Rockwell International of the US, following the signing of an agreement between the two companies on 28 June 1974.

The FA-300 will be a six/eight-seat business aircraft, with a low wing configuration, a pressurised cabin, and a power plant of two 360 hp Lycoming IGSO-540-A1D engines. It will be available in the US with a choice of power plants, under the Rockwell designations **Commander 700** and **Commander 710.**

Development costs, estimated at $10 million, will be shared 60% by Fuji and 40% by Rockwell International.

Fuji will undertake the basic design and the construction of two prototypes of the standard version, the first of which is expected to fly in late 1975. Rockwell will design and test optional alternative versions. There will eventually be final assembly lines in both Japan and the US, although Rockwell will have overall responsibility for series production.

Airman's Bookshelf

Rebutting the Revisionists

The Imperial Republic: The United States and the World 1945–1973, by Raymond Aron, translated by Frank Jellinek. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1974. 339 pages. $10.

Raymond Aron, French philosopher, historian, sociologist, and strategist, has always been a man who can understand and appreciate both sides of a dispute, deliver a balanced critique, and then offer his own persuasive judgment. *The Imperial Republic* convinces me that Aron remains a voice of rare clarity.

For example, Aron writes that the US would do Europe a favor by withdrawing a substantial number of troops. This would give Europeans "the initiative they need to rise above their status as protected states."

Aron rejects the revisionist thesis that the US was primarily to blame for the onset of the cold war. Why didn't Stalin, for example, join the Marshall Plan when it was offered? The Soviet grasp on Eastern Europe, Aron writes, "was still too recent and too precarious for Stalin to accept the risk of keeping communications open between the West and the countries he was trying forcibly to integrate into a different system." Aron thinks Stalin made up his mind in 1944–45 to position Communist regimes in Eastern European countries as a "bulwark."

According to Aron, the diplomacy of the Truman Administration was essentially correct. He notes generally that Truman and Stalin opted for caution rather than confrontation. In June 1948, when the Berlin crisis erupted, Truman decided on the "technical triumph" of supplying Berlin by air rather than attempting to break the blockade by military convoy.

Aron also departs from revisionism on the question of military influence on national security policy. He observes that over the past quarter century civilians have had more influence on policy than the military, this trend reaching its peak under McNamara. Even earlier, substantial defense-budget increases had been made by President Truman and his Secretary of State, Dean Acheson, who argued that US military preparedness was not equal to its foreign commitments. And more than a decade later, the concept of flexible response was formulated by civilians (and Maxwell Taylor, summoned from retirement).

Nuclear weapons, Aron notes, are designed to achieve their political goal without being used. Thus, "the doctrine of use is transformed into a doctrine of nonuse, a political or psychological doctrine in no way military in the traditional sense of the word."

What of the future? Aron forecasts a "relative lack of interest" in global affairs on the part of the US. America and Russia have now accepted a status of equality. But there is danger. Though Soviet diplomacy has been drained of its revolutionary intent, the men in the Kremlin have not relinquished their power drives.

Consequently, though isolationists will cry withdrawal and globalists "will try to win every match," the US needs prudent leaders who also have the will to stay the course. This path will not be easy—only necessary.

—Reviewed by Herman S. Wolk, Office of Air Force History.

Solzhenitsyn

The Gulag Archipelago, Vol. I, by Aleksandr I. Solzhenitsyn; translated by Thomas P. Whitney. Harper & Row, New York, N. Y., 1974. 660 pages. $12.50; paperback $1.95.

Indicting the Soviet judicial and penal system, Aleksandr I. Solzhenitsyn observes, "For several centuries we had a proverb: 'Don't fear the law, fear the judge.' But in my opinion, the law has outstripped people, and people have lagged behind in cruelty. It is time to reverse the proverb: 'Don't fear the judge, fear the law.'" This is the hard-won wisdom of a man who has seen at firsthand the impersonal cruelty of a system under which the one possible outcome for every trial is a predetermined sentence.

The title refers to the transit prisons and camps dotting the face of the Soviet Union like islands in an archipelago. "Gulag" is an acronym in Russian for "Chief Administration of Corrective Labor Camps." This volume is the first of the three which comprise a broad study.

