

Performance of U. S. Fighting Planes Best in World, Thanks to Advisory Committee for Aeronautics

Tests and Research Keep America Ahead In Grim Competition

By BARROW LYONS
WNU Washington Correspondent

American facilities for developing new models of military airplanes are being enlarged, and new personnel is being added to avoid a tragic thing that has happened on several occasions. New models of planes have been sent into battle before they were thoroughly tested in the laboratories of the national advisory committee for aeronautics, one of the government agencies least known because most of its work has been secret, but one which has made as great a contribution toward winning the war as any civilian agency.

In a determined effort to gain mastery of the air and save thousands of lives by hastening victory, by further improving the performance of American aircraft the NACA soon will increase its present staff of about 5,000 technicians by 1,500 additional men and women. The staff at Langley Field, Va., which has the largest staff, will be increased by about 750. The Cleveland laboratory will get about 550 new employees, and the research staff at Moffett Field, Calif., near Palo Alto, will be increased by about 250 more technicians.

The nation depends upon the men and women who staff these laboratories more than any others to keep ahead of the Nazi scientists in designing aircraft that will take and hold control of the skies. If the Germans were to design aircraft that could outfly and outshoot our own—and those responsible for American aircraft design declare that possibility exists—the war in the air over Europe might come to a stalemate.

The army and navy have recognized the supreme importance of these laboratories by giving their employees special draft consideration. They are inducted into the army, and then transferred as inactive reservists. They are always on call for active duty; but they do not wear uniforms and they receive civilian pay and United States Civil Service status.

Junior Engineers Needed.
At present there are needed aeronautical, mechanical and electrical engineers of junior grade. They receive \$2,400 a year. Physicists, mathematicians and naval architects of the same grade are needed. Craftsmen, such as instrument makers, tool makers, electricians, metallurgists, pattern makers and airplane mechanics are needed. They receive prevailing rates of government pay on an annual basis.

Women may qualify for a variety of positions. Those with skill in mathematics and physics are assigned to research projects, while those with training as stenographers, typists and clerks are also needed.

But the committee is not looking today for just ordinary help. The projects which these people are working on are among the most vital to war success, and the committee is looking only for unusual young men and women, who can be advanced as vacancies occur—people whose loyalty and intelligence and ability can be depended upon.

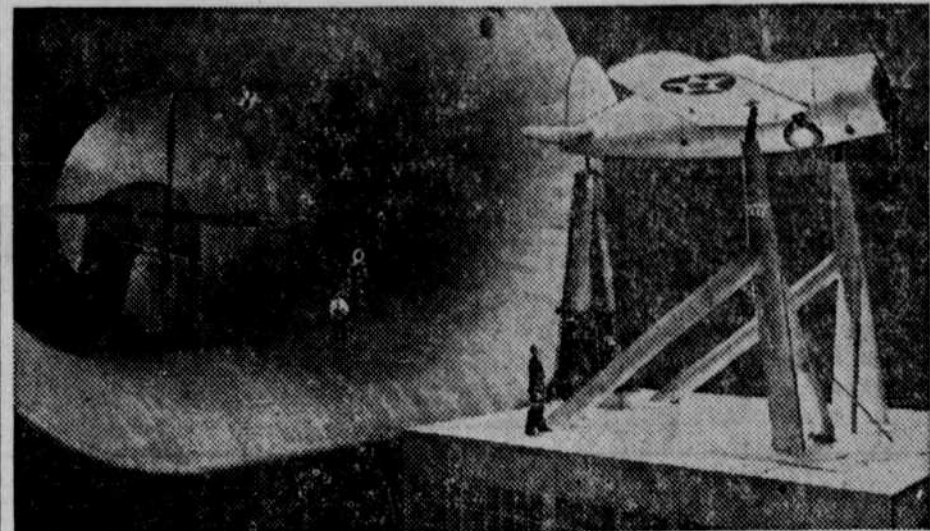
The committee was born in the last war from the necessity of our armed services for airplanes that could compete with those of the enemy. When war broke out in Europe in 1914, leadership in aircraft development had passed from American hands. In March, 1915, congress authorized an advisory body to be appointed by the President and to serve without compensation.

