



Official U. S. Bulletin



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GEORGE CREEL, Chairman * * * COMPLETE Record of U. S. GOVERNMENT Activities

VOL. 2

WASHINGTON, WEDNESDAY, NOVEMBER 6, 1918.

No. 456

GERMANY INFORMED BY THE UNITED STATES AND ALLIES SHE MUST PAY FOR DAMAGE DONE CIVILIAN PROPERTY

OFFICERS REMINDED TO OBSERVE REGULATIONS AS TO UNIFORMS

War Department Calls Special Attention to the Rules Govern- ing Overcoats and Raincoats.

The War Department authorizes the following:

The attention of commissioned officers is called to the fact that the United States Army uniform regulations are being broken by many of them in several particulars. Special attention is called to the regulations concerning the wearing of overcoats and raincoats and the insignia thereon.

Olive-drab overcoats, not longer than 10 inches below the knee or not shorter than 1 inch below the knee, are the only authorized overcoats for winter wear. Rank is designated by braids on the sleeves of overcoats only. Drab mole-skin overcoats lined with sheepskin are only authorized for wear in camps and under the regulations prescribed by the camp or division commanders. The wearing of the so-called "trench coat" is prohibited in the United States, except as a raincoat.

Color of Waterproofs.

Waterproof coats or capes and raincoats, as nearly as practicable the color of the olive-drab service uniform, may be worn in rainy or other wet weather, but they should not be worn for purposes of warmth. Neither insignia of rank on the shoulder loops nor braid as sleeve ornamentation will be worn on raincoats. No officer or enlisted man is permitted to wear any campaign badge or ribbon, even though he has taken part in a campaign, until he has submitted his claims to The Adjutant General and received specific authorization to do so. The badges and their respective ribbons are issued by the Quartermaster Corps after the service of the individual has been verified. Ribbons representing military societies will not be worn with service uniforms.

Wearing of Chevrons.

Gold service chevrons for six months' service in the theater of operations and blue chevrons for periods of less than six months are authorized, but a gold and a blue chevron must never be worn together. While fractions of the first six

(Continued on page 2.)

Supreme War Council Is to Help Austria, Turkey and Bulgaria Get Food for Civilian Populations

The President authorizes publication of the following message from Col. Edward M. House:

"At the conclusion of the meeting of the Supreme War Council yesterday I proposed a resolution in the following sense and the same was adopted: 'The Supreme War Council in session at Versailles desire to cooperate with Austria, Turkey, and Bulgaria in the making available as far as possible food and other supplies necessary for the life of the civilian population of those countries.'"

The message was dated at Paris, 2 a. m., November 5.

DENY ARMY COTTON CONTRACTS ARE BEING LARGELY CANCELED

The Committee on Cotton Distribution authorizes the following:

False rumors are in circulation to the effect that extensive cancellation of contracts for cotton goods for the use of the armies are being made.

The matter has been discussed with the Purchase, Traffic, and Storage Division of the War Department and with the Cotton Goods Section of the War Industries Board. They state that the rumors of cancellation are unfounded and that only such cancellations have been made as have taken place normally from time to time during the progress of the war by mutual consent by reason of necessary changes in fabrics needed, replacements, variation in quality, or other desired changes.

President's Peace Con- ditions Emphasized In Note Transmitted to Berlin by Swiss Minister

Clause Relating to Freedom of Seas Is, on Initiative of Allied Governments, to Be Held Open for Future Dis- cussion, as Being Capable of "Various Interpretations"— Text of Message.

The Secretary of State makes public the following:

From the Secretary of State to the Minister of Switzerland, in charge of German interests in the United States.

DEPARTMENT OF STATE,

November 5, 1918.

SIR: I have the honor to request you to transmit the following communication to the German Government:

"In my note of October 23, 1918, I advised you that the President had transmitted his correspondence with the German authorities to the Governments with which the Government of the United States is associated as a belligerent, with the suggestion that, if those Governments were disposed to effect peace upon the terms and principles indicated, their military advisers and the military advisers of the United States be asked to submit to the Governments associated against Germany the necessary terms of such an armistice as would fully protect the interests of the peoples involved and insure to the associated Governments the unrestricted power to safe-

guard and enforce the details of the peace to which the German Government had agreed, provided they deemed such an armistice possible from the military point of view.

"The President is now in receipt of a memorandum of observations by the Allied Governments on this correspondence, which is as follows:

"The Allied Governments have given careful consideration to the correspondence which has passed between the President of the United States and the German Government. Subject to the qualifications which follow they declare their willingness to make peace with the Government of Germany on the terms of peace laid down in the President's address to Congress of January, 1918, and the principles of settlement enunciated in his subsequent addresses. They must point out, however, that clause 2 relating to what is usually described as the freedom of the seas, is open to various interpretations, some of which they could not accept. They must, therefore, reserve to themselves complete freedom on this subject when they enter the peace conference.

"Further, in the conditions of peace laid down in his address to Congress of January 8, 1918, the President declared that invaded territories must be restored as well as evacuated and freed, the Allied Governments feel that no doubt ought to be allowed to exist as to what this provision implies. By it they understand that compensation will be made by Germany for all damage done to the civilian population of the Allies and their property by the aggression of Germany by land, by sea, and from the air."

I am instructed by the President to say that he is in agreement with the interpretation set forth in the last paragraph of the memorandum above quoted. I am further instructed by the President to request you to notify the German Government that Marshal Foch has been authorized by the Government of the United States and the Allied Governments to receive properly accredited representatives of the German Government, and to communicate to them the terms of an armistice.

Accept, Sir, the renewed assurances of my highest consideration.

ROBERT LANSING.

Mr. HANS SELZER,
Minister of Switzerland,
In charge of German interests
in the United States.

Postoffice Order on Christmas Parcels For Persons Serving in the Organizations Connected with U. S. Expeditionary Forces

OFFICE OF THIRD ASS'T P. M. GEN.,
WASHINGTON, Nov. 4, 1918.

Christmas parcels not exceeding 3 pounds in weight for individuals serving in the American Red Cross, Young Men's Christian Association, Knights of Columbus, or other organizations or persons connected with the American Expeditionary Forces in Europe, for the sending of Christmas parcels to whom arrangements have not heretofore been made, may be mailed through the local chapters of the American Red Cross by the nearest relative of the addressee in each case under the following conditions:

(a) The sender must in each case file a statement with the nearest Red Cross receiving station certifying that he or she is the nearest relative in the United States of the proposed recipient and desires to send such person a Christmas parcel. Two or more relatives may join in sending a Christmas parcel, but only one such parcel can be sent to the same individual.

(b) Upon approval of such request, the Red Cross will furnish the sender a carton of the prescribed size (3 inches by 4 inches by 9 inches) in which to inclose the articles to be mailed. When filled, the carton must be returned unsealed and unwrapped to the nearest receiving station designated by the Red Cross for inspection, wrapping, addressing, affixing of stamps, etc., under the supervision of the Red Cross. The parcel must be left at the Red Cross receiving station, which will affix thereto a certificate in the form

of a seal showing that the parcel has been inspected and passed, and shall mail it on or before November 20, 1918 (except in Alaska, Hawaii, and Porto Rico, where Christmas parcels will be accepted up to and including December 1, 1918).

(c) Christmas parcels sent under the foregoing arrangement will be subject in all respects to the conditions governing the acceptance of similar parcels for mailing to members (officers, soldiers, etc.) of the American Expeditionary Forces in Europe, as set forth in the instructions of this office of October 5, 1918, embodied in Article 30, pages 6 and 7, of the October Supplement to the Postal Guide. The parcels, like those provided for in the instructions of October 5, must be addressed substantially as follows:

"Christmas Box Department,
Port of Embarkation,
Hoboken, New Jersey,
For _____,
Organization _____,
American Expeditionary Forces."

Such parcels will be chargeable with postage at the fourth-class or parcel-post zone rate applicable between the place where mailed and Hoboken, N. J.

(d) No individual postal export license is required in connection with the mailing of Christmas parcels, the War Trade Board having amended its General Export License No. RAC 43 to cover such parcels.

W. J. BARROWS,
Act'g Third Ass't P. M. Gen.

Order of Crown of Italy Bestowed on Gen. Gorgas

The War Department authorizes the following:

In recognition of his distinguished services in behalf of military sanitation, Maj. Gen. William C. Gorgas, until recently Surgeon General United States Army, has been made a grand officer of the Order of the Crown of Italy. The ceremony of presentation took place Tuesday morning, November 5, in the office of the Surgeon General, the order being presented by Maj. Gen. Emilio Guglielmotti, military attache of the Royal Italian Embassy.

ARMY OFFICERS CAUTIONED.

(Continued from page 1.)

months' service are recognized, after one gold chevron has been awarded, a blue one is never awarded, but when a second six-months' period has elapsed, a second gold chevron is authorized. There is no authorization for the wearing of a gold or silver star above the service chevrons, which is supposed to designate membership in the first 50,000 to disembark overseas.

The wearing of overseas caps by officers and men is prohibited in this country, except at ports of embarkation and only by men about to embark or those who have just disembarked.

MARINES ASKED TO WRITE OF EXPERIENCES IN BATTLE

Marine Corps headquarters has issued another call for letters from marines in France, descriptive of their life there. The corps is especially desirous for letters descriptive of the last battles in which the marines have participated, the flattening out of the St. Mihiel sector, and the fighting in the Champagne, in which Mont Blanc was captured.

It will be from the personal letters of the marines describing the various battles in which they have participated that the history of the Marine Corps in the great war will be written. All letters will be carefully preserved, and if desired, copied, and the originals returned to the senders. Copies of the letters will then be placed upon the historical files of the corps for reference in the writing of Marine Corps history.

All letters should be addressed to the adjutant and inspector, United States Marine Corps Headquarters, Washington, D. C.

Special Orders, No. 253:

28. Col. Charles P. George, Field Artillery, is relieved from duty at the Field Artillery brigade firing center, Fort Sill, Okla., and will proceed to Washington, D. C., reporting on arrival to the Chief of Staff for duty.

EXPORT LICENSES CURTAILED FOR CERTAIN FOOD ARTICLES

The War Trade Board announces in a new ruling (W. T. B. R. 299), after consultation with the Food Administration, that until further notice export licenses will not be granted, except in unusual cases, for the following commodities:

Malt, dextrine, glucose, tapoca, tapioca flour, sago, sago flour, honey, dried apricots, dried apples, dried pears, raisins, figs, dates, corn sirup.

The above list, while by no means complete with respect to the commodities highly restricted and for which, except under the most unusual circumstances, export licenses are not issued, sets forth commodities for which applications have recently been received in great numbers and all of which must be refused.

Exporters are, therefore, urged not to file applications for licenses to export these commodities until announcement is made that the War Trade Board is again prepared to consider such applications.

For the guidance of exporters the following may be considered "unusual cases" for which applications will be considered:

1. Applications for renewal of expired export licenses when on receipt of the original export license the commodity was purchased and packed in containers unsuited to domestic trade.

2. Applications covering a commodity which has heretofore not been put on the export conservation list and which the applicant had packed in packages unsuited to the domestic trade.

3. Shipments to missionaries and to Americans engaged in useful occupations abroad.

4. Shipments consigned directly for the exclusive maintenance of employees of sugar, mining, and other companies engaged in the production of commodities required by the United States and the allied Governments in carrying on the war.

Applications for any of the above commodities may be submitted under the above circumstances, but the applicant should state fully on supplemental information sheet, Form X-1, the circumstances surrounding the case, and attach thereto such documentary evidence as may be necessary to substantiate his statements.

PRICE COMMITTEE ANNOUNCES RATE FOR COMPRESSING COTTON

The War Industries Board authorizes the following:

By request of the Railroad Administration the price-fixing committee of the War Industries Board met Tuesday, November 5, with the representatives of the cotton compress companies, and agreed with them upon a price of 15 cents per 100 pounds as being fair compensation for compressing cotton to load 75 bales per 36-foot standard car, the above price to take effect immediately and to remain in force up to and including July 31, 1919, and to apply to all points where cotton is thus compressed.

The philosophy of the W. S. S. is save, save, save.

SYNOPSIS OF TRUST ACCOUNTS HELD BY ALIEN PROPERTY CUSTODIAN

Following is a synopsis of the trust accounts of the Alien Property Custodian as of October 31, 1918:

Cash deposited with Secretary of Treasury:

Invested in Government securities. \$54,786,443.82

Uninvested ----- 4,544,126.32

\$59,330,570.14

Cash with depositaries ----- 9,545.78

Stocks ----- 169,366,959.65

Bonds (other than investments made
by Secretary of Treasury) ----- 59,365,453.15

Mortgages ----- 11,720,995.74

Notes receivable ----- 6,167,031.98

Accounts receivable ----- 50,648,582.18

Real estate ----- 7,567,987.55

General businesses and estates in operation or liquidation, merchandise, miscellaneous investments, etc.----- 89,278,885.39

Enemy vessels ----- 34,193,690.00

487,649,701.56

Number of trusts reported to Alien Property Custodian-- 27,755

Number of trusts opened----- 19,371

WAR TRADE BOARD AMENDMENT TO RULING ON TIN IMPORTS

War Trade Board ruling No. 276, of October 17, 1918, provided that all outstanding licenses for the importation of pig tin, tin ore, and tin concentrates, and/or any chemical extracted therefrom, were revoked as to ocean shipment from abroad after October 20, 1918, and that thereafter no licenses would be issued for such commodities except to cover shipments consigned to the United States Steel Products Co.

The War Trade Board now announce, in a new ruling (W. T. B. R. 307), that War Trade Board Ruling No. 276 has been amended as follows:

1. Licenses will be issued for the importation of pig tin, where the applications therefor are otherwise in order, to cover shipments of pig tin which it is proven were purchased prior to October 1, 1918. The American Iron and Steel Institute will investigate and furnish the Bureau of Imports with information as to the date of purchase of the tin for which license is sought.

2. Licenses will continue to be issued for the importation of pig tin to the United States Steel Products Co. as provided in War Trade Board Ruling No. 276.

3. No other licenses for the importation of pig tin will be issued except those described in paragraphs 1 and 2.

4. Hereafter, licenses will be issued, when the applications therefor are otherwise in order, for the importation of tin ore, tin concentrates, and/or chemicals extracted from tin ore.

5. All licenses so issued for the importation of pig tin, tin ore, tin concentrates, and/or chemicals extracted from tin ore, will provide for the endorsement of the

RED CROSS FOOD SHIP REACHES ARCHANGEL DISTRICT IN RUSSIA

Red Cross headquarters has received a cable report from the Red Cross mission which reached the northern part of Russia a few weeks ago stating that it has sent a shipload of food, medicines, and other supplies to outlying parts of the Archangel district, which had to be reached before winter set in. The need of prompt relief for the inhabitants of towns along the coast of the White Sea and on the Kola Peninsula, many of whom are facing starvation, was found to be imperative. Scurvy has broken out among the people at these places, adding to the general distress.

The towns to which the relief expedition has been sent are virtually isolated from the outside world because of the treacherous coastline, shifting sandbars, and uncharted waters. An exceptionally early frost, even for that part of the world, ruined the harvests, which were expected to improve conditions. Statements printed in Russian, explaining the work of the Red Cross, will be distributed among the inhabitants. The mission is preparing to send relief to other parts of the Archangel district.

bill of lading to the American Iron and Steel Institute.

6. The revocation of outstanding licenses for the importation of pig tin, tin ore, and concentrates, and/or any chemical extracted therefrom, as to ocean shipment after October 20, 1918, as set forth in War Trade Board Ruling No. 276, will remain in effect.

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EXECUTIVE ORDER.

I hereby create a Committee on Public Information, to be composed of the Secretary of State, the Secretary of War, the Secretary of the Navy, and a civilian who shall be charged with the executive direction of the committee. As civilian chairman of the committee I appoint Mr. George Creel. The Secretary of State, the Secretary of War, and the Secretary of the Navy are authorized each to detail an officer or officers to the work of the committee.

WOODROW WILSON.

April 14, 1917.