An early devastating chapter traces the roots of the Soviet Criminal Code, which was drafted in the early 1920s. A letter from Lenin at that time declares: "The court must not exclude terror."

There are exhaustive details of conversations with former prisoners, the author's personal observations, and some interesting comparisons with prison life under earlier regimes, supposedly as cruel. But we learn that Tsarist prisoners were even allowed a few days of rest when arriving at prison camp; in modern Russia they are put to hard labor at once.

The depressing litany of suffering has been recited by Koestler and others. Solzhenitsyn documents his retelling of the tragically familiar story in an insistent voice that speaks for silent millions now in unmarked graves or still enslaved in camps we cannot locate on our maps.

As a "connoisseur" of camps and prisons, the author discusses them as a traveler compares hotels and scenic landmarks. "It is a rare *zek* (prisoner) who has not known from three to five transit prisons and camps; many remember a dozen or so, and the sons of Gulag can count up to fifty of them without the slightest difficulty."

Most political prisoners were arrested under provisions of infamous Article 58, a catch-all law for nearly every conceivable crime against the Soviet system. "Does it matter a damn what rake they haul you in with?" asks the writer.

Sensitive translation enables the

Airman's Bookshelf

book to surmount the language barrier and convey Solzhenitsyn's strange joy at returning to a familiar prison where conditions are less harsh than those he found elsewhere. In the arrogance of his interrogators, he recognizes his own attitudes and conduct as a young Army officer and produces an aphorism: "Pride grows in the human heart like lard on a pig."

When arrested for subversion prior to the end of World War II, the author carried an "accursed suitcase" containing his war diary, which he says "constituted my claim to becoming a writer . . . I had tried to write down everything I saw . . . everything I heard from other people." Luckily this material was burned, unread by his jailers.

The decision to publish "Gulag" followed the arrest and suicide of a friend to whom Solzhenitsyn had entrusted a copy of the manuscript. The lifelong habit of note-taking has resulted in a powerful testimonial to the indomitable human spirit.

—Reviewed by Marjorie Ulsamer, Deputy Director, Publications Division, HUD.

Eisenhower on Eisenhowers

Strictly Personal, by John S. D. Eisenhower. Doubleday, Garden City, N. Y., 1974. 411 pages. $10.95.

As the author tells us at the outset, being the son of Dwight David Eisenhower brings with it both privileges and liabilities. John Eisenhower has always moved in high circles, meeting and knowing men like Stalin, Churchill, De Gaulle, Patton, and Marshall. He stood at the side of General and President Eisenhower through many historic days, and in *Strictly Personal,* the author strives to narrate his own life, full as it has been with his father's fame and accomplishments.

As John Eisenhower notes, he has often been viewed as "his father's voice." In those sections of the book where the author describes Ike's feelings and actions, the reader feels a comfortable closeness to the late General, a closeness only a member of the family could effect. *Strictly Personal* is very much a book about "the Boss," as Eisenhower calls his father. In the Presidential years we see "the Boss" through the eyes of a privileged recorder of events in the Oval Office, a perspective made doubly interesting in light of current public interest in such meetings. In relating his experiences in the White House and as an Army officer in the field, Eisenhower provides a number of observations as to the right and wrong ways to achieve particular objectives. Students of organization will see much "conventional wisdom" in these sections. Nonetheless, these chapters provide useful insight into the problems of executive leadership.

When the author relates other segments of his life, the story is more mundane, approaching the trivial at times. Occasional footnotes remind us of such tangential points as the outcomes of the 1933 and 1956 World Series. Even in these recountings of the routine, the reader may find a vignette that stirs his own autobiographical juices. For me, it was the realization that the "beast barracks" of West Point in 1941 differed little in form or style from my own initiation at the Air Force Academy in 1962.

One finishes *Strictly Personal* with a twinge of sympathy for a talented son still standing in his father's shadow. Even as Presidential Assistant, Ambassador, and just recently, general officer, John Eisenhower remains "his father's voice," and his book's real identity is through its treatment of "the Boss." Sadly, the author really gains center stage only after his father's death.