Membership, increased from 12 to 15 in 1929, included heads of military, naval and civil aeronautical organizations of the government, of the bureau of standards, the weather bureau, and the Smithsonian institution, and specially qualified members from civil life. The chairman is elected annually. The paid staff is headed by Dr. George W. Lewis, director of aeronautical research, and by John F. Victory, secretary of the committee, who directs its administrative work.

The first appropriation was \$5,000 a year for five years. With that meager start the committee set about regaining for America a position of leadership in military flying. The NACA emerged from World War I with a research laboratory building at Langley Field, and with its first wind tunnel under construction. With appropriations of about \$200,

000 a year in the era of disarmament and peace treaties, this laboratory laid the foundation for the new science of aeronautics, which again brought leadership to America.

Nazi Research Expanded.
But when Hitler came to power in 1933, he recognized that he must have the strongest air force in the world if he was to subdue the world. With foresight and intelligence, Germany began by concentrating upon scientific research. German laboratories were expanded and multiplied, until at the time of the Pact of Munich the German aeronautical re-



A FIGHTER PLANE, the Brewster XF2A-1, is shown mounted on struts in the full scale wind tunnel, ready for testing. The struts are connected to instruments in the room below the platform, which record the various stresses which the plane undergoes in this largest wind tunnel in the world. (All pictures are official photographs released by the National Advisory Committee for Aeronautics.)

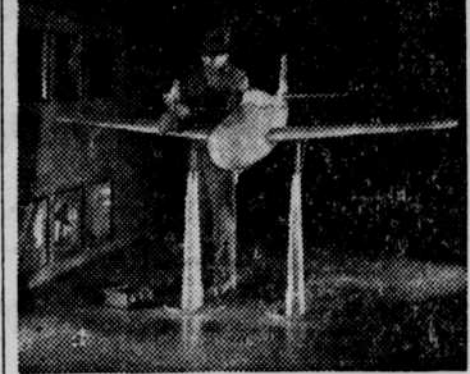
search establishment had become five times the size of that of the United States. But not until Germany was convinced that it could make aircraft superior to that of any other nation did it go into mass production.

The NACA recognized the menace, and in 1937 started a study of the relation of its organization to national defense in time of war. The result was a doubling of the research facilities at Langley Field, and the authorization by congress of two additional major research centers—the Ames Aeronautical laboratory at Moffett Field in 1939 and the Aircraft Engine Research laboratory at Cleveland in 1940.

These are operated in close teamwork with the military services and the aircraft industry. It works like this: Suppose the army air forces want a certain aircraft manufacturer to produce a new type of pursuit plane. The design engineers at the factory confer with experts of the materiel command of the air forces at Dayton, Ohio, and agree tentatively upon general design and specifications. Both groups then confer with NACA experts at Langley Field to incorporate the latest knowledge gained through research.

NACA Checks New Models.
The program calls for the factory to go into production by a certain date. The manufacturer assembles tools and material and makes contracts for sub-assemblies. The army materiel command plans and provides the military equipment, including instruments, armor and armament. The NACA responsibility involves, first, making of dynamically balanced small flying models for experimentation in its free-spinning wind tunnel and in the free-flight wind tunnel.

The free spinning wind tunnel is a vertical tube 20 feet wide with a propeller mounted on the top and



IN THE SMALL wind tunnel, tests are made on new models, many of them highly secret.

drawing air upward. Into the middle of this ascending column of air the airplane model is tossed with its controls set to continue to spin. The controls operated by remote electromagnetic force, are moved just as a pilot would move them to bring the plane out of the spin.