BEEF REACHING OUR SOLDIERS IN THE PRIME OF CONDITION

The United States Railroad Administration issues the following:

Director General McAdoo makes public the following letter received from an official of the Inland Traffic Service of the War Department, showing the splendid condition in which beef is being delivered to soldiers of the American Expeditionary Forces in France:

I have before me a shipping tag taken from a carcass of frozen beef in a kitchen on the western front, together with a letter from an Army officer, complimenting the Quartermaster Department on the prime condition in which American beef is being served to the American Expeditionary Forces in France.

An investigation develops that the carcass from which the tag in question was taken was loaded at one of the packing plants at Kansas City on July 10, was placed under refrigeration in the plant of the Detroit Refrigerating Co., Detroit, Mich., on July 15, where it was given an intensive freezing and shipped out to an Atlantic port on August 12, and served for supper to our soldiers in the trenches in France on September 20.

This is made possible only by the splendid railroad service rendered, coupled with the perfect system of the Quartermaster Department with respect to the handling of this highly perishable commodity.

American Official Communiques on Operations of U. S. Forces

American Official Communique No. 184.

HEADQUARTERS, AMERICAN
EXPEDITIONARY FORCES,
November 4, evening.

On the entire front from the Meuse to the Bar the First Army continued its advance. On the extreme right, breaking down the last efforts of the enemy to hold the high ground, our troops drove him into the Valley of the Meuse, and forcing their way through the forest of Dieulet, occupied Laneville opposite the important crossing of the Meuse at Stenay. The Beaumont-Stenay Road is in our possession and our troops are on the heights overlooking Beaumont. On the left our line has advanced, in spite of heavy machine-gun and artillery opposition, to Grandes Armoises. The enemy again to-day threw in fresh troops in an effort to arrest the penetration of his lines by our victorious attack.

Our vigorous advance compelled the enemy to abandon large stores of undamaged munitions, food, and engineer material.

In the course of the day, improving weather conditions permitted our planes to carry out very successfully their missions of reconnaissance and infantry liaison. A raid with a force consisting of 45 day-bombardment and 100 pursuit planes was made against Montmedy and obtained excellent results on the crowded enemy

traffic at that place. Over five tons of bombs were dropped. Determined attacks by enemy pursuit planes gave us added opportunities to destroy his airplanes. During the day's fighting 30 enemy planes were destroyed or driven down out of control and three balloons were burned. Seven of our planes are missing.

American Official Communique No. 185.

HEADQUARTERS, AMERICAN
EXPEDITIONARY FORCES,
November 5, morning.

This morning the First Army resumed the attack. In spite of desperate opposition our troops have forced a crossing of the Meuse at Briouilles and at Nefery Le Petit. They are now developing a new line in the heavily wooded and very difficult terrain on the heights east of the river between these points. On the entire front the enemy is opposing our advance with heavy artillery and machine gun fire, notwithstanding which we are making excellent progress. The west bank of the Meuse as far north as opposite Pouilly Tiese is in our hands.

In the course of several successful raids in the Woeyre detachments of the Second Army have penetrated the enemy's trenches, destroying materials, dugouts, and emplacements, and capturing prisoners.

Conservation Maxims of Food Administration

For the Allies the danger of privation is passed; the need of rigid economy is still present.

For the people of the United States, the need of voluntary sacrifice, of willing devotion is as great as ever.

That same spirit by which Europe was saved from its gravest peril during the season of food shortage is still required of us. By easier measures now, by sterner measures if want comes again, proving our endurance as we have proved our energy, the American people are to keep the trust committed to them.

Sunday Night Service On Chesapeake Bay Line

Director General of Railroads McAdoo announces that in order to relieve the congestion of Sunday travel between Baltimore and Norfolk, Newport News, and Old Point Comfort it has been arranged to inaugurate Sunday night service via

Women as Members of The War Labor Board

The National War Labor Board authorizes the following:

The National War Labor Board, having received many petitions urging the inclusion of one or more women in its membership, and being desirous of protecting in every possible way the interests of the many women workers whose cases come before it, has referred the question to the two organizations, the National Industrial Conference Board and the American Federation of Labor, which nominated its original members.

The Board took the position that it was a representative body without power to enlarge its membership. This power, it believes, belongs to the nominating organizations.

the Bay Line between Baltimore, Norfolk, and Old Point Comfort.

Steamers of Chesapeake Steamship Line will leave their terminal at 6.30 p. m. on Sunday, November 10, and alternate Sundays thereafter, and steamers of the Baltimore Steam Packet Line will leave their terminals at Norfolk and Baltimore at the same hour, beginning on Sunday, November 10, and alternate Sundays on which there is no steamer by the Chesapeake lines.

Progress Made by the United States in Feeding the World

The following table shows the increase over normal in exports of foodstuffs by the United States since it became the food reservoir for the world on account of the war:

TOTAL EXPORTS.

	3-year prewar average.	1916-17, fiscal year.	1917-18, fiscal year.	July, 1917, to Sept. 30, 1917.	July, 1918, to Sept. 30, 1918.
Beef products.....lbs--	186, 375, 372	405, 427, 417	565, 462, 445	93, 962, 477	171, 986, 147
Pork products.....lbs--	996, 230, 627	1, 498, 302, 713	1, 691, 437, 435	196, 256, 750	540, 946, 324
Dairy products.....lbs--	26, 037, 790	351, 953, 336	590, 798, 274	130, 071, 165	161, 245, 029
Vegetable oils.....lbs--	332, 430, 537	206, 708, 490	151, 029, 893	27, 719, 553	26, 026, 701
Grains.....bush--	183, 777, 331	395, 140, 238	1 349, 123, 235	66, 333, 084	121, 668, 823
Sugar.....lbs--	621, 745, 507	3, 084, 390, 281	2, 149, 787, 050	1, 108, 559, 519	1, 065, 398, 247

¹ Wheat harvest 1917-18 was 200,217,333 bushels below the average of the three previous years.

Call for 18,300 White Men Physically Qualified for Limited Service Only Is Issued by General Crowder

The War Department authorizes the following:

A call for 18,300 white men physically qualified for limited service only was issued from the office of Provost Marshal General Crowder on Tuesday. The call, by States with the camp or fort assignments of the men, which follows, provides voluntary induction until November 20, with entrainment during the period between November 25 to 27:

- Alabama.—Fort Thomas, Ky., 200; Camp Forrest, Lytle, Ga., 50; Fort Thomas, Ky., 400.
- Arizona.—Fort McDowell, Cal., 25.
- Arkansas.—Jefferson Barracks, Mo., 100; Camp Forrest, Lytle, Ga., 50; Jefferson Barracks, Mo., 200.
- California.—Fort McDowell, Cal., 500; Fort McDowell, Cal., 315.
- Colorado.—Fort Logan, Colo., 20.
- Connecticut.—Fort Slocum, N. Y., 300; Washington Barracks, D. C., 25.
- Delaware.—Camp Dix, N. J., 125.
- District of Columbia.—Camp Dix, N. J., 175.
- Florida.—Camp Forrest, Ga., 30; Fort Thomas, Ky., 150.
- Georgia.—Camp Forrest, Ga., 50; Washington Barracks, D. C., 35; Camp Hancock, Augusta, Ga., 1,000.
- Idaho.—Fort McDowell, Cal., 100.
- Illinois.—Columbus Barracks, Ohio, 50; Jefferson Barracks, Mo., 500; Camp Forrest, Ga., 75; Jefferson Barracks, Mo., 150.
- Indiana.—Columbus Barracks, Ohio, 25; Jefferson Barracks, Mo., 200; Camp Forrest, Ga., 50; Jefferson Barracks, Mo., 150.
- Iowa.—Columbus Barracks, Ohio, 15; Jefferson Barracks, Mo., 50; Jefferson Barracks, Mo., 100.
- Kansas.—Columbus Barracks, Ohio, 15; Fort Logan, Colo., 75.
- Kentucky.—Camp Forrest, Ga., 50; Fort Thomas, Ky., 50.
- Louisiana.—Jefferson Barracks, Mo., 200; Camp Forrest, Ga., 50; Jefferson Barracks, Mo., 500.
- Maine.—Fort Slocum, N. Y., 175; Camp Forrest, Ga., 20.
- Maryland.—Columbus Barracks, Ohio, 600; Washington Barracks, D. C., 20.
- Massachusetts.—Fort Slocum, N. Y., 800; Washington Barracks, D. C., 50.
- Minnesota.—Columbus Barracks, Ohio, 15; Camp Forrest, Ga., 50; Fort Logan, Colo., 240.
- Mississippi.—Jefferson Barracks, Mo., 100; Camp Forrest, Ga., 75; Jefferson Barracks, Mo., 375.

- Missouri.—Columbus Barracks, Ohio, 20; Jefferson Barracks, Mo., 200; Camp Forrest, Ga., 50; Jefferson Barracks, Mo., 275.
- Montana.—Fort McDowell, Cal., 100.
- Nebraska.—Columbus Barracks, Ohio, 10; Fort Logan, Colo., 75.
- Nevada.—Fort McDowell, Cal., 60.
- New Hampshire.—Fort Slocum, N. Y., 60.
- New Jersey.—Columbus Barracks, Ohio, 20; Washington Barracks, D. C., 25; Camp Dix, N. J., 700.
- New Mexico.—Fort McDowell, Cal., 75.
- New York.—Fort Slocum, N. Y., 1,530; Columbus Barracks, Ohio, 100; Camp Forrest, Ga., 75; Washington Barracks, D. C., 100.
- North Carolina.—Fort Thomas, Ky., 400; Camp Forrest, Ga., 50; Fort Thomas, Ky., 450.
- North Dakota.—Columbus Barracks, Ohio, 10; Fort Logan, Colo., 90.
- Ohio.—Columbus Barracks, Ohio, 100; Columbus Barracks, Ohio, 500; Camp Forrest, Ga., 75.
- Oklahoma.—Columbus Barracks, Ohio, 10; Jefferson Barracks, Mo., 100; Jefferson Barracks, Mo., 200.
- Oregon.—Fort McDowell, Cal., 85.
- Pennsylvania.—Columbus Barracks, Ohio, 75; Columbus Barracks, Ohio, 300; Camp Forrest, Ga., 50.
- Rhode Island.—Fort Slocum, N. Y., 60.
- South Carolina.—Fort Thomas, Ky., 100; Camp Forrest, Ga., 50; Fort Thomas, Ky., 350.
- South Dakota.—Columbus Barracks, Ohio, 10.
- Tennessee.—Fort Thomas, Ky., 300; Camp Forrest, Ga., 50; Washington Barracks, D. C., 25.
- Texas.—Jefferson Barracks, Mo., 350; Jefferson Barracks, Mo., 750.
- Utah.—Fort McDowell, Cal., 90.
- Vermont.—Fort Slocum, N. Y., 75.
- Virginia.—Columbus Barracks, Ohio, 10; Washington Barracks, D. C., 20; Fort Thomas, Ky., 600.
- Washington.—Fort McDowell, Cal., 150.
- West Virginia.—Columbus Barracks, Ohio, 100; Camp Forrest, Ga., 25.
- Wisconsin.—Columbus Barracks, Ohio, 15; Jefferson Barracks, Mo., 200; Camp Forrest, Ga., 25; Jefferson Barracks, Mo., 300.
- Total—18,300.

NEW BUILDINGS AT 3 CAMPS TO COST NEARLY 5 MILLIONS

The War Department authorizes the following:

Expansions and improvements to three camps—Knox, Bragg, and Sherman—have been authorized, and the Construction Division has been instructed to proceed with the work. The buildings will cost \$4,704,271.

The largest of the expansions is at Camp Sherman. It is planned to add to this camp a detention camp, a quarantine camp, one brigade headquarters, 4 battalion headquarters, and additional quarters for 14 companies and 4 medical detachments. Barracks and quarters will be provided and increased hospital facilities, which will cost \$252,000. The total cost of enlarging the camp is \$3,389,970.

At Camp Knox, the additions will cost \$414,750, and among the buildings to be erected are 3 steel hangars, 6 lecture halls, 6 telephone schools, 6 indoor ranges, 10 saddler shops, and 1 orientation school. There will be some modifications to existing buildings.

The improvements at Camp Bragg will cost \$339,551. It, too, will have 3 steel hangars, 6 lecture halls, 6 telephone schools, 6 indoor ranges, 10 saddler shops, and 1 orientation school. The work at both Camp Bragg and Camp Knox is intended to change the present cantonments so that they will conform more closely to the latest requirements of these camps, which are under the supervision of the Division of Military Aeronautics.

SERVICE BUREAU

... OF THE ...

COMMITTEE ON PUBLIC INFORMATION

FIFTEENTH AND G STREETS
WASHINGTON, D. C.

Information available as to Officials, Functions, and Location of all Government Departments

FRAUD ORDERS ISSUED.

Fraud orders have been issued by the Postmaster General against Mrs. Mary Shepard, Mrs. Mary E. Shepard, and Miss Ella Clayton at rural route No. 3, box 126, Savannah, Ga.; California State Land Information Bureau, and Joseph Clark, manager, at Sacramento, Cal., and J. N. Jones and J. C. Jackson, at Greenville, N. C., dated October 19, October 28, and October 28, 1918, respectively.

TELEGRAPH AND TELEPHONE MEN NEEDED FOR SERVICE IN FRANCE

The War Department authorizes the following statement:

The Signal Corps of the Army needs men who have had experience in connection with the operation and maintenance of telephone and telegraph systems. The commanding general of the American Expeditionary Forces in France has made a cablegraphic request for the following technical personnel, the services of whom are sought for immediate duty in France to assist in the operation of the important lines of communication in the rear of the battle front:

Multiplex attendants, with previous experience as such.

Multiplex supervisors, with experience as supervisors of punchers.

Multiplex punchers, with previous experience of not less than 3 months' training.

Telegraph wire and repeater chiefs.

Experienced toll and maintenance line-men, including five line foremen.

Experienced common battery and mag-neto switchboard repair men.

Experienced toll test board men.

Experienced telephone traffic equipment and circuit engineers.

Telephone operating traffic chiefs.

Men selected for this duty will enter the military service in an enlisted capacity. However, they will not be required to pursue a long course of training except for a sufficient time for clothing, equipment, etc. The physical standards may also be lowered in cases of men having the requisite technical qualifications. Men between the ages of 18 and 55 (both inclusive) are eligible for this service and should apply to the Chief Signal Officer of the Army, Washington, D. C., for full particulars.

CIRCULAR PROPOSALS ISSUED BY THE CHIEF SIGNAL OFFICER

The office of the Chief Signal Officer of the Army has invited circular proposals as follows:

- PR 386 CP. November 8, 1,800 battery cases.
 - PR 405-1 CP. November 8, 100 trunks.
 - PR 470-1 CP. November 11, 76,000 lance pole insulators.
 - PR 463-1 A. November 11, 195,852 lance poles.
 - PR 463-1 B. November 11, 195,852 tips for lance poles.
 - PR 392-70 CP. November 12, sundry photographic paper.
 - PR 394-1 CP. November 11, 11,000 air fans.
 - PR 349 CP. November 12, 7,000 power transformers.
 - PR 349 CP. November 12, 7,000 condensers.
 - PR 349 CP. November 12, 7,000 oscillation transformers.
 - PR 349 CP. November 12, 7,000 sets of plates.
 - PR 349 CP. November 12, 14,000 spring contacts.
 - PR 349 CP. November 12, 7,000 variometers.
 - PR 349 CP. November 12, 7,000 electrodes.
 - PR 349 CP. November 12, 259,000 feet conductor wire.
 - PR 349 CP. November 12, 350,000 feet phosphor bronze wire.
 - PR 349 CP. November 12, 21,000 feet soft rubber tubing.
 - PR 524-1 CP. November 12, 230 wagon jacks.
- (All of the items on PR 349 CP are radio parts.)