—Reviewed by Capt. Edward R. Jayne II, USAF, White House Fellow, 1973–74.

Airborne Assault on Arnhem

A Bridge Too Far, by Cornelius Ryan. Simon and Schuster, New York, N. Y., 1974. 670 pages. $12.50.

September 1944. Three months after the successful invasion of the Continent and everywhere the Allied armies were on the attack, hampered only by logistical snags.

Organized German resistance was crumbling and it looked as if the Wehrmacht was on the ropes.

The time seemed ripe for a *coup de main,* and British Field Marshal Sir Bernard Montgomery had a plan: A daring airborne thrust deep into Holland to provide a side door for an assault on Germany's industrial heartland.

Thus, Operation Market-Garden, the most massive airborne attack in history, was launched.

In *A Bridge Too Far,* Cornelius Ryan continues the style he has used so successfully in previous books—that of recounting the historical war drama through the experiences of participants.

Dutch resistance leaders, German officers, Allied paratroopers all play their individual parts as the battle progresses hour by hour, with Ryan interjecting strategic and tactical overlays to hold the fragments together. The result is exciting "you-are-there" reading.

With the US 82d and 101st Airborne Divisions securing the flanks, the 1st British Airborne Division was to drop on Arnhem to take and hold the Rhine bridge there. Simultaneously, an armored column would smash along sixty miles of causeway to the 1st Airborne's relief.

But important elements—like essential communications—began to go wrong from the outset. As in most battles, success depended on planning and luck. In Market-Garden, neither was sufficient. The only commodity in abundance was valor.

In the end, the lightly armed Red Devils of the 1st Airborne were decimated by German armor and infantry reinforcements rushed to the scene. In all, the Allies lost 17,000 men, higher casualties than at Normandy. And Arnhem, which could have been a turning point in the war, became instead a footnote to history.

—Reviewed by William P. Schlitz, Assistant Managing Editor, AIR FORCE *Magazine, and a one-time paratrooper.*

Hitler's Mastery of the Army

Hitler and His Generals: The Hidden Crisis, January–June 1938, by Harold C. Deutsch. University of Minnesota Press, Minneapolis, Minn., 1974. 423 pages. $15.

As Hitler consolidated his power following his rise to Chancellor in 1933, he leaned heavily on the Army for support. The Army in turn

saw Hitler's designs for rebuilding German strength as a godsend to aid its escape from the onerous Versailles restrictions. The honeymoon was given additional life when, on July 30, 1934, Hitler pruned the leadership of the Army's potential rival for military power, the SA, in the "Night of the Long Knives."

As Hitler became more confident of his position, however, he sought to ensure his power over the military. The opportunity arose in early 1938 when bizarre circumstances placed the two leading generals, War Minister Gen. Werner von Blomberg and Commander in Chief of the Army Gen. Werner von Fritsch, at his mercy. Deutsch's account traces the fall of these men as well as the embryonic development of a civilian and military opposition to Hitler.

Deutsch disposes of Blomberg's demise in relatively few pages, the major factors being more clear-cut and less complex than the Fritsch case. Blomberg was a self-serving meddler who had effectively alienated himself from the majority of the officer corps by attempting to draw the Wehrmacht closer to the Nazi party. His marriage to a working girl with a questionable past was the last straw for his aristocratic fellow officers, and Hitler pounced on the resulting scandal to cashier his servile War Minister.

If Blomberg was a scoundrel who received his just desserts, Fritsch was an offended hero. The quiet, introspective bachelor commanded the respect of his subordinates, who loyally stood by him when scandal broke about him. A trumped-up charge of homosexual behavior was brought against the Army Chief through the Gestapo's doctoring of a criminal file involving a Captain Frisch. Stunned and disbelieving, Fritsch managed only a half-hearted defense before Hitler and the Gestapo. His inaction handcuffed those around him who would have liked to help. Dismissed, he was later completely cleared, but not reinstated to his old position.

With the replacement of Blomberg and Fritsch by more suitable generals, Hitler had secured for himself a decisive voice in setting military policy and strategy.