If the controls are effective, the airplane recovers by going into a dive and is caught in a net. If the controls are not effective, the model continues spinning. Adjustments are made in the control surfaces until satisfactory control is attained. Information to revise the design of the controls is relayed at once to the

army and to the manufacturer, and is used to correct the design.

A second model is prepared with similar care and is tested in the free-flight tunnel. That is a wind tunnel 12 feet in diameter inclined at an angle which will permit the model to glide forward through a moving stream of air. The model is equipped with delicate electrical mechanisms which operate the controls, and which enable the research staff to determine what changes are necessary to assure, in advance of production, that the new design will be easily maneuvered and controlled and will have stability.

Through his research Dr. Taylor has found that sprouted wheat or oats grown in flat trays for about two weeks, with exposure to sunlight to promote greenness, is a fairly good source of carotene or provitamin A.

"At least, it is a good source to use when natural grass range or silage is not available," he says. "A potency of 5,000 U.S.P. units per pound of fresh seedlings may easily be obtained and, as many poultrymen already know, this material is readily consumed by hens. Fed at the rate of 5 pounds per 100 hens per day, the seedlings will furnish about one-third the recommended amount of vitamin A which is enough to prevent a serious deficiency."

Spread Grain in Trays.
For poultrymen who have never sprouted grains before, Dr. Taylor outlines the procedure:

"Oats or wheat are your best choice, since they sprout easily, grow fairly quick and are usually available. Soak them overnight to promote rapid sprouting. Next, spread them out in one-fourth inch layers in flat trays with two or three sheets of newspapers in the bottom so the trays hold moisture around the roots. The thickness is important. If too thick, the seedlings will not develop sufficient green color. If too thin, the roots will be exposed to too much air and light.

"Keep the tray moist by sprinkling once or twice daily with water containing chloride of lime at the rate of a heaping teaspoonful to a pail (three gallons) of water. The chloride of lime will keep down mold growth.

"For the first two or three days, or until sprouting is definitely noticed, keep the tray in subdued light. After this, place it near a sunny window so it will receive as much light as possible. The stronger the light the higher the vitamin A content. Slow growth in a cool room is better than rapid growth at high temperatures."

The one drawback of sprouted grains is the space required to grow them. However, Dr. Taylor estimates that a total of 10 square feet of sprouting area, divided in three parts and used in rotation, will produce from 1 to 2½ pounds of seedlings daily, or enough for 20 to 50 hens.

Taking off and landing abilities of seaplanes are tried out in a basin 600 feet long, containing seawater. A large scale model of a seaplane, or of the floats only, is towed behind an electrically powered crane, at speeds up to 80 miles per hour.

Experimental planes are flight tested under carefully controlled conditions, and a record is made of its performance on movie film. The test pilot is given orders by radio telephone from the ground, and he performs the turns, loops, dives, climbs, and other maneuvers.

One of the recent outstanding contributions of the Ames laboratory has been the use of exhaust heat from airplane engines to heat the leading edges, wings, tail surfaces, and windshields of airplanes to prevent the formation of ice. This has permitted safe flight under conditions that otherwise would have grounded planes. The ice hazard has been eliminated.

But the list of advances which have been made applies to virtually every component of the airplane. More than once the NACA laboratories have saved the commercial life of some aircraft company by giving it the necessary scientific information to bring into practical use advances in design the company had made, but which fell short of military requirements. The success of the Flying Fortress design was made possible by scientific knowledge developed in NACA laboratories.

After the war, when America enters an era of great commercial aviation expansion, the NACA laboratories expect to continue to provide the basic scientific research upon which American air supremacy is based. It now has a plant worth some \$70,000,000, which at least equals the research facilities of the Germans. It probably will continue to be in competition with German scientists and facilities, but our armed forces hope congress never again will let it fall behind in staff and equipment.