SEPTEMBER U. S. EXPORTS AND IMPORTS COMPILED BY WORLD GRAND DIVISIONS

Total values of merchandise imported from and exported to each of the world's grand divisions during September and the nine months ended September, 1918, compared with corresponding periods of

the preceding year, are made public by the Bureau of Foreign and Domestic Commerce, Department of Commerce, as follows:

	Month of September—		9 months ended with September—	
	1918	1917	1918	1917
IMPORTS FROM—				
Grand divisions:	<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>
Europe.....	23,403,268	32,091,971	250,553,377	441,061,123
North America.....	83,678,437	76,879,575	744,849,526	678,349,472
South America.....	52,017,843	38,858,049	450,393,360	472,319,333
Asia.....	88,595,772	74,476,575	682,069,701	565,657,870
Oceania.....	13,868,795	8,847,900	129,604,878	63,021,601
Africa.....	5,896,274	5,536,431	65,233,430	61,884,794
Total.....	262,257,387	236,196,898	2,322,722,332	2,282,794,503
EXPORTS TO—				
Grand divisions:	<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>
Europe.....	348,520,018	291,958,071	2,884,479,563	3,063,520,918
North America.....	128,474,490	85,664,927	971,755,693	918,607,464
South America.....	24,788,775	36,537,319	226,275,752	214,002,450
Asia.....	32,038,076	34,401,635	327,482,478	297,939,446
Oceania.....	13,632,420	10,333,503	114,875,446	72,931,930
Africa.....	2,000,515	5,611,440	36,457,307	36,946,543

DEATHS REPORTED IN NAVY.

Nine Officers and Men Succumb to Disease or Accident.

The Navy Department reports the following deaths:

Lieut. (junior grade) George Edward Richardson, United States Naval Reserve Force, died on board the U. S. S. Huron, October 24, of pneumonia. Wife, Mrs. Jane Tufts Richardson, Lancaster, Mass.

Arthur Lee Day, chief machinist's mate, United States Navy, died October 26. Mother, Mrs. Harriet B. Day, Pullman, Wash.

Joseph Barnard Corbey, fireman first class, United States Navy, died October 24 from drowning. Mother, Mrs. Mary A. Corbey, Ulster Park, N. Y.

The following named two men were killed accidentally October 25, while attached to U. S. S. Abarenda:

Ciriaco Maglanti, coxswain, United States Naval Reserve Force; mother, Mrs. Crisanta Pimbal, Cavite, P. I.; and Gabino Quidado, boilermaker, first class, United States Naval Reserve Force; wife, Mrs. Lomardo Quidado, Vigan, P. I.

Ensign Eric Lingard, United States Naval Reserve Force, died at Naval Air Station, Chatham, Mass., October 29, of influenza. Sister, Miss Olga Lingard, Annisquam, Mass.

Lieut. Thomas Frank Selwood, United States Naval Reserve Force, died at New York City, October 26, of pneumonia. Mother, Mrs. Harriet Selwood, 76 Tindal Street, Birmingham, England.

Ensign William Griffith Sprague, United States Naval Reserve Force, died as result of a seaplane accident at Hietudy, France, October 26. Mother,

Mrs. Mabel Jones Sprague, 2745 Hampden Court, Chicago, Ill.

Pay Clerk Joseph Walter Person, United States Naval Reserve Force, died at Brooklyn, N. Y., October 29, of pneumonia. Wife, Mrs. Eleanore Forry Person, 8687 Twenty-second Avenue, Brooklyn, N. Y.

PLANS FOR RAPID MOVEMENT OF THE FLORIDA CITRUS CROP

The United States Railroad Administration issues the following:

Director General McAdoo announces that arrangements have been completed for moving the Florida citrus crop expeditiously by the following plans:

(a) Time schedules arranged by agreement with the shippers, which are fast enough to reach the markets satisfactorily, but not so fast as to prevent punctual deliveries, and

(b) Consolidation of this traffic upon a few direct routes, so that the business may receive all necessary attention at the hands of transportation and traffic representatives who are experienced in handling same.

The plans were worked out at a meeting called by B. L. Winchell, regional director of southern region, which was attended by representatives of shippers. At this meeting a mutually satisfactory understanding was reached as to diversion arrangements, passing reports, etc. It is anticipated that this year's citrus crop will exceed that of last year by about 5,000 cars.

Give up your luxuries that the Kaiser may be made to give up his ambitions.

LIST OF CASUALTIES REPORTED AMONG THE UNITED STATES FORCES OVERSEAS

SECTION 1, NOVEMBER 6, 1918.

The following casualties are reported by the commanding general of the American Expeditionary Forces:

Killed in action.....	40
Died of disease.....	31
Wounded severely.....	48
Wounded (degree undetermined).....	220
Wounded slightly.....	208

Total..... 547

Killed in Action.

SERGEANTS.

GILLAHAN, Fred A. Mrs. Samuel S. Gillahan, Cumberland City, Tenn.
GLICK, Vern R. Mrs. Isabelle Glick, Chillicothe, Mo.
PETERSON, Thorwald. Christ Nelson, R. F. D. 2, Box 5, Robbinsdale, Minn.

CORPORALS.

COOK, Grover C. Mrs. Sisle Cook, Concord, N. C.
FALLIN, William E. Mrs. John J. Fallin, Canyonville, Oreg.
SANEL, Simon E. Mrs. Elizabeth Hanel, R. F. D. 5, Mount Pleasant, Mich.
HENDRICKS, Joseph, jr. Mrs. Mary Hendricks, 1952 West Fiftieth Street, Cleveland, Ohio.
JOHNSON, Peter G. Mrs. Theresa Tompkins, Mountain Home, Idaho.
KLIMCAK, Tony. George Cwveeske, 4065 East Sixty-seventh Street, Cleveland, Ohio.

PRIVATEES.

BARFIELD, Willis H. Mrs. Bessie A. Barfield, Kilmichael, Miss.
BUCK, Homer. William Wilson Buck, Lexington, Tenn.
CALVANI, Leonardo. Petro Calvani, Sourgola, Province of Rome, Italy.
CAMPANELLI, Louis. Mrs. Mary Campanelli, 3221 West Thirty-first Street, Cleveland, Ohio.
CHIARELLA, Samuel. Mrs. Josephine A. Chiarella, Maple Avenue, Rockaway, N. J.
COLE, Robert L. Jr. Mrs. Elizabeth Cole, 10 North Stricker Street, Baltimore, Md.
CONY, James. Angelo Cony, 7 Jackson Street, Haverhill, Mass.
COOPER, John D. John Cooper, 1102 East Washington Street, Clarinda, Iowa.
FITZNER, Paul. Mrs. Bertha Kaphammer, 2227 Fletcher Street, Chicago, Ill.
FORD, Dennis J. Mrs. Margaret Ford, 164 Wichoff Avenue, Brooklyn, N. Y.
FOSNAUGH, Cecil. Mrs. Henry R. Calen, 826 West Packard Street, Decatur, Ill.
GARDNER, Clarence R. Mrs. Syldia B. Gardner, Box 40, Bradaelitha, Ohio.
GILLESPIE, Everett. Mrs. Maggie Heizer, Pomeroyton, Ky.
GREGORY, John H. Mrs. Theresa Gregory, 1808 West Stiles Street, Philadelphia, Pa.
HALZLAFFLE, Frank. Leonard P. Stephens, R. F. D. 2, Pickens, Schenectady, N. Y.
HEARD, Francis J. Mrs. Louisa L. Cook, 1010 French Street, Erie, Pa.
HENDRICKSON, Charles A. Mrs. Enge Hendrickson, 28 Thirty-ninth Street, Corona, N. Y.
HERRMAN, Walter B. Mrs. Walter Herrman, 6048 Linden Avenue, York, Pa.
HESS, Ralston. Rachel Frank Houser, 286 North Water Street, Lancaster, Pa.
HIGGINS, Howard F. Mrs. Mary Chalmers, 412 Cascade Street, Erie, Pa.
JOHNSON, William. Mrs. William Orr, 203 Moerer Street, West Base City, Mich.
KIENENBERGER, John G. John Kienenberg, Bierman, N. Dak.
KILLINGER, Lewis E. Joseph Killinger, Everson, Pa.
KINSMAN, William Albert. Charles Kinsman, Verde, Ariz.
KOCH, Henry. Mrs. Anpa Koch, Deering, N. Dak.
LANDE, Kleng Magnus. Benjamin Lande, 654 Fifty-second Street, Brooklyn, N. Y.
MANN, William H. Mrs. Nannie Mann, North Benton, Ohio.
MASSEY, Horace. Harper Massey, R. F. D. 2, Medina, Tenn.

NICHOLS, Joseph F. Mrs. Joseph H. Nichols, Mendocino City, Mendocino County, Cal.
SMITH, William P. Mrs. J. P. Campbell, Vinton, Iowa.
TURNER, Harry. Frank E. Turner, 207 Goodrich Street, Astoria, N. Y.

Died of Disease.

LIEUTENANTS.

JENKINS, Clarence C. Ortugar I. Abbott, 806 Central Avenue, Salinas, Cal.
MCVICKAR, John B. Miss Phyllis McVickar, Miller Road, Morristown, N. J.

SERGEANTS.

GRANDSKE, Frank. Mrs. Sophie Casper, 3513 North Second Street, Philadelphia, Pa.
HALL, Ralph L. Mrs. Anna L. Hall, 1326 Garfield Avenue, Denver, Colo.

CORPORAL.

JONES, Oscar. Mrs. Moses Jones, Kingfisher, Okla.

PRIVATEES.

BURDICK, Andrew T. Mrs. Sarah Burdick, General Delivery, South Manitou Island, Mich.
CARTER, Thomas. Mrs. Eliza A. Jones, R. F. D. 3, Box 32, Scottsville, Va.
GAUTHREN, Charlie W. John Gauthren, Lomax, N. C.
CHENAULT, Cabe. Mrs. Mattie S. Chenault, R. F. D. 2, Tignall, Ga.
CODDINGTON, Claud C. Mrs. Almira Coddington, Bloomer, Wis.
COLE, William C. William A. Cole, 1611 Bedford Avenue, Pittsburgh, Pa.
COSTON, James C. No emergency address.
FUHLBRUEGGE, Kurth F. Mrs. Rose Fuhlbruegge, 1215 Vine Street, La Crosse, Wis.
GLENN, Charlie E. Eeland E. Glenn, 416 Washington Street, Greensboro, N. C.
GOODWIN, Owen. Mrs. Jennie Johnson, Star Route, Love, Ky.
GRIFFIN, Henry L. Henry D. Griffin, R. F. D. 1, Swansce, S. C.
HENAK, George. Frank Henak, R. F. D. 2, Oxford Junction, Iowa.
HIRT, Horace. Mrs. Sophia J. Austin, Hennings, Tenn.
HOLDEN, Charles H. Harry Holden, 1710 Seventy-seventh Street, Brooklyn, N. Y.
HORTON, Tommie. Mrs. Mattie M. Horton, R. F. D. 3, Sparta, Ga.
JAMERSON, Charlie B. Mrs. Rachel E. Jamerson, Bell, Fla.
KARNATZ, Charles F. John F. Karnatz, Burr Oak, Nebr.
KIRTLBY, Willard. Mrs. Jinnie Kirtly, R. F. D. 4, Orrick, Mo.
LARSON, Ernest M. Mrs. O. Rathsnan, R. F. D. 7, Bayview, Toledo, Ohio.
LEE, Adrian I. Nels H. Lee, R. F. D. 2, Dexter, Minn.
LIAN, Lars. Miss Kardine Lian, Fifth Street, Anaconda, Mont.
LLOYD, Joe. Mrs. Elizabeth Lloyd, Georgetown, S. C.
MALLA, James E. Pat Malla, Fountain, Minn.
WADSWORTH, Lawrence L. John L. Wadsworth, R. F. D. 3, Aurora, Ind.
WALTON, Edward B. Samuel Walton, 205 North Street, Suffolk, Va.
WARUSCHOK, John. Mrs. Julia Waruschok, 2536 South Twenty-eighth Street, Philadelphia, Pa.

Wounded Severely in Action.

CAPTAIN.

GARDNER, John F. Mrs. Leona Gardner, Manton, Mich.

SERGEANT.

DREWERY, George H. I. N. Drewery, 232 West Taylor Street, Griffin, Ga.

CORPORALS.

HARD, Harold L. Mrs. Sara Hard, Addison, Mich.
LYNCH, John T. Mrs. Catherine Lynch, 2646 Franklin Street, Philadelphia, Pa.
OSTERMAN, Joseph Edgar. Joseph Osterman, sr., 104 West Catherine Street, Chambersburg, Pa.
ROBERTS, William. Paul Roberts, Cheboygan, Mich.
SCHOEMMELL, Emil. Emil Schoemmell, 2463 Valentine Avenue, New York, N. Y.

MUSICIAN.

WILSON, James Stewart. Mrs. William S. Wilson, Alexandria, Pa.

PRIVATEES.

ALLEN, John Charles. Mrs. Charles Allen, R. F. D. 1, Alpena, Mich.
ANDERSON, Walter. Miss Eva Anderson, 488 Avenue B, Bayonne, N. J.
BERNARD, Joseph. Miss Della Bernard, 77 North Main Street, Webster, Mass.
BUGAJ, Waclaw. Andrew Glodo, 1013 Du-bois Street, Detroit, Mich.
BUTTRICK, Clyde L. Fred L. Buttrick, Glad Valley, S. Dak.
COOK, Thomas R. William A. Cook, Delray, Fla.
COSTELLO, Albert L. Mrs. Lizzie B. Costello, North Topeka, Kans.
DAVIS, Oliver. Mrs. Elmer Davis, 2009 Minnesota Avenue, Oakland, Cal.
DOMINICO, Demetrio F. Frank Dominico, 1038 Tasker Street, Philadelphia, Pa.
FORTIA, Antonio. Tony Condon, Gletello, Italy.
FUCHS, Morris. Daniel Fuchs, 471 Sackman Street, Brooklyn, N. Y.
GORMAN, Arthur P. Mrs. Fannie Long, 34 Water Street, Cumberland, Md.
GOSLICKI, Frank. John Goslicki, 732 One hundred and thirty-sixth Street, New York, N. Y.
GRANGER, William. Mrs. Alice Mary Granger, Tekonsha, Mich.
HARBIN, Dewey H. Mrs. Emma Harbin, 12 English Avenue, Atlanta, Ga.
HARKER, John T. J. T. Harker, Merrill, Iowa.
HOLLIS, Kelcie. R. R. Hollis, Brilliant, Ala.
HOGLE, Albert J. Mrs. Diana Heeman, R. F. D. 5, Olympia, Wash.
HOULTON, Fay H. G. S. Houlton, Ireton, Iowa.
KIRBY, Hugh T. Thomas W. Kirby, Scottsboro, Ala.
KIZER, Irving. Samuel Kizer, 281 Twelfth Avenue, Paterson, N. J.
KLATKA, Walter. Adam Lawrenz, 831 Grove Street, Milwaukee, Wis.
MCGRAVNEY, Lawrence. Mrs. McGravney, 626 Second Avenue, New York, N. Y.
MADSON, Selmer T. Henry Madson, Emmons, Minn.
MARTH, Rudolph L. Mrs. Frederika Marth, general delivery, Britt, Iowa.
MAUS, William M. Mrs. May Maus, 709 Garfield Avenue, Dubuque, Iowa.
NECTERRIK, John. Fred Necterrick, 276 Delancey Street, New York, N. Y.
NELSON, John. Ernest Nordquist, 7447 St. Lawrence Avenue, Chicago, Ill.
NEWTON, Philip F. Dr. George Henry Newton, Fairbury, Nebr.
OLMSTED, Arthur D. Mrs. Liza Russel, Detroit, Minn.
OLSON, Oscar W. Mrs. Mathilda Olson, 1705 South Nineteenth Street, Centerville, Iowa.
PAYNE, Robert A. Mrs. Mellisa Fauser, Fayette, Iowa.
ROBINSON, Charles I. Mrs. Elizabeth Robinson, South Pittsburg, Tenn.
ROMA, Michael. Mrs. Elizabeth Roma, 1024 Manhattan Avenue, Brooklyn, N. Y.
SCALF, Charles E. Mrs. Iva Scalf, Patriot, Ind.
SCHENK, Benjamin A. John Schenk, 923 West High Street, Lima, Ohio.
SMITH, Edward C. Mrs. H. Smith, 1203 Sadle Place, Scranton, Pa.
THOMPSON, Robert. Mrs. John Ocarty, Threbuett, Mont.
WVIEDER, Pete. Walter Wvieder, 139 Warton Street, Chicago, Ill.
ZANDER, Louis. Mrs. Rosa Zander, 407 East Carolina Street, San Antonio, Tex.

Wounded (Degree Undetermined).

CAPTAINS.