In the meantime, an opposition movement was forming against Hitler, led by men like Canaris, Gisevius, and Oster. Despite overcoming great dangers and infiltrating sensitive positions, the movement was continually thwarted by circumstances and indecisive key figures.

The reader who is not well acquainted with this period of German history could become rapidly lost in the intricate maze of fact and speculation. Much of this speculation results, as Deutsch notes, from the unavailability of the principal witness to the affair, Hitler. But unless other original documents now unknown or thought destroyed appear, Deutsch's work could well become the classic account of the affair.

—Reviewed by Maj. Gary L. Anderson, Department of History, USAF Academy.

New Books in Brief

The Army of the Caesars, by Michael Grant. The Roman Army was a two-edged sword. A proven instrument for expanding and defending the Empire, it could devour itself during times of internal strife. A sharp, and centuries later, still relevant, lesson can be drawn from the effect on the state of a large—and political—standing army. It eventually contributed substantially to the disintegration of the Empire. This book contains intriguing details about how the Roman soldier lived and fought. Charles Scribner's Sons, New York, N. Y., 1974. 365 pages with bibliography and index. $15.

D-Day, by Warren Tute, John Costello, and Terry Hughes. The plans for a World War II invasion of the Continent from England began after Hitler conquered the French in 1940. The history of that strategy is followed by a detailed account of the D-Day landings in Normandy on June 6, 1944, drawn from the official papers, diaries, and the recollections of leaders and followers on both sides. Well-illustrated with black-and-white and color photos and maps. Macmillan, New York, N. Y., 1974. 256 pages with index. $9.95.

First Steps Toward Space, edited by Frederick C. Durant, III, and George S. James. The history of astronautics from 1900 to 1939 is one of small groups or individuals who developed rocketry. Because many stories of these pioneers had never been published, the International Astronautical Federation sponsored a series of symposia on the subject. The memoirs and papers presented at the first two of those meetings make up this tenth and last volume of the Smithsonian Annals of Flight. Smithsonian Institution Press, Washington, D. C., 1974. 307 pages with index. $4.

Flight Through the Ages, by C. H. Gibbs-Smith. This large format book is a catalog of man's fantasies and accomplishments in flight from the earliest mythologies. Each chapter contains drawings and descriptions of the highlights in chronological order. Interspersed are sections of more detailed history and pages of quotes from people concerned with the idea of flight. Thomas Y. Crowell, New York, N. Y., 1974. 240 pages with index. $17.95.

The Generals, Making It, Military-Style, by Maureen Mylander. This well-researched, but largely critical, view of the general and his career is concentrated on the Army. The author, an Army brat, discusses many of the intricacies of generals' lives not usually visible to the public. Some of the aspects described are West Point, the promotion system, war colleges, the general's wife, Pentagon relations with Congress, leadership in war, and retirement. Dial, New York, N. Y., 1974. 397 pages with index. $10.

The Mexican War, 1846–1848, by K. Jack Bauer. This scholarly work deals with the clash between Mexico and the US following the latter's annexation of Texas. Based on material in the National Archives, the book defines the diplomatic causes and traces the military history of the war. It includes two sections of paintings of the period. Macmillan, New York, N. Y., 1974. 454 pages with index. $14.95.

Wings God Gave My Soul, by Joseph W. Noah. When fighter pilot George Earl Preddy, Jr., was killed in 1944, he was the top active ace in the European theater. This paperback is the story of his life made up largely from his diary and explanations by the author. It may be ordered from J. Watson Noah Associates, Inc., 4660 Kenmore Avenue, Suite 1106, Alexandria, Va. 22304. Charles Baptie Studios, 1974. 209 pages. $4.50.

—Reviewed by Kathryn Foxhall

The Bulletin Board

By John O. Gray
MILITARY AFFAIRS EDITOR, AIR FORCE MAGAZINE

New Manpower Commission

The various special committees and commissions created during the past quarter century to explore military manpower practices and hammer out plans to simplify and strengthen them were anything but howling successes. The government usually ignored their recommendations.

