Left: Typical of the trend in U.S. armament, this Boeing XB-47 "Stratojet" bomber flew for the first time recently. It is powered by six jets and features a unique tandem undercarriage.

SURVIVAL IN THE AIR AGE

The Report of President Truman's Air Policy Commission

THE PRESIDENT'S letter appointing the Commission requires us to recommend an integrated national air policy which (1) will protect the Nation's security to the greatest extent practicable and (2) will foster its economic and social interests.

We deal in this section with the problem of national security.

We believe that the United States will be secure in an absolute sense only if the institution of war itself is abolished under a regime of law. World peace and the security of the United States are now the same thing.

Even the most optimistic view of the record of the United Nations does not assure us that United Nations will develop in time the necessary authority to prevent another great war.

One of the Most Significant Documents of the Day, the Air Policy Commission Report Condensed Here Is An Impartial and Alarming Study of North American Defense. The Role of Air Power* and the Importance of Civil Aviation as an Auxiliary to the Military Force Are Stressed

The United Nations cannot assure a permanent peace except on a foundation of free communication throughout the world.

Unilateral disarmament by the United States is out of the question.

The United States must have a double-barreled policy abroad. It must work to achieve world peace through support and development of the United Nations. And at the same time it must prepare to defend itself for the possibility that war may come. Not being able to count on absolute security under law, it must seek the next best thing—relative security under the protection of its own arms.

Relative security will be founded only in a policy of arming the United States so strongly (1) that other nations will hesitate to attack us or our vital national interests and (2) that if we are attacked, we will be able to smash the assault at the earliest possible moment.

A preparedness program will be extremely expensive. Eighty per cent of the budget for the fiscal year 1948 is in payment for past wars and the maintenance of our present Military Establishment. Eighty-five per cent of our total federal budgets since 1915 have been for war or preparation or payment for war.

We need a new strategic concept for the defense of the United States. This strategic concept must be based on air power.

Heretofore we have had one force in being, the Navy. Now we need two, the Air Arm and the Navy. There is a new element to defend, the air. **Heretofore it was enough to defend the water approaches to the United States. Now we must defend both the water approaches and the air approaches.**

For strategic purposes we must divide the future into two parts—the present Phase I during which we may assume that we have a monopoly on atomic weapons, and Phase II, the time when other nations will have atomic weapons in quantity and the equipment to deliver them in a sustained attack on the United States mainland.

It is proper to assume for our present planning purposes, that other nations are not now producing atomic weapons in quantity.

It would be an unreasonable risk for our present planning purposes to assume that other nations will not have atomic weapons in quantity by **the end of 1952.**

Biological Weapons Too

Biological weapons are undoubtedly being studied in all parts of the world. In an all-out attack on the United States the possibility that they may be used should not be overlooked. They may be delivered by the air or by preplacement of enemy agents.

It is probable that other nations will develop atomic weapons before they develop supersonic bombers in quantity with a striking range of 5,000 miles, or supersonic accurate guided missiles with a 5,000-mile range. Nevertheless, it would be unwise to assume, in the planning of our defense establishment, that other nations will not have the planes and missiles capable of delivering a sustained attack on the United States mainland by the end of 1952.

On first impression it might seem that a major war during Phase I is unlikely; and this opinion has been expressed to the Commission by high military authorities. There is, however, such a thing as blundering into a war, and we must be prepared for war during Phase I.

In Phase II we need an even stronger force. An attack during Phase II would be extremely violent. What we must have and can support in Phase II is a reasonably strong de-