MIDDLEBROOK, Robert. Mrs. Robert Middlebrook, 2910 East Twenty-eighth Street, Kansas City, Mo.
FROTHINGHAM, Harry. Mrs. Louise G. Frothingham, 450 Fifty-third Street, Brooklyn, N. Y.

LIEUTENANTS.

MCKENNEY, Harry. Emerson McKenney, Ohio Street, Bangor, Me.
MACKAY, Robert A. R. M. Mackay, 21 Train Street, Dorchester, Mass.
MASTIN, William Alfred Newton. Mrs. Ethel Mastin, Midway, Ky.
MILLARD, Alfred, jr. Alfred Millard, First National Bank, Omaha, Nebr.

CASUALTIES REPORTED BY GEN. PERSHING

O'BRIEN, Raymond J. John L. O'Brien, 511 Harrison Avenue, St. Paul, Minn.
 SIMPSON, Charles H. Winnie R. Simpson, 738 Hawthorne Street, Grand Rapids, Mich.
 GOLDSCHMIDT, William F. Mrs. Helen A. Goldschmidt, 936 Sunnyside Avenue, Chicago, Ill.

CHAPLAIN.

WALSH, Francis William. William J. Walsh, 125 Church Street, Newport, R. I.

SERGEANTS.

CONLEY, William A. Mrs. May Jensen, 2217 Spaulding Avenue, Chicago, Ill.
 GARNER, Frank B. O. D. Legrant, Marshall, Okla.
 HARMON, Wasson. Mrs. Frank Harmon, Pell City, Ala.
 NEWMAN, Richard. Mrs. Richard A. Newman, 2221 South Sixty-seventh Street, Philadelphia, Pa.
 SCHLESINGER, Herbert. David Schlesinger, 5307 Indiana Avenue, Chicago, Ill.
 SMITH, Carter M. Mrs. D. Biggers, 1106 West Jefferson, Detroit, Mich.
 CORK, Jessie. W. W. Cork, Tuscaloosa, Ala.
 EGGLESTON, William. Mrs. M. Eggleston, Clintonville, Wis.
 HENNESSY, Joseph R. Mrs. Emaline L. Hennessy, care of Mrs. Frank Parker, 915 Orville Street, Kansas City, Kans.
 LEE, Sam. J. F. Lee, R. F. D. 2, box 360, Bessemer, Ala.
 LOMINSON, John M. Gush D. Lominson, 805 Wilson Street, Williamsport, Pa.
 O'DEA, John. Mrs. May O'Dea, 389 Dean Street, Brooklyn, N. Y.
 RISER, Herbert. Mrs. Orpha White, 110 West Cherry Avenue, Washington, Pa.

CORPORALS.

DIXON, Charles H. Mrs. Myrtle Lund, Osceola, Nebr.
 GILMORE, Rupert. W. J. Gilmore, Montgomery, Ala.
 GREENE, Frank. Mrs. Mary Greene, 14 Franklin Street, Brookline, Mass.
 HOLMES, John K. William L. Dallas, Decatur, Tex.
 KERNODLE, George E. J. M. Bates, 1532-1535 Nineteenth Street, Birmingham, Ala.
 KRAMER, Nathaniel F. Joseph Kramer, 658 Dawson Street, New York, N. Y.
 LAFEVER, Calvin R. Calvin A. LaFever, R. F. D. 4, Mount Vernon, Ohio.
 LARSON, Percy J. Mrs. P. J. Larson, care of B. P. Hill, Bayfield, Wis.
 LEFAVE, John. Mrs. Ellen Lefave, 317 Smith Avenue, Oconto, Wis.
 MAEDEL, William A. Mae Wright, 1600 Rosedale Street NE, Washington, D. C.
 MANN, Walter H. George Mann, 15309 Loomis Avenue, Harvey, Ill.
 NABORS, Jacob S. Thomas Samuel Nabors, Treblec, Miss.
 O'BREIN, James H. Edward A. O'Brein, 39 Pleasant Street, Fall River, Mass.
 SANDERS, Finus. W. F. Sanders, Huntsville, Ala.
 SELF, Lawrence C. Mrs. Zora Layne, McKinney, Tex.
 ALLEN, Leonard W. James Allen, Ulster, Bradford County, Pa.
 COSS, Arthur Lawrence. Mrs. Mary Coss, 1223 Michigan Avenue, Logansport, Ind.
 CROKE, Frederic J. Mrs. Catherine Croke, 29 Springfield Street, Somerville, Mass.
 CUMMISKEY, Frank W., Jr. Frank W. Cummskey, 311 Jefferson Avenue, Brooklyn, N. Y.
 HERMANN, William W. Mrs. Effie Herman, 559 Park Avenue, East Orange, N. J.
 KEMP, Elwood C. Dr. E. L. Kemp, State Normal School, East Stroudsburg, Pa.
 McDERMOTT, Charles D. C. D. McDermott, Georgiaville, R. I.
 MCGILL, John Maurice. Miss Sue McGill, 860 North Twenty-second Street, Philadelphia, Pa.
 McINTYRE, David W. Mrs. John McIntyre, 113 West One hundred and twenty-fourth Street, New York, N. Y.
 MAHONEY, Cornelius J. Miss Mary Mahoney, 330 East Fifty-second Street, New York, N. Y.
 MECIKALSKI, John. Mrs. Francis Zaturski, Wausau, Wis.
 MEYER, John R. Mrs. Margaret Meyer, 515 Decatur Street, Brooklyn, N. Y.
 MILLER, Bernard J. Peter Miller, 2203 North Avenue, Chicago, Ill.
 NEVIN, Stephen A. Stephen Nevin, 421 Seventy-seventh Street, Brooklyn, N. Y.
 RAHN, Robert J. H. Mrs. Sidonie Rahn, 530 St. Paul Place, New York, N. Y.
 ROETZ, Stephen. Mrs. Mary Roetz, 2507 South Eleventh Street, Philadelphia, Pa.

ZUMSTEG, Walter H. Frank Zumsteg, 173 Roswell Street, Akron, Ohio.

MECHANICS.

GRIFFITH, Chauncey. Mrs. Phoeby Griffith, New Florence, Pa.
 BRADLEY, Stephen J. Mrs. J. F. Bradley, 5800 Second Avenue South, Birmingham, Ala.

CHIEF MECHANIC.

SPENNSKE, William. Mrs. Katherine Spennecke, Locust Street, Glen Cove, N. Y.

PRIVATE.

ASHBROOK, Clarence F. Mrs. M. S. Ashbrook, 2118 Delaware Avenue, Richmond, Va.
 BECKER, Nicholas. Mrs. K. Becker, White Bear, Minn.
 BECKER, Theodore G. Theodore Becker, Forreton, Ill.
 BLEVINS, Thomas F. James Blevins, Danville, Ala.
 BLEWETT, Charles H. Mrs. J. M. Blewett, Richardson, Tex.
 COLLINS, Arthur. Mrs. H. B. Collins, 211 Columbus Street, Montgomery, Ala.
 DOMINGO, Anthony L. Mrs. Mary Jane Domingo, Montgomery and Cross Streets, Williamansett, Mass.
 ECKERT, Morris Reed. Samuel Eckert, R. F. D. 3, Freeport, Mich.
 EDDINGTON, John. Mary Eddington, 237 Summerfield Street, Greenfield, Ohio.
 EDWARDS, Roy H. Mrs. Mary E. Heath, Bishops Crossing, Province of Quebec, Canada.
 EKLAND, Edwin. Nels Ekland, Gillett, Wis.
 ELLAS, Roy S. F. W. Ellas, 2804 Thirty-eighth Avenue, Birmingham, Ala.
 PAYETTE, Paul A. Theodore D. Chamberlain, 6917 Thirty-fourth Street, Berwyn, Ill.
 FISSELL, Cyrus. Durley B. Fissell, general delivery, Myrtle, Mo.
 FRONCILLO, Francesco. John Froncillo, 142 Lincoln Avenue, Meadville, Pa.
 GOTTLIEB, David R. Ike Gottlieb, 1526 South Spaulding Avenue, Chicago, Ill.
 GRANT, George B. William A. Grant, Blairsville, Pa.
 GRANTHAM, Charles Jefferson. Mrs. Simon P. Grantham, Kilgore, Nebr.
 GROTE, Charles G. Mrs. Anna C. Grote, 280 East One hundred and sixty-second Street, New York, N. Y.
 HALVORSON, Halbert. Halvor Halvorson, R. F. D. 3, Thief River Falls, Minn.
 HANLINE, Alva C. Daniel M. Hanline, Valparaiso, Nebr.
 HANSON, Raymond H. Mrs. Bertha Hanson, Vienna, S. Dak.
 HARPER, Grafton. Mrs. Willie Harper, McDonough, Ga.
 HICKEY, Cornelius J. Mrs. Johanna Hickey, 233 Stuyvesant Avenue, Brooklyn, N. Y.
 HORNACK, John. Mary Hornack, Continental, Pa.
 RABRACLOUGH, William A. Fred Barracough, 300 East Fourth Street, North Platte, Nebr.
 BARKENBLIT, Morris. Israel Barkenblit, 561 Bushwick Avenue, Brooklyn, N. Y.
 BIRKELAND, Ole. Hams Birkeland, R. F. D. 1, Two Harbors, Minn.
 BLAKE, Theodore. Mrs. Mary Blake, Child-ester, Ark.
 BLUDORN, Charles. Henry Bludorn, Shake-pee, Minn.
 BRANCHAUD, Armand. Philip Branchaud, 233 Concord Street, Manchester, N. H.
 BRUNSON, Howell S. Mrs. Benjamin J. Brunson, 225 Montgomery Street, Savannah, Ga.
 BUHLER, Harry R. Mrs. Anna Buhler, 1094 Bedford Avenue, Brooklyn, N. Y.
 CASAU, Fedrico. Mrs. Gertrudelas Casaus, Guadalupe, N. Mex.
 CONNORS, Daniel. John J. Connors, 253 Magnolia Avenue, Cambridge, Mass.
 CORNELIUS, Lorenzo F. Benjamin F. Cornelius, 302 East Comanche, Norman, Okla.
 COWLEY, George. Mrs. Mable Bynon, 5810 Cedar Avenue, Cleveland, Ohio.
 COYNE, Edward C. Mrs. Florence Coyne, 265 Forty-sixth Street, Brooklyn, N. Y.
 COYNE, Stephen. Miss Della Coyne, 1955 East Seventy-fifth Street, Cleveland, Ohio.
 CRIMMINS, Cornelius. Mrs. Barbara Crimmins, 4216 Bridge Avenue, Cleveland, Ohio.
 CROSBY, Lattrell. M. B. Crosby, Centry Fla.
 DARRAH, William. Mrs. Mary Baldwin, Plymouth Meeting, Montgomery County, Pa.
 DAVIS, Remie. Burt Davis, Kettle, Roane County, W. Va.
 DECKER, Fred M. James M. Decker, Murphy, N. C.
 DELORY, Richard O. Mrs. Louise Delory, Troy, N. H.

DONNELLY, Edward R. Mrs. Edward R. Donnelly, 59 Price Street, Stapleton, N. Y.
 FENTON, Howard R. Francis R. Lucas, 1330 South Olive Street, Los Angeles, Cal.
 FITZPATRICK, DeLoach. J. C. Fitzpatrick, Ensley, Ala.
 FLAIG, Henry G. Louis Flaig, sr., 315 South Payson Street, Baltimore, Md.
 FLOCKER, Vincent. Mrs. Maude I. Flocker, 2647 Perysville Avenue, North Side, Pittsburgh, Pa.
 FLYNT, Joseph C. Younger E. Flynt, 119 Chestnut Street, Commerce, Tex.
 FORDHAM, Ferdinand J. Mrs. Cella V. Fordham, care of Perry, 1264 Portland Avenue, Richmond Hill, N. Y.
 GIFFORD, John M. John Buraglio, 318 Eighth Avenue West, Duluth, Minn.
 GIBSON, Webster. Mrs. Josephine Gibson, Coatesville, Pa.
 GRANT, Arthur G. E. E. Grant, 2258 Seventh Avenue, Troy, N. Y.
 GUENTHER, Alvin F. Lawrence Guenther, 214 South Center Street, Beaver Dam, Wis.
 GUMBEL, Carl Henry. Charles Gumbel, San Jose, Ill.
 HANNA, Samuel. Thomas Hanna, 1332 South Twenty-second Street, Philadelphia, Pa.
 HATHAWAY, Edward. John J. Hathaway, Carmichaels, Pa.
 HAWK, Luther H. Hiram Hawk, Lycippus, Pa.
 HECOX, Louis U. DeWitt Hecox, 1199 Her-tell Avenue, Buffalo, N. Y.
 HENRY, William A. Mrs. William A. Henry, Vaux Hall Road, Union, N. J.
 HEVENOR, Horace L. Benjamin J. Hevenor, 679 Myrtle Avenue, Albany, N. Y.
 HICKS, Wilford. Mrs. Mary J. Hicks, 26 Beaver Street, Edgeworth, Pa.
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Postmasters are urged, aside from their duty as officials, to make it their patriotic and personal duty to see that the public has the fullest benefit of this privilege.

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All postmasters are directed to post THE OFFICIAL U. S. BULLETIN daily in a conspicuous place in the lobby or other portion of their respective post-office buildings where the public can read it; and, without expense to the Government, each and every postmaster is earnestly urged to see that this BULLETIN is made available to as many people as possible in the manner suggested.

A. S. BURSelson,
Postmaster General.

Better than money because they earn money; buy a WAR-SAVINGS STAMP TO-DAY.

SOLDIERS HONORED BY PERSHING FOR HEROISM

The commander in chief of the American Expeditionary Force in the name of the President has awarded the Distinguished Service Cross to the following officers and soldiers for the acts of extraordinary heroism described after their names:

Pvt. LIBERTY PEASE, Company E, 168th Infantry, for extraordinary heroism in action in the Forest De Fere, near Nesles, northeast of Chateau Thierry, France, July 26 to August 2, 1918. During the advance of his regiment in the Forest De Fere, by his voluntary, authorized, and untiring efforts in carrying the wounded, both by day and by night, under the most severe and dangerous circumstances, and especially when the town of Sergy was under bombardment, July 31, 1918. Home address, John E. Pease, R. F. D. No. 2, Shenandoah, Iowa.

Pvt. WILLIAM J. STEEDE, Company E, 168th Infantry, for extraordinary heroism in action in the Forest De Fere, near Nesles, northeast of Chateau Thierry, France, July 26 to August 2, 1918. During the advance of his regiment in the Forest De Fere, by his voluntary, authorized, and untiring efforts in carrying in the wounded, both by day and by night, under the most severe and dangerous circumstances, and especially when the town of Sergy was under heavy bombardment, July 29-31, 1918. Home address, Mrs. William Steede, 1025 Tomassack Avenue, Grand Rapids, Mich.

Maj. WILLIAM THAW, A. S., 103d Aero Squadron, for extraordinary heroism in action near Rheims, France, March 26, 1918. Maj. Thaw was the leader of a patrol of three planes which attacked five enemy monoplanes and three battle planes. He and another member of the patrol brought down one enemy plane and the three drove down out of control two others and dispersed the remainder. The bronze oak leaf is awarded Maj. Thaw for extraordinary heroism in action near Montagne, France, April 20, 1918. In the region of Montagne Maj. Thaw attacked and brought down burning an enemy balloon. While returning to his own lines the same day he attacked two enemy monoplanes, one of which he shot down in flames. Home address: Benjamin Thaw, Jr., care of American Embassy, Paris, France.

First Lieut. EDWARD V. RICKENBACKER, A. S., Ninety-fourth Aero Squadron, for extraordinary heroism in action near Montsec, France, April 29, 1918. Lieut. Rickenbacker attacked an enemy albatross monoplane and after a vigorous fight, in which he followed his foe into German territory, he succeeded in shooting it down near Vigneulles-Jes-Hatton Chatel. One bronze oak leaf is awarded Lieut. Rickenbacker for each of the following acts of extraordinary heroism in action: On May 17, 1918, he attacked three albatross enemy planes, shooting one down in the vicinity of Richecourt, France, and forcing the others to retreat over their own lines. On May 22, 1918, he attacked three monoplane albatross planes 4,000 meters over St. Mihiel, France. He drove them back into German territory, separated one from the group and shot it down near Elirey. On May 28, 1918, he sighted a group of two battleplanes and four monoplanes. German planes, which he at once attacked vigorously, shooting down one and dispersing the others. On May 30, 1918, 4,000 meters over Jaulnoy, France, he attacked a group of five enemy planes. After a violent battle, he shot down one plane and drove the others away. Home address: Mrs. William Rickenbacker, 1334 East Livingstone Avenue, Columbus, Ohio.