Nevertheless, a new high-level manpower group, which some authorities believe will achieve results, is quietly at work in a downtown Washington, D. C., office. This is the Defense Manpower Commission created late last year by Congress. Its charter gives it authority to dig into almost every conceivable existing and proposed personnel-manpower area and to plot military personnel needs for the next decade.

Its overriding task: to determine how manpower can be used more efficiently.

Why might the new Commission find its recommendations accepted by the government when the suggestions of previous blue-ribbon study groups were generally pigeonholed?

One reason is that today there is a genuine dollar crunch, whereas in the 1950s and 1960s, expenditures for people were modest. Personnel budgets rose only slightly each year. Real incentives to streamline procedures, eliminate wasteful practices, and erase unnecessary positions didn't exist then.

The reverse is true today as lawmakers and federal bureaucrats alike moan about surging expenditures.

Congress established the Defense Manpower Commission as a result of the "explosion" of military manpower outlays over the past six years. It ordered the group to "gain control" over the specific manpower programs where price tags have escalated the most.

A Commission spokesman told AIR FORCE Magazine the group is looking into such diverse matters as recruiting practices, headquarters staffing, grade creep, combat-support ratios, tour lengths, PCS travel outlays, the possibility of consolidating more training programs among the services, including joint-service basic and flying training, retirement pay, and cost comparisons with other governmental agencies, business, and industry.

Explosive issues, such as the question of allowing dependents overseas, are also being examined.

The Commission's executive director is retired Gen. Bruce Palmer, Jr., former Vice Chief of Staff of the Army. Retired Navy Capt. Paul Keenan is the deputy director. They head a staff of about twenty-five persons, several of whom are retired military officers with extensive manpower backgrounds. Captain Keenan served several years in Defense compensation and manpower positions.

Heading the Commission is Curtis W. Tarr, former Assistant Secretary (Manpower and Reserve Forces) of the Air Force. Another of the seven commissioners is retired Rear Adm. Lester E. Hubbell, who headed a Defense pay study group in the late 1960s. The Commission, which occupies a suite of offices at 1111 18th St., N. W., Washington, D. C., must complete its study by April 1976. However, it may recommend changes at any time.

A unique feature is that the group, in advancing recommendations, must send them to Congress and the Administration simultaneously. The big question, of course, is whether the two bodies will get together and adopt any of the findings.

Retired Pay, Medicare Aired

The Air Force Association strongly endorsed a modified retired pay recomputation bill at October hearings conducted by a House Armed Services subcommittee. AFA's Assistant Executive Director urged the group, headed by Rep. Samuel Stratton (D-N. Y.), to authorize recomp at age sixty on the basis of January 1972 scales.

The Association, AFA's spokesman said, feels the measure represents "the proper balance between total recomputation and an equitable solution," which takes into account today's fiscal realities. Some 20,000 of AFA's 130,000 members are retired officers and enlisted members.

The subcommittee, at the same time, held the first congressional hearings on the Pentagon's controversial two-year-old proposal to revamp the military's nondisability retirement system. Assistant Defense Secretary (Manpower and Reserve Affairs) William K. Brehm quarterbacked the Pentagon's strong push for the measure. But several subcommittee members were skeptical, particularly about the provision to reduce the fifty percent retirement formula to thirty-five percent. "It would break a contract we have with career people," Rep. Mendel J. Davis (D-S. C.) charged.

AFA underscored the complexities involved in the nondisability retirement bill. It asked the Stratton unit, before acting on the package, to discuss the measure with service members in the field, as it did when it drafted the new flight-pay legislation.

The Association also submitted copies of retirement resolutions adopted by the AFA National Convention in September. One supports the recomp plan. Another asks Congress, should it approve a new nondisability retirement measure, to assure that any cut in benefits would affect only persons joining the military in the future. A third AFA resolution requests the government to erase the "pay-inversion" snafu under which service people retiring after September of this year receive smaller pensions than those who retired earlier (*see item below*).

Fifteen other military-oriented organizations plus influential lawmakers Sen. Strom Thurmond (R-S. C.) and Rep. Bob Wilson (R-Calif.) also supported the recomputation proposal. However, the Stratton unit, reflecting the profound opposition to recomp in the