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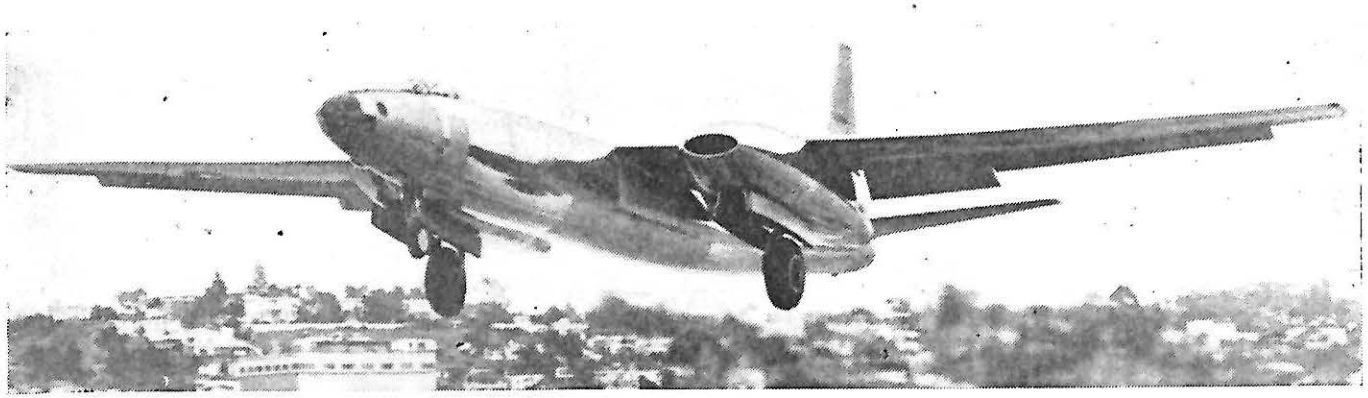

Above: Described as "America's fastest bomber," the Consolidated Vultee XB-46 has four jet engines housed in two sleek underslung nacelles. Length, 106 ft.; height, 28 ft.; span, 113 ft.; gross wt., 91,000 lb.; useful load, 42,982 lb.

fensive establishment to minimize the enemy's blow, but above all a counter-offensive air establishment in being which will be so powerful that if an enemy does attack we will be able to retaliate with the utmost violence and to seize and hold the advanced positions from which we can divert the destruction from our homeland to his.

The Air Force is inadequate even for this Phase I when we are relatively free from the danger of sustained attack on our homeland. The Air Force is hopelessly wanting in respect of the future Phase II period when a serious danger of atomic attack will exist.

The Air Force in being must be increased from its present level (55 groups) to a minimum regular establishment of 70 groups with 6,869 first-line aircraft, an Air National Guard of 27 groups with 3,212 first-line aircraft, and an adequately equipped 34-group Air Reserve. The level of procurement of new aircraft must be high enough to keep this force modern at all times. An adequate reserve, now estimated by the Air Force at 8,100 aircraft, must be created and kept in a proper state of modernization. We must start now on this program and complete it before the end of 1952.

The Navy Air Arm as presently constituted is adequate. The Navy needs, however, additional funds for the procurement of new aircraft to replace the World War II aircraft which are rapidly becoming obsolescent.

Under the Unification Act of 1947, it is the responsibility of the Secretary of Defense, acting under the President, to see to it that the Joint Chiefs of Staff prepare integrated strategic plans for the defense of the country and consolidate the functions of the Services in such a way that the plans can be carried out with a minimum of personnel and equipment and a maximum of effectiveness.

We asked the Secretary of Defense to furnish us with the requirements of the air establishment as they should be now and at various specified future periods. The Secretary of Defense has been unable to comply with this request. The completion of the necessary studies and of the integration of the three Services, without which our strategic plans will not be efficient and economical, will require time.

It is of the utmost importance, however, that the work of the Joint Chiefs of Staff, under the Secretary of Defense and the President, to establish these requirements, be completed at an early date. The real and urgent task is to consolidate and integrate the functions of our total military establishment and to increase the dollar efficiency of every segment of it.

The current budget for the Military Establishment totals $10,098 millions; $2,850 millions is for the Air Force, $4,037 millions for the Navy, and $3,211 millions for the Army. Out of a total budget of $10,098 millions, $4,050 millions is for naval aviation and the Air Force.

The Commission recommended that the increase in the Air Force to 70 groups should be started at once and be completed by the end of the year 1952. This will require an increase in the Air Force budget from the present level of $2,850 millions to $4,150 millions for the calendar year 1948 and $5,450 millions for the calendar year 1949.