First Lieut. DOUGLAS CAMPBELL, A. S., 94th Aero Squadron, for extraordinary heroism in action on May 19, 1918. Lieut. Campbell attacked an enemy biplane at an altitude of 4,500 meters, east of Elirey, France. He rushed to the attack but after shooting a few rounds, his gun jammed. Undeterred by this accident, he maneuvered so as to protect himself, corrected the jam in midair and returned to the assault. After a short, violent action, the enemy plane took fire and crashed to the earth. One Bronze Oak Leaf is awarded to Lieut. Campbell for each of the following acts of extraordinary heroism in action. On May 27, 1918, he encountered three enemy monoplanes at an altitude of 3,000 meters over Montsec, France. Despite the superior strength of the enemy, he promptly attacked and, fighting a brilliant battle, shot down one

German machine, which fell in three pieces, and drove the other two well within the enemy lines. On May 28, 1918, he saw six German albatross aeroplanes flying toward him at an altitude of 2,000 meters near Bois Rata, France. Regardless of personal danger, he immediately attacked and by skillful maneuvering and accurate operation of his machine gun, he brought one plane down in flames and drove the other five back into their own lines. On May 31, 1918, he took the offensive against two German biplanes at an altitude of 2,500 meters over Lironville, France, shot down one of them and pursued the other far behind the German lines. On June 5, 1918, accompanied by another pilot, he attacked two enemy battle planes at an altitude of 5,700 meters over Eply, France. After a spirited combat, Lieut. Campbell was shot through the back by a machine-gun bullet, but in spite of his injury, he kept on fighting until he had forced one of the enemy planes to the ground, where it was destroyed by artillery fire, and had driven the other plane back into its own territory. Home address: W. W. Campbell, Lick Observatory, Mount Hamilton, Cal.

Second Lieut. RALPH A. O'NEILL, A. S., 147th Aero Squadron, for extraordinary heroism in action near Chateau Thierry, France, July 2, 1918. Lieut. O'Neill and four other pilots attacked 12 enemy battleplanes. In a violent battle within the enemy's lines they brought down three German planes, one of which was credited to Lieut. O'Neill. A bronze oak leaf is awarded to Lieut. O'Neill for the following act of extraordinary heroism in action: On July 5, 1918, Lieut. O'Neill led three other pilots in battle against eight German pursuit planes near Chateau Thierry, France. Lieut. O'Neill attacked the leader, opening fire at about 150 yards and closing up to 30 yards range. After a quick and decisive fight the enemy aircraft fell in flames. Lieut. O'Neill then turned on three other machines that were attacking him from the rear and brought one of them down. The other five enemy planes were driven away. Home address, Mrs. R. L. O'Neill, 218 Sonoita Street, Nogales, Ariz.

First Lieut. JAMES A. MEISSNER, A. S., 94th Aero Squadron, for extraordinary heroism in action in the Toul sector in May, 1918. He attacked three enemy planes at an altitude of 4,500 meters over the Forest de la Rappe, France. After a short fight he brought down one of the machines in flames. During the combat the entering wedge and the covering of the upper wings of Lieut. Meissner's plane were torn away and after the battle he was subjected to heavy fire from anti-aircraft batteries, but by skillful operation and cool judgment he succeeded in making a landing within the American lines. The bronze oak leaf is awarded Lieut. Meissner for the following act of extraordinary heroism in action: On May 30, 1918, he attacked two enemy planes at an altitude of 4,500 meters above Jaulnoy, France, and after a sharp engagement shot one down in flames and forced the other back into its own territory. Home address: Carl A. Meissner, 45 Lenox Road, Brooklyn, N. Y.

Capt. DAVID MCK. PETERSON, A. S., 94th Aero Squadron, for extraordinary heroism in action near Lunneville, France, on May 3, 1918. Leading a patrol of three, Capt. Peterson encountered five enemy planes at an altitude of 3,500 meters and immediately gave battle. Notwithstanding the fact he was attacked from all sides, this officer, by skillful maneuvering, succeeded in shooting down one of the enemy planes and dispersing the remaining four. The bronze oak leaf is awarded to Capt. Peterson for extraordinary heroism in action near Thiacourt, France, on May 15, 1918. While on a patrol alone Capt. Peterson encountered two enemy planes at an altitude of 52 meters. He promptly attacked, despite the odds, and shot down one of the enemy planes in flames. While thus engaged he was attacked from above by the second enemy plane, but by skillful maneuvering he succeeded in shooting it down also. Home address, P. B. Peterson, Honesdale, Pa.

First Lieut. FRANK A. LLEWELLYN, pilot, 99th Aero Squadron, home address, Mrs. W. A. Llewellyn, mother, 5636 Kenwood Avenue, Chicago, Ill., and Second Lieut. **ROLAND H. NEEL**, CAC, observer, 99th Aero Squadron, home address, Joseph N. Neel, father, Macon, Ga. For extraordinary heroism in action east of Saint Die, France, August 17, 1918. Lieut. Llewellyn acting as pilot and Lieut. Neel acting as observer, carried on successful liaison with the infantry during the attack on Fra-

pelle. They flew over the enemy lines at an altitude of only 400 meters, firing on and disconcerting the enemy and thereby giving courage and confidence to the American forces. Despite heavy fire from 15 anti-aircraft machine guns and several batteries of anti-aircraft artillery, they performed their work efficiently. Their aeroplane was struck by a number of machine-gun bullets, one of which cut the rudder and elevator control wires and caused the rudder to jam. The broken control wire was held and operated by Lieut. Neel under direction of Lieut. Llewellyn. Running the machine together in this manner, they continued their liaison work until the plane began to become unmanageable, when, in spite of its damaged condition, they brought it back to their airdrome.

Lieut. THOMAS J. ABERNATHY, Aviation Service, 147th Aero Squadron, for extraordinary heroism in action near Vourbin, France, July 15, 1918. Lieut. Abernathy while on patrol duty, attacked an enemy plane at close range, firing 100 rounds at a distance of from 50 to 200 yards. He followed the German ship down and saw it fall out of control, and as he turned he found five enemy planes diving at him. Without hesitation, he took the offensive and fired 200 rounds into enemy ships at not more than 15 to 20 yards. He observed tracer bullets entering the bodies of the enemy aircraft, but owing to the violence of the combat he did not have time to observe whether any of his foes were shot down. Fighting vigorously, he succeeded in dispersing the enemy ships and making a safe landing within his own lines, although his own engine and plane were almost shot to pieces. Home address, Mrs. J. S. Abernathy, West Pembroke, Me.

Second Lieut. ALAN F. WINSLOW, Aviation Service, 94th Aero Squadron, for extraordinary heroism in action in the Toul sector on June 6, 1918. While on a patrol consisting of himself and two other pilots, he encountered a biplane of the enemy at an altitude of 4,000 meters, near St. Mihiel, France. He promptly and vigorously attacked and after running fight, extending far beyond German lines, shot his foe down in flames near Thiacourt. Home address, W. H. Winslow, 2628 Hampden Court, Chicago, Ill.

First Lieut. JOSEPH C. RAIBLE, Jr., Aerial Service, 147 Aero Squadron, for extraordinary heroism in action, near Chateau Thierry, July 5, 1918. Lieut. Raible, and three other pilots, at an altitude of 4,700 meters attacked an enemy formation of 8 battle planes flying at an altitude of 5,000 meters. The German machines dived on them and Lieut. Raible engaged two in combat. In a hard fight, lasting five minutes and finishing at an altitude of 3,000 meters, he shot down one of the attacking party and drove off the other. Home address: J. C. Raible, 2102 Chestnut Street, Hannibal, Mo.

First Lieut. ARTHUR H. ALEXANDER, Aerial Service, 6th Aero Squadron, for extraordinary heroism in action on September 4, 1918. While on a bombing expedition with other planes from his squadron, Lieut. Alexander engaged in a running fight over hostile territory, with a superior number of enemy battle planes, from Friaucourt to Lamorville, France. He was seriously wounded in the abdomen by machine-gun bullet, and his observer was shot through legs. Although weak from pain and loss of blood, Lieut. Alexander piloted his plane back to his own airdrome and concealed the fact of his injury until after his observer had been cared for. Home address, Mrs. Stella H. Alexander, box 105, Wellesley, Mass.

First Lieut. DONALD B. WARNER, A. S., 96th Aero Squadron, for extraordinary heroism in action on September 4, 1918. While on a bombing expedition with other planes from his squadron, Lieut. Warner engaged in a running fight over hostile territory with a superior number of enemy battle planes from Friaucourt to Lamorville, France. During the combat he was severely wounded, his right thigh being badly shattered. In spite of his injuries he continued to operate his machine guns until the hostile formation had been driven off and one plane shot down burning. Home address, Mrs. C. E. Warner, 175 Humphrey Street, Swampscott, Mass.

First Lieut. ALFRED A. GRANT, 27th Aero Squadron, for extraordinary heroism in action near Chateau-Thierry, France, on July 2, 1918. With several other officers, Lieut. Grant encountered an enemy patrol of nine planes. During the combat he became slightly separated from the other American machines

SOLDIERS HONORED BY PERSHING FOR HEROISM

and was attacked by three of the enemy. By skillful maneuvering and good marksmanship he destroyed one machine and drove off the other two. Home address, Alfred A. Grant, father, 86 Syracuse Street, Denton, Tex.

First Lieut. CHARLES W. DREW, 13th Aero Squadron. For extraordinary heroism in action near Flirey, France, August 15, 1918. Lieut. Drew operated one of a patrol of four machines which attacked four enemy battle planes. In the fight which followed, he attacked in succession three of the enemy airplanes, driving one of them out of the battle. He then engaged another machine at close range and received ten bullets in his own plane, one of which penetrated his radiator, while another pierced his helmet. In spite of this, Lieut. Drew followed the German plane to a low altitude within the enemy's lines and shot it down in flames. During the latter part of the combat, he courageously refused to abandon the fight although he had become separated from his companions and his engine had become so hot, because of the leak in his radiator, that there was imminent danger of its falling him at any moment. Lieut. Drew is now reported to be a prisoner at St. Clement's Hospital, Metz, Germany. Next of kin, Mrs. S. E. Drew, 246 West Seymour Street, Philadelphia, Pa.

Second Lieut. ARTHUR H. JONES, A. S., 147th Aero Squadron. For extraordinary heroism in action in the Toul sector, July 16, 1918. Lieut. Jones and four other pilots were attacked by nine German pursuit planes. Without hesitation, Lieut. Jones dove into the leader of the enemy formation, pouring machine-gun fire into him at 100 yards. After a quick and decisive combat, the enemy leader fell out of control. Lieut. Jones then attacked two of the other enemy planes, which were attacking him from the rear and succeeded in driving them off. Home address, Mrs. A. H. Jones, Haywood, Alameda County, Cal.

First Lieut. WALTER L. AVERY, A. S., Ninety-fifth Aero Squadron. For extraordinary heroism in action north of Chateau-Thierry, France, July 25, 1918. While on his first patrol over the enemy's lines, Lieut. Avery attacked an enemy two-seater biplane. While thus occupied he was vigorously attacked by another enemy plane, but by a quick turn, skillful maneuvering, and accurate shooting he drove the second plane to the American side of the lines, where it crashed into the woods. Lieut. Avery's motor had been badly damaged by bullets, but he had a successful landing back over our lines, where he learned that the enemy pilot, who had been made a prisoner, was a German ace credited with 16 victories. Lieut. Avery's conduct was especially commendable because his plane had been seriously damaged at the beginning of the combat. Home address, E. E. Avery, 1199 Franklin Avenue, Columbus, Ohio.

First Lieut. FRED W. NORTON, A. S., Twenty-seventh Aero Squadron, deceased. For extraordinary heroism in action in the Toul sector, France, on July 2, 1918. Lieut. Norton, as flight commander, led a patrol of eight machines, the first large American formation to encounter a large German patrol. His command gave battle to nine enemy battle-planes, driven by some of the leading aces of the German Army. Although both of his guns jammed at the beginning of the fight and were therefore useless, Lieut. Norton stayed with the formation, skillfully maneuvering his machine to the best advantage. He was attacked by enemy planes four different times, but skillfully avoided them or dived at them. His continued presence was a great moral help to his comrades, who destroyed two of the enemy planes. On July 23, 1918, this officer died of wounds received in action July 20, 1918. Home address, Mrs. Frank Norton, 172 West First Street, Columbus, Ohio.

First Lieut. ROBERT FULTON RAYMOND, A. S., 27th Aero Squadron. For extraordinary heroism in action near Chateau-Thierry, France, June 24, 1918. Lieut. Raymond piloted one machine in a formation of three which was escorting three reconnaissance planes over enemy territory. On account of motor trouble he was unable to keep up with his companions and, while thus detached, was attacked by an enemy machine. In spite of the condition of his engine and his presence far within the German lines Lieut. Raymond vigorously attacked the German plane and destroyed it, after which he succeeded in rejoining his patrol. Home address, Judge Robert F. Raymond, Superior Court House, Boston, Mass.

First Lieut. LOUIS G. BERNHEIMER, A. S., pilot, home address, Sidney, Bernheimer,

138 Seventy-second Street, New York City; Second Lieut. JOHN W. JORDAN, F. A., observer, home address, E. L. Frybarger, uncle, Hyde Park Hotel, Chicago, Ill.; Second Lieut. ROGER W. HITCHCOCK, A. S., pilot (since reported killed in action), home address, Mrs. Roger W. Hitchcock, wife, Bernard Apartment, Los Angeles, Cal.; Second Lieut. JAMES S. D. BURNS, 165th Infantry, observer, deceased, next of kin, Mrs. Zias Burns, mother, 124 Featherbed Lane, New York City; First Lieut. JOEL H. MCCLENDON, A. S., pilot, deceased, next of kin, Mr. J. W. McClendon, father, Farmers Branch, Tex.; Second Lieut. CHARLES W. PLUMMER, 101st Field Artillery, observer, deceased, next of kin, Henry W. Plummer, father, R. F. D. No. 4, Patomaka, New Bedford, Mass.; First Lieut. PHILIP R. BABCOCK, A. S., pilot, home address, Susan F. Babcock, mother, Litchfield, Conn.; and Second Lieut. JOSEPH A. PALMER, 15th Field Artillery, observer, next of kin, John N. Palmer, father, 310 McIntyre Avenue, Zanesville, Ohio. For extraordinary heroism in action near Fismes, France, August 11, 1918. Under protection of three pursuit planes, each carrying a pilot and an observer, Lieuts. Bernheimer and Jordan, in charge of a photo plane, carried out successfully a hazardous photographic mission over the enemy's lines to the River Aisne. The four American ships were attacked by 12 enemy battle planes. Lieut. Bernheimer, by coolly and skillfully maneuvering his ship, and Lieut. Jordan, by accurate operation of his machine gun, in spite of wounds in the shoulder and leg, aided materially in the victory which came to the American ships, and returned safely with 36 valuable photo-

graphs. The pursuit plane operated by Lieuts. Hitchcock and Burns was disabled while these two officers were fighting effectively. Lieut. Burns was mortally wounded and his body jammed the controls. After a headlong fall of 2,500 meters, Lieut. Hitchcock succeeded in regaining control of this plane and piloted it back to his airdrome. Lieuts. McClendon and Plummer were shot down and killed after a vigorous combat with five of the enemy's planes. Lieuts. Babcock and Palmer, by gallant and skillful fighting, aided in driving off the German planes and were materially responsible for the successful execution of the photographic mission.