Sprouted Grain Is Source of Vitamin A

Wheat or Oat Shoots Will Supply Poultry

If you are having a hard time buying enough feeding oils, alfalfa meal and yellow corn for your poultry laying flock, Dr. M. W. Taylor, associate biochemist in nutrition at Rutgers university, suggests you try sprouted grains to supply that essential vitamin A.

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"At least, it is a good source to use when natural grass range or silage is not available," he says. "A potency of 5,000 U.S.P. units per pound of fresh seedlings may easily be obtained and, as many poultrymen already know, this material is readily consumed by hens. Fed at the rate of 5 pounds per 100 hens per day, the seedlings will furnish about one-third the recommended amount of vitamin A which is enough to prevent a serious deficiency."

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WOOL

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We buy outright the lots running under 1000 lbs. each, and make immediate payment. Lots of over 1000 lbs. we handle on consignment in accord with the government rules, we obtain for you full ceiling value, make liberal advance payments new, and final payment promptly when the CCC make the settlement to us.

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No catch to this, we ship them PREPAID

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Be independent while the men folk are in the service. Enroll in Nebraska's oldest beauty school. Graduates now earning from \$25 to \$75 weekly. Write CALIFORNIA BEAUTY SCHOOL Omaha, Nebraska

NOTE: Mrs. Spears has prepared an actual-size pattern for all the curved sections of this chair. Complete dimensions and directions for the chair construction and for making the tufted cushion, with list of materials included. This is pattern 265 and will be sent postpaid for 15 cents. Write direct to:

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Enclose 15 cents for Pattern No. 265.

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Just 2 drops Penetro Nose Drops in each nostril help you breathe freer almost instantly, so your head cold gets air. Only 25c-2 1/2 times as much for 50c. Caution: Use only as directed. Penetro Nose Drops

1,000-Year-Old Rose Bush

Unless it has been crushed under the Nazi heel, a rose bush planted 1,000 years ago is still growing in Germany. Set by an emperor in a garden near Hildesheim, the bush was known to be blooming up to the time of the war.

It's New!

It's Fast!

It's Better

than any other dry yeast we ever used, say 8 out of 10 women recently surveyed

FLEISCHMANN'S DRY YEAST

No Ice-box Needed!

U.S.D.A. Has 4,000 Strains Of Barley in Collection

A collection of about 4,000 established varieties and strains of barleys from all over the world is maintained by the U. S. department of agriculture to facilitate the breeding of better barleys for different parts of the country. The only larger collection is reported in Russia. Typical of the work of government cereal specialists and barley breeders is the experiment now going on to develop new varieties of barley resistant to the green bug or aphid, which in 1942 caused a loss of more than \$3,000,000 in Texas and Oklahoma barley fields.

Phenothiazine Expels Many Intestinal Parasites

Phenothiazine is today the most widely used of all drugs for the removal of internal parasites of farm animals. In less than five years this synthetic coal-tar derivative has proved the effectiveness of its anthelmintic action against most of the economically important stomach and intestinal roundworms. It is used for many kinds of livestock and is extremely effective.

HOUSEHOLD HINTS

Thin old blankets are useful as an interlining for a child's coat or a baby's bunting, as an ironing board pad, or as silencer cloths for dining-room table.

To dry a sheet, fold it hem to hem, place the fold over the line to a depth of about 12 inches, and attach the clothespins at three or four places.

Perhaps you can make that felt hat look new and smart by blanket-stitching around the edge of the brim with crochet thread in a contrasting color. Or a narrow crocheted edging might do the trick.

Your sewing thread isn't so apt to knot if you use the correct length, say about 18 inches or the distance from the middle finger to the elbow.

Don't hang feather pillows in the sun as sunlight draws out the natural oil from the feathers and makes them less pliable.

A large sofa can be scaled to fit into an average room by having it made up with two cushions instead of the usual three. You'll be surprised at the difference this will make in the appearance of the room, which will no longer look crowded.