The Navy must immediately contract to increase its annual procurement of airplanes in order to equip properly the present fleet with mod-

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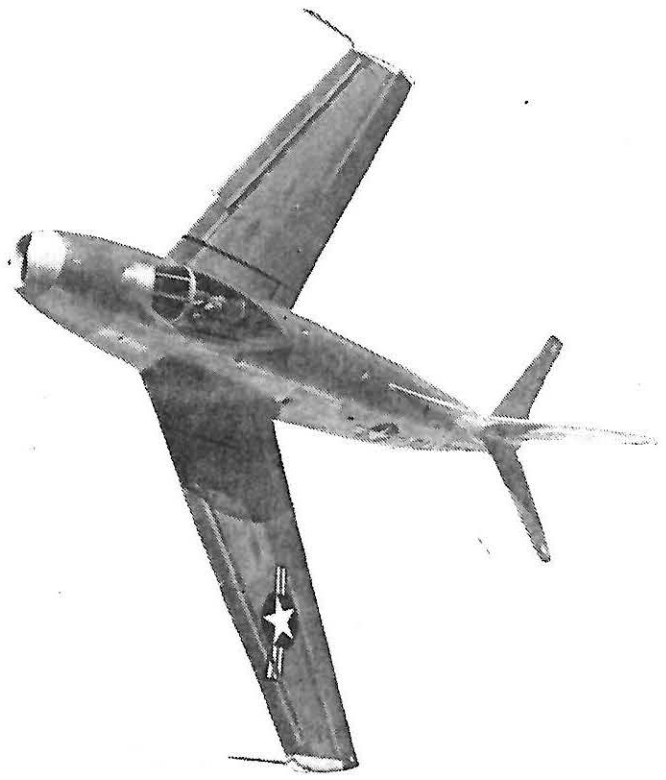

The North American XP-86 is one of the new jet fighters which will spearhead America's defensive weapon. Emphasis on aviation research is urged by the Air Policy Commission.

Flight Safety

(Continued from page 34)

decide it is safe to fly at 500 feet across a big city because you have done it many times. The next time, your engine may quit. It has happened. Remember that the next time you decide it is safe to roll at low altitude because you have done it many times. The next time your harness might slip, or your flying boot might jam the rudder. Ever think of that? It has happened.

Know the laws of our country affecting air navigation and also the laws of good airmanship. Then, observe them.

Know Your Aircraft: Know its fuel capacity, octane rating, consumption and tank arrangement. Know the quantity and grade of oil its engine takes, and how to check it. Be familiar with every tap and knob in the cockpit. Know what it does, how to use it and what it is for. Know exactly how much load it will carry and how it should be disposed. Know what the airplane is licensed to do and what it is not licensed to do. Be familiar with the Certificate of Registration, Certificate of Airworthiness and log books. Know when the airplane was last signed out as airworthy by an air engineer, and when the Certificate of Airworthiness expires.

Accidents are happening every day because pilots do not know their aircraft. Also, pilots are getting into trouble with civil authorities because they are not complying with civil air regulations.

Weather: Accidents continue to happen because of inexperienced pilots getting into weather conditions they cannot handle.

A private pilot obtained an airways weather report and learned that conditions for contact flight over his route were borderline, that ceiling and visibility were low and there were thunderstorms all around. He took off, apparently flew into a thunderstorm, lost control on instruments in turbulent air and hit the ground in a screaming spiral.

Another private pilot, flying a very modern airplane with instruments and radio equipment, took off under conditions of very low ceiling and visibility for a long cross-country flight. He was not a trained instrument pilot. Apparently he got into the overcast, lost control on instruments, and spiraled into the ground.

The only real fear of an experienced pilot flying contact under bad weather conditions is that he will not have the moral courage to turn back when the going gets too difficult, and suffer the attending delay and inconvenience.

Good airmanship requires that you know something about weather. Learn the nature of bad flying weather from books and learn what it looks like from the air. When the ceiling and visibility are coming down, **don't lose contact with the ground.** When they get very bad, get out of the air and stay out.

Keep a Good Lookout: It has always been difficult to train pupils to look around while flying. Perhaps this is because the air seems like such a big place to them, and they are so busy with the mechanics of flying.

Air Force instructors who spent many hours with each pupil knew this. They practically wore a groove in the pupil's mind until a careful look around before starting any manoeuvre was just as natural as the handling of the controls.

Other steps were taken. Some instructors used a system of small fines for failure to look around before starting a turn. Some schools had a gaudily painted airplane which would prowl around. If it could get close to another airplane without being seen, there were penalties.