First Lieut. RICHARD C. M. PAGE, Aerial Service, pilot; home address, Carter H. Page, jr., father, Fort Myers, Fla.; and First Lieut. JOHN I. RANCOURT, 103d Field Artillery, observer; home address, Miss Florence Rancourt, sister, 1271 North Main Street, Providence, R. I. For extraordinary heroism in action near Fismes, France, August 9, 1918. These officers were detailed to fly without escort on a visual reconnaissance over the enemy's lines. They were attacked by six enemy battle planes 1,800 meters over Fismes. The Americans unhesitatingly fought this superior number of the enemy. Lieut. Rancourt was three times seriously wounded in the legs above the knees, yet he continued to operate his machine gun and shot down one of the enemy planes. In spite of the fact that his elevator controls on one side had been shot away, Lieut. Page skillfully maneuvered the plane throughout the combat and piloted it safely back to his airdrome.

Additional List of American Prisoners And Camps in Germany Where Interned

The War Department authorizes publication of the following list of prisoners of war in Germany with the exception of one civilian, who is at a hospital in Germany:

RASTATT.

SCOTT, John H., jr., private, first class. John Harding Scott, sr., father, 37 Terrace Street, Bradford, Pa.
HEFFLEFINGER, Mervin F., private, first class. Mrs. Celia Heflefinger, mother, 241 West B Street, Carlisle, Pa.

DI NORCIA, Nocolo, private. Sylvester Di Norcia, brother, 11 Casot Street, Newark, N. J.

PELLICCHI, Arturo, private. Toni Doultoni, friend, Cold Spring Harbor, N. Y.

BREEN, Simon, private. Simon Breen, father, 761 McAlpine Street, Philadelphia, Pa.

CAREY, William T., private. Miss Mary Carey, sister, 312 East Thirty-fifth Street, New York, N. Y.

MCNEASE, Frank R., private. Mrs. Florence E. McNease, mother, 634 Thirteenth Avenue, New Brighton, Pa.

BARBER, Antonio, private. Michele Barber, father, Ville Bette, Province Di Teramo, Italy.

LIMBURG.

WASHCO, John, corporal. Mrs. Pearl Washco, mother, 2816 Jackson Street, Philadelphia, Pa.

LANDSBERRY, Harold B., private (first class). Mrs. Elizabeth B. Landsberry, mother, 1939 South Sixty-fifth Street, Philadelphia, Pa.

MONTE, Joe James, private (first class). Joseph Hammett, cousin, 13 Burnside Avenue, Newport, R. I.

PETRO, Frank Motz, private (first class). Mrs. Helen Petro, wife, 136 North Pearl Street, Youngstown, Ohio.

KATZ, Benjamin, private (first class). Louis Cohn, brother, 73 Walton Street, Brooklyn, N. Y.

MILLS, Frank, private. Mrs. Anna Mills, mother, 580 Eagle Street, Buffalo, N. Y.

RICHWINO, Clair, private. Jacob M. Richwino, father, R. F. D. No. 3, Gardners, Pa.

HICKS, William, private (first class). Mrs. Mattie Hicks, wife, 804 Noble Street, Rome, Ga.

TAUBERT, David E., private. Mrs. Mary Taubert, mother, 42 Elm Street, Clinton, Mass.

COUNTRY, Dominick, private. Sabatino Centriciano, father, 6418 Vine Street, Philadelphia, Pa.

LO SASSO, Louis, private. James Lo Sasso, father, 345 North Sixty-fourth Street, Philadelphia, Pa.

DEITSCHLE, George, private. Mrs. Lottie Deitschle, mother, 47 East Town Street, Columbus, Ohio.

RESSI, Carlo, private. Miss Asunda Ressi, sister, Venafro, Province Cabobasco, Italy.

HOSPITAL AT METZ.

CHORNIAK, Sam. private. Alex. Chorniak, brother, 42 Hicks Street, Meriden, Conn.

HOSPITAL AT TRAUENSTEIN.

GLEASON, Michael, civilian. Frank Sellick, P. O. box, Bergen County, Palisade, N. J.

RESERVE HOSPITAL 6, LANDAU.

ELDER, Thomas J., private. Mrs. Rebecca Elder, mother, 754 South Thirteenth Street, Philadelphia, Pa.

SHAFFER, Howard J., private. Mrs. G. M. Shaffer, mother, R. F. D. No. 5, Brooksville, Pa.

LANDSHUT.

CHAPIN, Roger F., lieutenant. Mrs. C. T. Chapin, Arundel Park, Dorchester, Mass.

CLARK, Arthur L., lieutenant. Eugene Clark, father, 20 St. Johns Street, Jamaica Plain, Mass.

ST. CLEMENT HOSPITAL, METZ.

HEINRICHS, Waldo H., lieutenant. Jacob Heinrichs, father, Ford Building, Boston, Mass.

VILLINGEN.

Hinman, George, lieutenant. F. G. Hinman, 198 Russell Street, Worcester, Mass.

CASSEL.

GASTROCK, Edward S., private. Mrs. Emma Gastrock, mother, 2019 Sepviva Street, Philadelphia, Pa.

GORMAN, Edward William, private. Francis S. Gorman, father, 1 East Front Street, Bridgeport, Pa.

GREENBERG, Hyman, private. Benjamin Weisinger, cousin, 976 Sutter Avenue, Brooklyn, N. Y.

LIST OF U. S. PRISONERS AND CAMPS IN GERMANY WHERE INTERNED

HARRIS, William E., private. Mrs. Elinor Harris, mother, 517 East Broad Street, Bethlehem, Pa.

JENKINS, Ralph, private. Mrs. Ginda Jenkins, mother, 310 Monroe Street, Philadelphia, Pa.

JOHNSTON, William A., private. Mrs. Wm. Dickson, mother, 122 Princeton Avenue, West View, Pa.

MCCLOY, James, private. John E. Hall, friend, 129 East Ostend Street, Baltimore, Md.

WITZEL, Robert Bryan, private. Mrs. Hattie Clark, sister, 19 South Brook Street, Allentown, Pa.

GUNTHER, Herbert F., private. Mrs. Carrie Gunther, mother, Paxico, Kans.

PETRUSKY, Andrew G., private. Andrew Petrusky, father, Patton, Pa.

ROBERTS, Fred, private. Dick Roberts, father, Gaffney, S. C.

THORSHHEIM, Elmer M., private. Mons L. Thorsheim, father, Thompson, Iowa.

WARREN, William, private. R. S. Ford, Newport News, Va.

HAMMOND, Clarence, private. Mrs. Virginia Hammond, mother, 504 Lake Street, Salisbury, Md.

JACKSON, Edward Carl, private (first class). Mrs. Lizzie Jackson, mother, 180 Beaver Street, Fallston, New Brighton, Pa.

KEENAN, Richard J., private. Mrs. Sebbie Keenan, mother, Jeannette, Pa.

COMPOTARO, Angelo, private. Robert Compotaro, brother, 97 Oliver Street, Derby, Conn.

MCKINNIS, Robert D., private. Mrs. Elizabeth McKinnis, grandmother, 1103 Fifth Street, New Brighton, Pa.

MANDEL, Leon, private. Mrs. Fannie Mandel, mother, 1749 Thirty-third Street, Philadelphia, Pa.

MOGEL, Edward, private. Mrs. Sarah Mogel, mother, 819 Reed Street, Philadelphia, Pa.

O'NEILL, Francis P., private. Mrs. Elizabeth O'Neill, wife, 5008 Keyser Street, Philadelphia, Pa.

BISNOVICII, Israel, private. Mrs. Rachael Bisnovich, mother, 92 Fairview Street, Waterbury, Conn.

WEINHOLD, Walter, private. Mrs. Hattie Weinhold, mother, Adell, Wis.

BURNS, Perry W., private. Mrs. Burns, 899 Main Street, Waltham, Mass.

DROUIN, George E., private. Louis Drouin, father, 4 Dronin Street, St. Johnsbury, Vt.

POTENZI, Tony C., private. Andrew Potenzi, brother, 237 Windsor Street, Hartford, Conn.

TORTORICI, Jasper, private. Michael Tortorici, father, 272 Washington Street, Peabody, Mass.

CLEAVER, John P., private. Mrs. Florence Cleaver, mother, Somerset, Pa.

DOMINICK, John D., private. Mrs. Millie Dominick, mother, 1403 Ninth Street, Philadelphia, Pa.

FURLONG, George D., corporal. Walter A. Wuelser, friend, East Rutland, Mass.

REPORTED WOUNDED—CAMP LIMBURG.

MCMASTER, Elmer J., private (first class). Jess McMaster, father, 306 South State Street, Dubois, Pa.

KARLSRUHE.

CONVERSE, Robert Roy, lieutenant. E. H. Sterns, 40 East Sixty-fifth Street, New York, N. Y.

GRÖNER, Robert Newell, lieutenant. Mrs. Lewis Abro, 150 East Seventy-second Street, New York, N. Y.

FREEMAN, Harry B., lieutenant. Dr. F. W. Freeman, Lynnfield Center, Mass.

WOODS, George Bryant, lieutenant. George Adams Woods, 10 State Street, Boston, Mass.

DAVIS, Raymond Ellis, lieutenant. Louis S. Davis, father, 105 East English Street, Danville, Ill.

REPORTED IN GOOD HEALTH—CAMP KARLSRUHE.

WISER, Guy Brown, lieutenant. A. E. Wisser, father, 2019 Mishawaka Avenue, South Bond, Ind.

LONDON, Horace Z., captain. Mrs. Horace Z. Landon, wife, Bainbridge, N. Y.

SOLTAU.

REITZELL, Frank V., private. William B. Reitzell, father, Riverton, La.

DARMSTADT.

STEVENS, Edward A., sergeant. Arthur M. Stevens, brother, 1 Stevens Street, Methuen, Mass.

ZERBST.

GRIMES, Albert Thompson, private (first class). Miss Mabel Grimes, sister, 1929 Mount Vernon Street, Philadelphia, Pa.

71°-18-4

CAMP UNKNOWN.

STYLES, Cassius H., lieutenant. Dr. W. W. Styles, father, South Hero, Vt.

JACKSON, Thomas F., lieutenant. Mrs. Helen Jackson, mother, 376 Chestnut Street, New Britain, Conn.

FROST, Henry Bradley, lieutenant. Frank C. Frost, father, 58 Old Mystic Street, Arlington, Mass.

DONALDSON, John C., lieutenant. Mrs. Mary Donaldson, mother, 24 Varnum Avenue, Pawtucket, R. I.

ARQUETTE, Boyde, sergeant. Mrs. Jennie Fletcher, mother, Parishville, N. Y.

STERN, Philip, corporal. Edward Klein, step-father, 124 Allen Street, New York, N. Y.

MALLOV, Israel, private, first class. Z. Steinberg, friend, 278 Henry Street, New York, N. Y.

NOE, Charles, private, first class. Mrs. Catherine McLand, sister, 23 West Haverman Street, Flushing, N. Y.

SAVASTANO, Anthony, private, first class. Pasquale Savastano, brother, 7315 Fifth Avenue, Brooklyn, N. Y.

CLINEFELTER, Robert O., private, first class. Mrs. Addie Clinefelter, mother, 111 Elm Street, Coldwater, Mich.

MEEHAN, John F., private. Mrs. Mary Meehan, mother, Duncott, Pa.

PIERINI, Pietro, private. Citto Piccioni, friend, South City, San Mateo, Cal.

TOLBERT, William O., private. Mrs. La Tolbert, mother, 816 South Sixteenth Street, Paducah, Ky.

MCCOY, Leonard Dudley, private. Mrs. Ella Harvey, sister, Montour, Iowa.

BERENSTEIN, John J., private. Charles Diencendo, friend, Hicksville, N. Y.

CHRISTENSON, Christ P., private. John Astor, friend, 65 Curtis Street, San Francisco, Cal.

MAILER, Sundry, private. Mrs. Erna Mahler, mother, New Baltimore Station, N. Y.

LONG, Joseph G., private. Mrs. Minnie Long, mother, 341 East Eureka Street, Lima, Ohio.

FERRIS, William Joseph, private. Mrs. Alice McCelish, sister, 620 Plum Street, Erie, Pa.

FASSO, John, private. Mrs. Josephine Fasso, sister, 868 Cambridge Avenue, Chicago, Ill.

LORETI, Valentine, private. Mrs. Maria Stiff, sister, 315 Second Street, Ithaca, N. Y.

CONNORS, Edward J., sergeant. John Connors, father, 1273 Forty-first Street, Brooklyn, N. Y.

MORGAN, Thomas Patrick, private. Mrs. H. Morgan, Glausmana, Patricks Well County, Ireland.

BEDNER, Michael C., corporal. Paul Bedner, father, Johnsonburg, Pa.

GHIDDELLA, Louis, private. Mrs. Louis Ghidella, wife, 1392 Sunnyside Avenue, North Bergen, N. J.

CROSSER, Roy E., private. Willa Crosser, father, R. F. D. No. 2, Pocasset, Okla.

GUSTIFF, Joe, private. Fred Borie, step-brother, 331 East Front Street, Erie, Pa.

YODER, Frank E., private. Mrs. Malinda Yoder, mother, Hooversville, Somerset County, Pa.

VOGT, Henry G., private. Adam Vogt, father, R. F. D. No. 2, Waterford, Pa.

McFARLAND, Alva, private. William McFarland, father, Cleo Springs, Okla.

VANCE, John W., corporal. Mrs. Amanda J. Vance, mother, 57 South Bedford Street, Carlisle, Pa.

LAMPHORN, Leonard, private. Miss Irene Lamphorn, sister, Whitehall, N. Y.

CAMP UNKNOWN—WOUNDED.

KILLORAN, John, corporal. Winifred McGugh, aunt, 1009 West Fifth Street, Chester, Pa.

MAYERS, Hayden P., captain. Francis M. Elsey grandfather, 107 Leigh Street, San Antonio, Tex.

McMANIGAL, John W., lieutenant. Mrs. Laura H. McManigal, mother, Horton, Kans.

BAST, Clarence R., private. John A. Bast, father, 2628 Holland Street, Erie, Pa.

DENT, Felix H., private. Mrs. C. A. Dent, mother, 120 Washington Avenue, Macon, Ga.

ROOT, Ralph R., lieutenant. Mrs. Ralph R. Root, wife, 1911 East Ninety-seventh Street, Cleveland, Ohio.

PREVIOUSLY REPORTED PRISONER OF WAR AT CAMP LIMBURG, GERMANY, NOW REPORTED TO HAVE DIED FROM WOUNDS IN GERMANY.

PULUSIAK, Steve, private. Mrs. Mary Paluslak, 1230 Thirty-second Place, Chicago, Ill.

PREVIOUSLY REPORTED KILLED IN ACTION, NOW REPORTED PRISONER OF WAR IN GERMANY—CAMP UNKNOWN—GOOD HEALTH.

CUSTER, Thomas, private. Mrs. Blanche Custer, wife, Westernport, Md.

REPORTED IN GOOD HEALTH—CAMP UNKNOWN.

LIEUTENANTS.

ROBERTS, Lawrence I. R. W. F. Roberts, father, 1600 Jackson Street, Wilmington, Del.

MANDEL, Oscar. George Mandel, father, 520 Brandon Place, Grantwood, N. J.

HAMILTON, Edward P. Miss Elizabeth W. Hamilton, sister, 73 Halsted Street, East Orange, N. J.

CORPORALS.

HALBERSTADT, Bertram. Joseph Halberstadt, father, 25 Pine Street, New York, N. Y.

KENNEDY, Robert B. Malvin Kennedy, father, 212 Walnut Street, Niagara Falls, N. Y.

MOOD, Charles. Miss M. J. Maloney, friend, 431 East Twenty-sixth Street, New York, N. Y. (Believed to be identical with Corpl. Thomas J. Mood.)

SERGEANTS.

FOLGAR, Grover C. Miss Lucy Folgar, sister, Scottsdale, Pa.

PRIVATES.

GRACO, Joe. Mrs. Annie Farico, mother, Altonville Minica, Italy.

LEO, Feld. Philip Lefer, friend, 1658 Madison Avenue, New York, N. Y.

BLANCO, Giorgio. Giorgio Dola, cousin, Mann Street, Frankfurt, N. Y.

LEGGIO, Mariano. Gaspario Besceotta, uncle, 121 North Broadway, Akron, Ohio.

CIMILUCA, Carmelo. Salvatore Cimiluca, father, 780 Second Avenue, New York, N. Y.

MILLER, Harry. Charley Miller, father, Coalgate, Okla.