A wornout umbrella can be stripped and its frame put to use as a rack for drying smaller items of clothing. Wind strips of cloth around the ribs to prevent rust.

For attractive drawers that are easy to keep clean, such as drawers for knives and forks, use bright-colored paper (paper napkins will do) to line them and cover with waxed paper. The bright color shows through the waxed paper and makes the drawer look cleaner.

In Spite of Precautions Habit Will Assert Itself

The bus conductor had been told off several times by his good wife for the noise he made when coming home after late duty.

"I wish you would try to be more careful when you come home, Jim," she told him. "You wake the baby every time you come in. You're so noisy!"

Jim promised to do his best.

After the next spell of late duty he opened the front door without a single creak, and reached the top landing safely.

There and then his old habit overcame him. In a stentorian voice he bellowed: "Have your fares ready, please!"

Overseas Phone Rates

Most overseas telephone rates vary with distance, but several exceptions still exist because of the difficulty of changing them in wartime. For instance, while the cost of a three-minute daytime call from New York to London, 3,500 airline miles, is \$21, and to Moscow, 4,700 miles, also \$21, a call to Sydney, 10,000 miles, is only \$19.50.

BROWN ACTS OLD TODAY

Due to MUSCULAR PAINS!

SORETONE

soothes fast with COLD HEAT ACTION

in cases of MUSCULAR LUMBAGO OR BACKACHE due to fatigue or exposure

MUSCULAR PAINS due to cold

SORE MUSCLES due to overwork

MINOR SPRAINS

Naturally a man looks old beyond his years when he's sore from lumbago or other muscle pains. The famous McKesson Laboratories developed Soretone Liniment for those cruel pains—due to exposure, strain, fatigue or over-exercise. Get the blessed relief of Soretone's cold heat action:—

1. Quickly Soretone acts to enhance local circulation.
2. Check muscular cramps.
3. Help reduce local swelling.
4. Dilate surface capillary blood vessels.

Soretone contains methyl salicylate, a most effective pain-relieving agent. There's only one Soretone—insist on it for Soretone results. 50¢. A big bottle, only \$1.

MONEY BACK—IF SORETONE DOESN'T SATISFY

"and McKesson makes it"

St. Joseph ASPIRIN

NONE SURER WORLD'S LARGEST SELLER AT 10¢

Mohammedan's Handle
The lone lock of hair on the back of a Mohammedan's head is left there when he shaves his pate as a handle by which he can be pulled to heaven.

SNAPPY FACTS ABOUT RUBBER

The importance of the tire conservation program, effected in 1942, will be appreciated when it is known that the number of passenger car tires rationed and those sold on new cars in 1942 only equaled 8.8 per cent of the passenger car tires shipped for all purposes in 1941.

Neglected small fire tread cuts and bruises can become serious rubber wasters. A small cut, even though it does not go entirely through the fabric, lets in dirt, water and foreign matter. Constant flexing increases the size of the cut until the tire is beyond repair. Prompt repair is a patriotic duty these days.

In war or peace

B.F. Goodrich FIRST IN RUBBER

Trigger Fish
The trigger fish has a trick that can be locked into place to prevent dislodgment when the fish wedges itself in a rocky crevice.

Upset Stomach

Relieved in 5 minutes or double money back

When excess stomach acid causes painful, suffocating gas, sour stomach and heartburn, doctors usually prescribe the fastest-acting medicine known for symptomatic relief—medicines like those in Bell-am Tablets. No laxative. Bell-am brings comfort in a fifty or double your money back on return of bottle to us. 50¢ at all druggists.

Housefathers
Among the aborigines of Australia it is common for fathers to look after the children while their wives work.

KILLS Many Insects

Black bear 40 on Vegetables Flowers & Shrubs

HELP for Your Victory Garden

HIGHLY trained specialists read the complicated dials that indicate results of the various tests.

AN EXPERT metal worker carefully machines a metal air foil to exact specifications