In spite of all this, with the high concentration of traffic during the war, collisions took place with monotonous regularity.

It is certainly no easier to teach the civil pupil to look around than it was the military pupil. In addition, civil airplanes are inclined to have poorer visibility than military machines, civil pupils report for flying at irregular intervals, and the hours which the instructor spends with him are few in comparison. As a result many civil instructors give up in despair and the pupil just doesn't look around.

To Be Concluded

Survival In The Air Age

(Continued from page 15)

ern planes as World War II reserves are exhausted. The Navy budget should be increased by $192 millions in the calendar year 1948 and by a further $310 millions in the calendar year 1949.

The foregoing recommendations of the Commission would increase the military budget from its present rate of $10,098 millions to $11,590 millions for the calendar year 1948 and to $13,200 millions for the calendar year 1949.

The Air Transport Command and the Naval Air Transport Service should be consolidated into one military air transport service which would handle all scheduled transport work for the Army, Navy and Air Force.

The Commission recommends that the National Security Act of 1947 be amended to provide that the President appoint on June 15 of each second year, or more frequently as he sees fit, a Commission of five citizens, subject to confirmation by the Senate, to review the Military Establishment of the country and its adequacy in the light of the then international military and political situation, and to submit a report of their findings and recommendations to the President on the following January 1. This report to the President should be made public.

The Aircraft Manufacturing Industry—A strong aircraft industry is an essential element in the nation's air power.

As the minimum level to which the industry must be held to provide a safe base for expansion in an emergency, we have adopted the general range of requirements of the Air Co-ordinating Committee in its report of October 22, 1945.

The Air Co-ordinating Committee adopted two levels. The lower level was an estimate that the aircraft industry needed military purchases of 30 million pounds of airframe weight annually. This lower level was on the assumption that the maintenance of world peace was well assured and that a substantial degree of disarmament had taken place.

The second level proposed by the Air Co-ordinating Committee was for 60 million pounds of airframe weight annually. This second level was on the assumption that world conditions were such that the United States needed a substantial striking force ready at all times to co-operate in the maintenance of world peace.

We believe that military purchases of aircraft of 30 to 40 million pounds annually in addition to demands for commercial and private planes would provide a sound basis for expansion in an emergency.

No artificial stimulation to achieve this result is necessary. If the program outlined in section I is carried out the necessary base for expansion of the aircraft industry will exist. The rate of procurement recommended in section I would increase the present military procurement (which is now at the rate of about 21 million pounds

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annually) by contracts for an additional 13 million pounds in the calendar year 1948, and for 22 million pounds in the calendar year 1949 more than 1948.

There follows in the report, an analysis of the present state of the aircraft industry.

We recommend that the Armed Services plan their aircraft procurement as far in advance as possible and that Congress provide the legislative base for such planning. We recommend the placing of orders for planes for delivery over a five-year period whenever possible.

There follows, in the report, a discussion of industrial mobilization planning. We recommend that there be an annual mobilization budget showing the appropriations necessary to put this budget into effect if mobilization is initiated in the then current year; and that the National Security Resources Board set up an Office of War Mobilization to be held ready for activation upon the declaration of a national emergency and mobilization by the President.

There follows, in the report, a discussion of procurement policies, plant dispersion, plant reserve, and machine-tool reserve.

Aeronautical Research and Development—Intensive Research and development in aeronautics is essential to the national defense and to the national welfare. During World War II we concentrated on the development of existing types of aircraft for production and practically abandoned fundamental research in the aeronautical sciences. By VJ-Day our reserve of research information was largely exhausted.

Our fundamental knowledge of aerodynamic phenomena must be extended in all speed ranges, particularly in the supersonic. The provision of additional funds will not of itself solve the problem—the most serious shortage is in personnel.

Other nations are busily at work in aeronautical research. Although we have difficulty in obtaining information from other countries, they have almost complete access to our data. We publicize our latest advances in the aeronautical arts widely. The Commission believes that rigid enforcement of wartime security measures with respect to advanced aeronautical development is necessary.

We believe that more co-ordination of employing atomic energy for the propulsion of aircraft be followed up.

We believe that more co-ordination of Government work on research on guided missiles should be provided.