SZOSZOREK, Frank. Anthony Szoszorek, father, 329 East Third Street, Erie, Pa.

NISSENHOLTZ, Samuel. Miss Rose Nissenholtz, sister, Ostrog, Russia.

WOOD, Ernest C. Clifton Wood, father, general delivery, Wilmore, Kans.

KLUCNICKIO, Wactaw. Adam Klucnickio, cousin, 4481 Adgemont Street, Bridesburg, Pa.

REPORTED WOUNDED—CAMP UNKNOWN.

SERGEANT MAJOR.

RAYMOND, Frank. Miss Julia Soblesk, cousin, 3340 North Springfield Avenue, Chicago, Ill.

PRIVATE.

SAPHORE, Ernest A. Frank P. Saphore, father, Bolling Springs, Pa.

RESERVE HOSPITAL 4, RASTATT.

REDFIELD, John Jordan. Mrs. H. J. Redfield, mother, Overlook Park, Montclair, N. J.

LIEUTENANT.

Information About Prisoners.

Information as indicated below has been received in the department regarding the persons named; the emergency address being given immediately following the name and data furnished in each one.

Lieut. CHARLES CODMAN is a prisoner of war at Camp Rastatt, Germany, with bullet wound in left thigh, but is not seriously injured. Mr. R. S. Codman father, 59 Marlborough Avenue, Boston, Mass.

Lieut. ROBERT C. MILLSPAUGH is a prisoner of war at Camp Schweidnitz, Germany, well, having recovered from wounds. Mrs. F. R. Millspaugh, 1163 Fillmore Street, Topeka, Kans.

Lieut. ROBERT J. BONNER is a prisoner of war at Camp Schweidnitz, Germany, with shell fragment wounds in right shoulder and arm, but they are now completely healed. Mrs. Anna Bonner, mother, 1219 Hazzard Street, Philadelphia, Pa.

Lieut. MARLAND C. HOBBS is a prisoner of war at Camp Schweidnitz, Germany, having lost first and second finger on his right hand, but getting on well. Franklin Hobbs, father, 78 Chauncy Street, Boston, Mass.

Pvt. CLARENCE E. PERKINS is a prisoner of war at Camp Rastatt, Germany, and is being fully supplied with food, etc. C. M. Perkins, father, 99 Cross Street, Winchester, Mass.

Lieut. THOMAS J. D. FULLER is a prisoner in a fortress near Gerardo, and he declined to give his parole. Mrs. T. J. D. Fuller, wife, 15 Elmwood Avenue, Cambridge, Mass.

Lieut. GEORGE W. PURYEAR escaped from Germany to Switzerland on October 11, 1918; in excellent condition, and would leave for France in a few days. Judge Puryear, brother, Memphis, Tenn.

Judge Hughes' Report and Recommendations On the Aircraft Production Investigation Transmitted to Attorney General Gregory

**SAYS EVIDENCE DISCLOSES
CONDUCT REPREHENSIBLE
BUT NOT AFFORDING BASIS
FOR CHARGES UNDER LAWS**

**FAULTS WERE MAINLY
OF ADMINISTRATION**

**Suggests That Evidence
With Respect to Colonel
Deeds Be Placed Before
Secretary of War With
View to Trial by Court-
martial—Text of Attorney
General's Letter Trans-
mitting Report to the
President.**

OCTOBER 31, 1918.

THE PRESIDENT,
The White House.

DEAR MR. PRESIDENT: On May 6 last you directed me to investigate and pursue charges of dishonesty or malversation in regard to the production of aircraft and, on May 13, you asked Judge Charles E. Hughes to act with me in making this investigation. By far the larger part of the last five months has been consumed in taking testimony. An opportunity has been given to every person claiming to have grievances, charges, or criticisms to appear and testify in person and produce other witnesses and data.

We spent many weeks in personally inspecting conditions and taking testimony at the larger plants having aircraft contracts with the Government at Dayton, Ohio; Detroit, Mich.; Elizabeth and New Brunswick, N. J.; and Buffalo, N. Y. The papers, books, correspondence, accounts, and other records in the files of the Signal Corps at Washington, as well as those of the principal contractors and of the Government at these plants, have been critically examined as far as there was reason to believe that they would throw light on the matters under investigation. We have examined nearly 300 witnesses and taken about 17,000 pages of testimony.

In an effort to make the investigation thorough we have attempted to go into every phase of aircraft production since our entry into the war in April, 1917, and had recourse to every source of information which appeared available. Every complaint or charge of wrongdoing has been heard and carefully considered.

It is believed that the investigation has been exhaustive, except that full data as to contracts let abroad for planes has not been at hand, and the matter of spruce production on the Pacific coast has been gone into only to the extent that this could be done by the examination of witnesses at Washington. From the investigation made it has been concluded that the taking of the additional time necessary for obtaining complete data from Europe in regard to the contracts in question, or for a trip of investigation to the Pacific coast, where most of the spruce is produced, was not justified. During the period referred to, Judge Hughes has given practically his entire time to this work and has been in direct charge of the investigation, which has been conducted by him with the cooperation of myself and other officials of the Department of Justice. The investigation has now been completed.

Some three weeks ago, at the conclusion of the taking of testimony, in order that you might have the independent judgment of both Judge Hughes and I, each without conference with the other, considered the evidence, reached his own conclusion, and prepared a report. On the afternoon of last Saturday, October 26, Judge Hughes handed to me a copy of his report, together with a letter asking me to transmit it to you with whatever statement of views I wished to make. The report consists of 182 printed pages. By far the greater portion is devoted to a remarkably accurate statement of substantially all the transactions had since the beginning of the war in the course of the development of the aircraft program. After carefully examining this statement of the transactions had, I find myself in substantial accord therewith, and do not consider it necessary to present to you a somewhat full report which has heretofore been prepared in the Department of Justice. As hereinafter shown, I also find myself in accord with the conclusions presented by Judge Hughes on questions of dishonesty and malversation.

I do not consider it germane to this investigation to enter into criticisms of the program or of mistakes in policy or in the exercise of judgment.

I send you herewith Judge Hughes' report and present herein my conclusions and briefly supplement Judge Hughes' findings of fact in a few instances.

GENERAL CHARACTER OF CHARGES.

When the investigation began in May, it was sweepingly charged that \$691,851,866.47, appropriated for the fiscal year beginning July 1, 1917, had been expended with practically no results; that members of the aircraft boards had been financially interested in aircraft contracts; that German and disloyal influences had retarded the progress of the work, and that these influences, together with graft of various kinds, had entered into the transactions involved. It therefore seems desirable to state briefly what sums have been expended and what has been accomplished.

AMOUNT EXPENDED.

The \$691,851,866.47 appropriated was for all aviation purposes, including many things besides the building of aircraft. Contracts for airplanes and motors let here and abroad, it was estimated, would require \$474,910,706.55, but in May last this amount had by no means been expended. The actual disbursements for this purchase up to the close of the fiscal year ending June 30, 1918, were as follows:

For production in this country	\$106,741,490.77
For production abroad	25,605,074.31
For experimental and development work	1,697,830.19
Total	134,044,395.27

This amount includes not only the cost of planes and motors delivered, but also large payments for special tools and for labor and materials in planes and motors not then finished. The figures are not now available to show just how much more has been disbursed on this account since June 30, though the total amount disbursed for all aviation purposes between that date and September 30 was \$139,186,661.33.

PLANES AND MOTORS ACQUIRED.

To provide for the needs of the Army until production in this country could be expected, contracts were let in the summer of 1917 in France for 875 training planes with engines, and for 5,000 service planes and 8,500 service engines, deliveries to begin in November and be completed in June, 1918, and in Italy for 700 service planes with engines. These contracts were not carried out as contemplated, partly because of unavoidable delay by this Government in delivering materials, but largely because the unexpected increase in the needs of the French Government overtaxed the capacity of the manufacturers. However, up to July 31, 1918, there had been acquired under foreign contracts 1,617 training and 1,512 service, or a total of 3,129, planes with engines. The deliveries of planes and engines produced in this country up to July 1, 1918, were:

Planes:	
Elementary training	4,572
Advanced training	1,046
Service	553
	6,171
Engines:	
Elementary training	7,662
Advanced training	2,579
Service	2,592
	12,833

Since July 1, production has been such that up to October 11, 1918, the figures were:

Planes:	
Elementary training	5,187
Advanced training	2,137
Service	2,350
	9,674
Engines:	
Elementary training	10,256
Advanced training	4,479
Service	9,937
	24,672

REPORT ON AIRCRAFT PRODUCTION INQUIRY

When the 3,129 acquired abroad are added, we have total planes 12,803, and 27,801 engines. While the only service planes thus far produced in this country have been observation and bombing planes, those acquired abroad include pursuit and combat planes.

CONDUCT OF MEMBERS OF AIRCRAFT BOARDS.

The results, as above set out, in view of the inherent difficulties of hurriedly expanding the Signal Corps from almost nothing to an immense organization, selecting, upon more or less conflicting information from abroad, the proper types of planes and engines, securing responsible and efficient contractors to engage in a new line of work, the designing and making of enormous quantities of machinery and tools, and the development of an industry almost unknown in this country and undergoing constant changes abroad, can not be said to indicate dishonesty or malversation.

An exhaustive examination into the entire conduct of aircraft matters fails to show that any member of either board has had any desire to retard or delay production, or has done anything intended to accomplish that result, or has intentionally caused the waste of funds, or been actuated by a disloyal motive, or been guilty of dishonesty or malversation, unless there be truth in the specific charges which will now be referred to.

A. Interest in contracts.—I agree with the conclusion reached by Judge Hughes that there is no evidence upon which it can fairly be charged that any member of the aircraft boards, including Mr. Howard E. Coffin, Gen. Squier, Col. E. A. Deeds, Col. R. L. Montgomery, Col. S. D. Waldon, Mr. Richard F. Howe, Mr. Harry B. Thayer, Admiral Taylor, and other naval officers, has been unlawfully interested in any contract or transaction relating to aircraft production. Indeed, as to this charge, there has at no time been ground for a question involving any of these gentlemen except Col. Deeds.

B. Form of contracts.—Growing largely out of the popular understanding that contracts for aircraft provide that the compensation of the contractor shall be a fixed per cent of the cost of production, and thus make it to the interest of the contractor to increase that cost, the charge has been made that these contracts are themselves instruments for practicing frauds upon the Treasury.

The fact is that no such contracts have been made. The Government is to pay the cost of production plus a fixed sum, which can not be enhanced by increasing the cost of production. On the contrary, it is provided that the contractor shall share in the saving if the actual cost shall be less than an "estimated cost" stated in the contract. Hence, whatever other objections there may be to the contract, it is to the interest of the contractor to keep the cost of production as low as possible. Moreover, the right is reserved to the Government to terminate the contract at any time by repaying the amount expended plus the fixed profit on finished articles and 10 per cent of the cost of labor and materials in unfinished articles. If, therefore, experience should demonstrate that the contract would be unfair, the Government could terminate it unless

the contractor would agree to a readjustment of terms.

In the case of the Liberty motor contracts, the practical result has been first a reduction of the estimated cost from \$6,087 to \$5,000 and of the fixed profit from \$913 to \$625, and finally the putting of the contracts on a fixed-price basis when experience had shown what would be a fair price.

In view of the fact that when this form of contract was adopted there was no available data as to what the cost ought to be, it seems to have been devised to protect the interest of the Government. I am unable to see how an inference of bad faith or official dereliction can be drawn from it.

C. Awarding of contracts.—There have been charges of unfair discrimination and favoritism in the awarding of contracts. These complaints relate almost entirely to contracts for planes, for which there were many applicants. Selections had to be made. It can not be said that plausible reasons were wanting for those made. If mistakes were made nothing has been developed which would justify the charge that they resulted from corrupt motives.

D. Profits of contractors.—It has been charged that exorbitant profits to contractors have been allowed. On their face they appear to be unusually liberal, but when it is remembered that 60 per cent or more of them must be paid to the Government as income and excess profits taxes, and that most of the net profits will be invested in buildings and facilities which may or may not be capable of profitable use for an indefinite period after the termination of the contract, my conclusion is that no such profits have been allowed as to justify a charge of bad faith.

E. Cross-license agreement.—Whatever may be said of the charge that this arrangement tends to discourage future inventions, one of its results was to enable the Government, through contractors, to secure the use of all necessary patents at a fixed cost and with little friction. It was not entered into until the Attorney General had given an opinion that it did not conflict with the antitrust law. I find no basis for the suggestion that in bringing it about the members of the aircraft board were actuated by any unlawful or dishonest motive.

F. Conduct of Col. E. A. Deeds.—Of all the members of the aircraft boards, the one most severely criticised and against whom most charges have been brought has been Col. E. A. Deeds. The evidence does not disclose any violation by Col. Deeds of the criminal laws. In the early part of 1918, public statements were issued with official authority purporting to set out the progress which had been made in the production of engines and planes and the prospects of the immediate future. These publications were not only misleading, but they contained false statements, and were issued in reliance upon information principally furnished by Col. Deeds, who was acquainted with the actual facts. While the conduct of Col. Deeds in this matter was not criminal and can not be said to have affected actual production, it was inexcusable and reprehensible.

I also find that Col. Deeds was guilty of censurable conduct in acting as confi-

dential adviser of H. E. Talbot and in conveying information to the latter with respect to transaction of business between the Dayton Wright Airplane Co. and the division of the Signal Corps of which Col. Deeds was the head.

Whether or not Col. Deeds should be subjected to disciplinary measures for the acts referred to is a matter to be determined by the War Department. I acquiesce in the recommendation of Judge Hughes that the facts be submitted to the Secretary of War.

OFFICERS AND EMPLOYEES OF THE SIGNAL CORPS.

When war was declared and the carrying out of the aircraft program was entrusted to the Signal Corps, its official personnel was hurriedly increased from a small organization to one of enormous proportions. It has been impossible, of course, to critically examine the conduct of all the military officers and civilians connected with this branch of the service. The official acts of the more prominent ones have been gone into and the general situation has received as much consideration as was possible. The investigation has failed to show, unless the instances hereinafter noted constitute exceptions, that any person, military or civilian, connected with the Signal Corps, has desired to retard or delay production, or has done anything intended to accomplish that result, or has intentionally caused waste of funds, or has been actuated by disloyal motives, or been guilty of dishonesty or malversation. The incidents referred to are as follows:

A. Conduct of Lieut. Col. J. G. Vincent, Lieut. Col. George W. Mixer, and Second Lieut. Samuel B. Vrooman, jr.—Many successful business men tendered their services to or were invited to take part in the activities of the Signal Corps. Naturally the men selected were chosen as far as was practicable from lines of business similar to those in which the Government expected to utilize their services. With the business interests of the country so largely involved in war work, many of these men, in the course of the performance of their official duties, not infrequently were brought in contact with corporations in which they held stock. It is to their credit that only three instances have been found in which officers or employees of the Signal Corps have apparently transacted business for the Government with corporations in which they were interested.

One of these was Lieut. Col. Vincent, who had been vice president of the Packard Motor Car Co., in charge of engineering, and who, after he became an officer in the Signal Corps, continued to hold certain shares of stock in that company. He was one of the original designers of the Liberty motor, held several important positions in the engineering department, and is now in charge of the airplane engineering division of the Bureau of Aircraft Production. Under the circumstances set out in Judge Hughes's report, Lieut. Col. Vincent was instrumental in having certain payments made to the Packard Motor Car Co. for drawings, models, tests, etc., and for 11 standardized engines. The course of procedure which resulted in the payments of this money was without a written contract and otherwise ir-

REPORT ON AIRCRAFT PRODUCTION INQUIRY

regular and unusual. I agree with Judge Hughes's conclusion that Lieut. Col. Vincent violated section 41 of the criminal code, which prohibits any person, directly or indirectly interested in the pecuniary profits or contracts of a corporation, from acting as an officer or agent of the United States for the transaction of business with such corporation. I further agree with Judge Hughes that the evidence does not afford ground for the conclusion that the Government was defrauded, or that there was any intent to defraud on the part of any of the parties concerned, or that the services rendered were not worth the amount paid therefor, or that the estimates of the outlay of the Packard Co. were not fair estimates.