Research by the National Advisory Committee for Aeronautics with respect to personal aircraft, should seek for lower landing speeds, coupled with higher top speeds. The NACA effort in this area should be limited strictly to basic research and not be applied to the development of any commercial article.

Research and development on gas turbines and rocket engines should be pursued diligently, but research and development on piston type engines should not be abandoned. The con-

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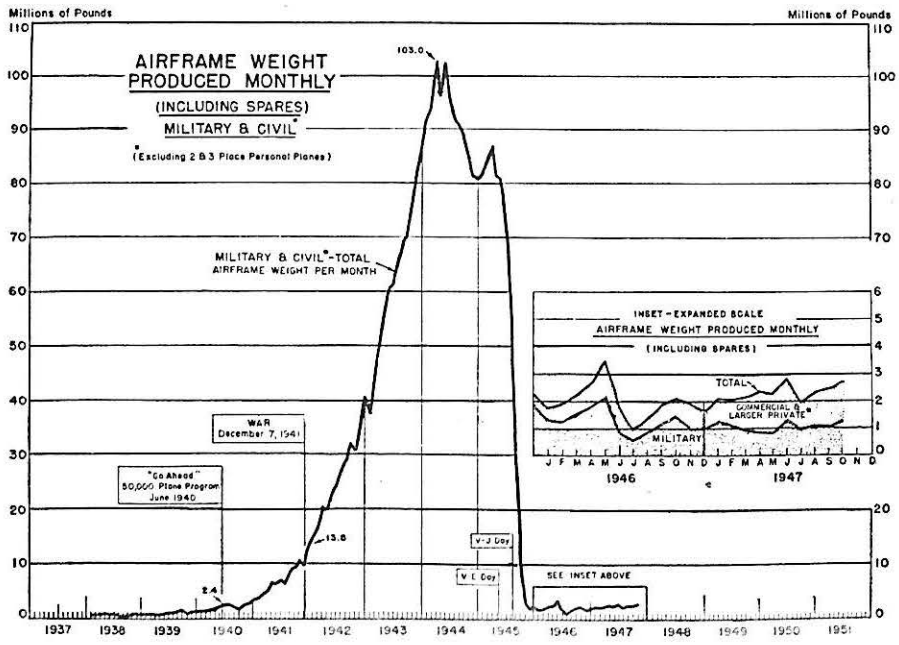

Rise and Fall of Aircraft Industry

Soaring Report

(Continued from page 17)

about $2,500 for the two-seat trainer SGU-2-22. The high-performance all-metal single-seater the Schweizer 1-21 will cost about $4,700 in Canada. The only other source which is reasonable is the United Kingdom where prices are now so high that an Olympia landed in Canada costs about $3,200. which is just about as much as some light airplanes including engines. Other types are also very high, the Grunau Baby costing $2,200 landed in Canada and the SG-3 primary about $1,200.

The only source of cheaper machines is the diminishing pool of used U. S. Army and U. S. Navy two-seaters such as the TG-3a, TG-4a, and TG-32 which can be bought in the U. S. A. for about $700 to $1,000 ($800 to $1,150 in Canada without transport charges). However, this source will dry up fairly soon as no more of these types are being built. Even without embargoes, it is difficult to obtain permission to import a used glider.

In three or four years we shall need in Canada the following types: Trainer two-seater; Practice one-seater; High-performance one-seater; High-performance two-seater and possibly an open primary.

Efforts should be made to encourage university gliding clubs to design and build high-performance sailplanes. This would in time lead to a natural growth of interest in design which would benefit the universities as well as gliding and soaring.

Co-operation of the SAC with the Dept. of Transport has continued in 1947. Much of the work done by the SAC in 1946 and 1947 was regulatory and technical, work which one would expect to be done by the D.O.T. itself. However, D.O.T. is endeavoring to obtain an allocation of funds for the SAC for carrying on this work.

From a technical point of view the National Research Council has recognized the importance of the experimental work being undertaken by some SAC members in the Gatineau Gliding Club. The NRC has advised us that it is including in its program the development of an angle of attack indicator which is the basic instrument for measuring sailplane performance. We have increased our roster of instructors to 36. We need more, particularly in the west. Our growth in gliding certificates is given below. In this connection I must refer