Lieut. Col. George W. Mixer held 25 shares (par value \$2,500) of the preferred stock of the Curtiss Airplane & Motor Corporation. This corporation had important contracts with the Government for the production of airplanes. While holding stock Lieut. Col. Mixer was in charge of the organization for the inspection of materials and products at one of the corporation's plants, and visited it from time to time in the exercise of his authority as head of the inspection department and as production manager. He stated on examination that he had bought a small amount of common and preferred stock of the corporation mentioned some years before and remembered selling some of it; that he did not remember whether he retained any and had not thought of it after entering the service. It appears that he had parted with ownership of the common stock, but still owned the preferred. I agree with the conclusion of Judge Hughes that this was a violation of section 41 of the Criminal Code.

Second Lieut. Samuel B. Vrooman, jr., was the owner of \$10,000 in par value of the stock of the S. B. Vrooman Co., of Philadelphia, which had a contract with the Government for supplying mahogany. While holding this stock Lieut. Vrooman was put in charge of the inspection of propeller lumber, including mahogany. He selected the district officers, who in turn selected the inspectors; he issued instructions to the district officers and visited various plants to see that the inspectors were doing their duty and to pass on disputed points. The plant of the S. B. Vrooman Co. was one of those subject to his jurisdiction, but he denies that he ever personally inspected its lumber. I agree with Judge Hughes's conclusion that he violated section 41 of the Criminal Code.

B. Conduct of Mahogany Manufacturers and Importers Association.—For a short period of time J. C. Wickliffe, J. Edward McCullough, and Second Lieut. Samuel B. Vrooman, jr., while representing the Government in dealing with mahogany manufacturers, received from one or more of these manufacturers salaries in addition to those paid by the Government. I agree with Judge Hughes that under the circumstances this was a gross impropriety on the part of those paying and those receiving the additional salaries, but that there is no statute making it a criminal offense unless a case is made out of bribery or of a conspiracy to defraud the Government. I am likewise of the view expressed by

Judge Hughes that whether a charge of the sort indicated could be properly made would largely depend upon whether the terms and prices of the mahogany manufacturers were fair and reasonable, or excessive and the result of improper influence, and that the Federal Trade Commission, with its special facilities for conducting an examination of that kind, should be requested to make a survey of the mahogany industry and the cost of delivering the lumber involved and reach a conclusion as to the reasonableness of the prices paid.

C. Matters of minor importance.—In one office of the Signal Corps there seems to have been discovered petty graft fostered by a civilian employee, and evidence has been brought to our attention tending to establish dishonest inspection on a rather small scale in one of the least important plants. These matters are now under investigation by grand juries and indictments will be found if justified.

CONTRACTORS.

A searching inquiry has been made into the conduct of the work by the principal contracting companies. Agreeing substantially, as I do, with the statement of facts made by Judge Hughes, I am of opinion that it cannot fairly be charged that a managing officer of any contracting corporation has desired or attempted to delay production or been actuated by disloyal motives. To what extent, if any, inefficiency or mismanagement is to be inferred from the facts stated, I do not deem it within my province to determine.

GERMAN SYMPATHIZERS.

In some of the factories a considerable number of alien enemies and persons of German birth or descent, who, at least before our entry into the war, were German sympathizers, have been employed. No facts have been developed which would justify the belief that these men have been retained through any willingness on the part of their employers to have production retarded or defective planes produced. On the contrary, the Government itself provided a system of permits under which they could be used. They were employed and retained because the manufacturer felt that the great difficulty of obtaining skilled laborers in sufficient numbers justified such risk as might be incurred.

In some instances the employer had faith in an old employee and was unwilling to discharge him because of mere rumors as to his loyalty. As an illustration of this, the head of the drafting department at the Ford Co.'s plant was of German birth and there were such persistent rumors that he was pro-German that some of the officers of the company thought it unsafe to retain him. He had been in the employ of the company for nine years, professed to be loyally interested in the work, and the officers referred to testified that nothing definite could be proved against him. Mr. Ford stated that, at a time when all citizens were called to make sacrifices, one of German birth might do so by helping to produce motors to be used for his adopted and against his native country. He stated further that he had absolute confidence in this man's loyalty and, in the absence of any proof of disloyalty, re-

fused to discharge him. While this indicated the application of an almost idealistic policy of being just to employees, results seem to have justified the course pursued. Though this man has been the object of the greatest watchfulness on the part of officers of the company who suspected him, nothing has been discovered indicating that he has been other than a loyal and efficient employee. It is fair to say that no sinister or disloyal influence has affected production in the Ford plant. The factory manager testified that there had been no sabotage and no efforts to retard production. Results in the Ford Motor Co. compare favorably with those in the best of the companies manufacturing Liberty motors. Its contract for 5,000 motors was let in November, 1917, nearly three months after contracts had been let to the Packard and Lincoln Cos. for 6,000 each. Up to October 11, 1918, it had produced 1,868, while the Packard Co. had produced 3,864 and the Lincoln Co. 2,787. Not a case of sabotage has been reported to the Department of Justice from this plant. Indeed it can be said that but little trouble has been traced to aliens or alleged German sympathizers in any of the plants.

SABOTAGE.

To what Judge Hughes has said on this subject I wish to add that since his report was handed to me I have had the records of the Department of Justice examined for the purpose of ascertaining the number of substantial complaints of sabotage in the factories engaged in manufacturing aircraft, motors, or parts for the Government. The result shows 12 such complaints. Upon these complaints and the investigations which followed seven men have been indicted, two of whom have pleaded guilty and five of whom are awaiting trial. In this connection it is interesting to note that during the past 18 months somewhere between 100,000 and 200,000 laborers have been engaged on Government work in the factories indicated.

Respectfully yours,
T. W. GREGORY,
Attorney General.

MR. HUGHES'S REPORT.

WASHINGTON, D. C.,
October 25, 1918.

THE ATTORNEY GENERAL:

I have the honor to submit the following report of the aircraft inquiry:

The investigation has been concerned with aircraft production. Other activities relating to aviation, but not to production, have been touched only incidentally. Thus, upward of 30 training or flying fields with numerous structures have been provided, and to meet other aviation needs a great variety of construction has been required, here and abroad. These enterprises, being aside from aircraft production itself, have not been the subject of this inquiry, save as transactions relating to Wilbur Wright Field and McCook Field have invited scrutiny by reason of the aircraft enterprises centered at Dayton, Ohio, and the activities of Edward A. Deeds and his former business associates.

Another governmental activity which does relate to aircraft production, but is conducted separately from the orders for airplanes and engines, is known as the sales department. The Government itself purchases large quantities of lumber, fabric, chemicals, etc., which it resells. When these commodities are supplied by the Government to contractors, the sales department is credited and the items are transferred to the other appropriate accounts. The largest item of this sort is for

REPORT ON AIRCRAFT PRODUCTION INQUIRY

spruce. The account of the sales department for the fiscal year ending June 30, 1918, shows that spruce orders amounted to \$76,211,360.35 on which there had been deliveries and payments aggregating \$6,357,853.83, leaving unfilled orders of \$69,853,506.52; and of the spruce delivered the Government had resold to the extent of \$3,679,155.95. It appears that the Government had also (to June 30, 1918) invested in its cut-up plant at Vancouver, Wash., the sum of \$1,487,237.81. While to some extent testimony has been taken bearing on the spruce contracts, it became evident as the inquiry proceeded that it would be impossible to reach any satisfactory conclusion with respect to the transactions of the spruce production division without a special inquiry on the Pacific coast, which in view of the extent and character of the activities involved would probably take several months. It has not been practicable to undertake this as yet, in view of the magnitude of the work involved in other branches of the investigation, and accordingly it has been left to be undertaken hereafter by the Department of Justice as it may be advised. For this reason, a report on the operations of the spruce production division or of the sales department will not now be attempted. Also, in view of the importance of the present inquiry in its special relation to airplanes and airplane engines, transactions of the balloon division have not been examined.

Aside from these limitations, the inquiry has taken a wide range. It has been prosecuted without pause since it was begun in the latter part of May last. About 280 witnesses have been examined and over 17,000 pages of testimony have been taken. The more important plants have been visited, and a large part of the testimony has been taken at these plants where books, records, employees, and Government representatives have been available. To compass all the activities involved in aircraft production, reaching into a great variety of contracts and operations involving numerous plants and the expenditure of many millions of dollars, would require the constant efforts of a force of investigators for a year or more longer and also the services of an army of accountants charged with the responsibility of checking and auditing the work of the hundreds of Government representatives now supervising the contractors' accounts. It is impossible, of course, to say what irregularities or offenses such a protracted inquiry would bring to light, but the investigation has been sufficiently comprehensive to give, it is believed, a survey of the field as a whole and to disclose the facts bearing upon the serious charges which have been made.

In addition, and as a result of information received through this inquiry, there have been special proceedings before grand juries. Thus, on information of violations of the sabotage act at the Hammondsport (New York) plant of the Curtiss Aeroplane & Motor Corporation, the matter was examined by the grand jury and indictments were returned in the western district of New York and there have also been indictments in the same district for violations of this act at the North Elmwood plant, Buffalo, of the same corporation. There also has been a special investigation by the grand jury at Sacramento, with respect to conditions at the Liberty Iron Works.

It is manifestly impracticable to state the details of even the more important evidence, but the salient and controlling facts which have been elicited will be set forth, so far as this is deemed to be compatible with military exigency.

First. Appropriations and Expenditures.

At the time of the declaration of a state of war with Germany, April 6, 1917, the appropriations available for aircraft production were those applicable to the fiscal year ending June 30, 1917. By the act of August 29, 1916, the sum of \$14,281,766 was appropriated for the expenses of the Signal Service, with the proviso that not more than \$13,281,666 should be used for the purchase, manufacture, maintenance and operation of aircraft and of described vehicles necessary for the Aviation Section. It was further provided that not to exceed \$50,000 should be used for the payment of all expenses in connection with the development of a suitable type of aviation motor and not more than \$500 should be used for the cost of special technical instruction of officers of the Aviation Section. Of the total appropriation above mentioned the sum of \$4,500,000 was later (act of May 12, 1917) made available for the establishment of aviation schools and experimental stations, and it was under this

appropriation that Langley Field, Va., was acquired and developed.

The act of February 14, 1917, appropriated \$3,600,000 for aircraft, buildings for equipment, and other accessories necessary in the Aviation Section, for use in connection with sea coast defenses.

The act of May 12, 1917, appropriated for the expenses of the Signal Service, for the fiscal year ending June 30, 1918, the sum of \$11,800,000, with the proviso that not more than \$10,800,000 should be used for aircraft production, including experimentation, and for the buildings for equipment and personnel, and necessary accessories. The sum of \$43,450,000 was appropriated by the deficiency appropriation act of June 15, 1917, of which \$31,846,067.16 became available, under the terms of the act, for the fiscal year 1917-18.

Provision for an adequate aircraft program for the Army was not made until the passage of the act of July 24, 1917, appropriating for aeronautical purposes the sum of \$640,000,000.

Statement for Fiscal Year June 30, 1917, to June 30, 1918.

The aggregate of all aeronautical appropriations which were available for the Army for the fiscal year ending June 30, 1918, were as follows:

Act of July 24, 1917-----	\$640,000,000.00
Other aeronautical appropriations-----	51,851,866.47
Total-----	691,851,866.47

The estimated obligations charged against these appropriations during the fiscal year amounted to \$933,948,959.03. To the extent of \$176,924,903.42, this excess represented obligations of the sales department already described, for which it was contemplated there would be reimbursement by resales. (Of this last-mentioned amount there were reported as disbursed in the sales department (to June 30, 1918) that is, for deliveries of materials, \$25,966,739.95 [corrections on further accounting raised this amount to \$26,557,706.87] the resales amounting to \$19,008,150.26, and the balance representing assets on hand.) Exclusive of the obligations of the sales department, the estimated aeronautical obligations of the Government for the fiscal year 1917-1918 amounted to \$757,024,055.61. These obligations were calculated on estimated costs, and the excess over the total aeronautical appropriations (that is, over \$691,851,866.47) will largely be offset by savings on the estimated costs and by cancellations of orders.

Obligations Other Than for Airplanes and Engines.

The estimated obligations for the aviation equipment division covered not only airplanes and engines, but a variety of equipment and other essentials. Thus, the estimated obligations, charged against the \$640,000,000 appropriation, for transportation including motor trucks, chassis, motor-cycles, bicycles, etc., amounted to \$42,938,630.73; for general equipment including various sorts of apparatus and supplies, \$34,979,741.53; for maintenance including maintenance of supply depots, planting of castor beans, etc., \$17,948,955.60; for special clothing for aviators, mechanics, etc., \$2,520,512.63; for machine guns, ammunition and bombs, \$29,249,033.29; for acquisition of plants, \$2,595,599.83 and for miscellaneous equipment, including various incidental expenses of officers, stations and schools, \$7,748,617.75.

There were also charged against the \$640,000,000 appropriation the estimated obligations of the construction division, embracing training fields and construction here and abroad, amounting to \$62,232,664.55; of the balloon division (covering balloons and accessories) \$16,940,891.20; of the schools division, \$1,016,223.48; and of the finance division (including the pay of Reserve Corps and of civilian employees, and the reserve for foreign expenditures) \$35,963,417.55. The various estimated obligations for similar purposes, other than for airplanes and engines, which were charged against the other aeronautical appropriations for the fiscal year 1917-18, aggregated \$28,009,060.92.

Thus, out of the total estimated obligations (\$757,024,055.61) for all aeronautical purposes (exclusive of the sales department) the estimated obligations for purposes other than airplanes and engines aggregated \$282,113,849.06.

Obligations for Airplanes and Engines.

The amount of the estimated obligations for airplanes and engines, and spare parts of both, (including experimental and development work) charged, to June 30, 1918, against the aeronautical appropriations for the fiscal year 1917-18 was as follows:

Charged to the \$640,000,000 appropriation-----	\$457,379,122.15
Charged to other appropriations-----	17,531,584.40
Total-----	474,910,706.55

Actual Disbursements for all Aeronautical Purposes.

It should be noted that the amounts above stated represent estimated obligations, not actual disbursements. Although obligations were incurred, payments were to be made only as payments were earned by performance of contracts. Payments prior to June 30, 1918, were made on vouchers for amounts represented as earned, but such payments were only a part of the estimated obligations, by reason of delays in production. Further payments should be made only as production goes forward and contracts are duly performed.

Thus, as against the total estimated obligations for aeronautical purposes, aggregating \$933,948,959.03 (including the sales department), the disbursements reported down to June 30, 1918, amounted to the sum of \$430,234,316.99. Out of the \$640,000,000 appropriation, the total disbursements for the fiscal year for all aeronautical purposes (that is, embracing those apart from airplanes and engines, as well as for the latter) amounted to \$363,818,014.87 [subject to correction by addition of \$590,966.62 for sales department]; and, according to the accounts of the Bureau of Aircraft Production, there remained of this appropriation in the Treasury of the United States on June 30, 1918, the sum of \$276,181,985.13. According to the books of the Treasury Department, the unexpended balance of the \$640,000,000 appropriation amounted on June 29, 1917, to \$304,478,211.70. The difference of \$28,296,226.57 is explained by the existence of unwithdrawn balances which had been allotted to the Quartermaster Corps and the Ordnance Department, and by various credits pertaining to the month of June which were not received in the Bureau of Aircraft Production until July.

Actual Disbursements for Airplanes and Engines.

The actual payments for the fiscal year 1917-18 against the estimated obligations for airplanes and engines, and spare parts of both (including payments for experimental and development work), are reported by the finance division of the Bureau of Aircraft Production as amounting to \$155,535,946.41, as follows:

Disbursed from the \$640,000,000 appropriation-----	\$142,908,398.95
Disbursed from other appropriations-----	12,627,547.46
Total-----	155,535,946.41

These disbursements included not only payments to contractors for articles delivered or on account of work and materials, but also advances in the nature of loans to contractors, upon security, made by the War Credits Board, and, in addition, the payments which had been made for the manufacture of planes and engines overseas.

The payments for manufacture overseas amounted to \$25,605,074.31, as follows:

Cash remittances to overseas disbursing officers for payment on overseas contracts for airplanes and engines-----	\$16,600,000.00
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Paid on purchase of materials, supplies, etc., purchased by United States for shipment abroad to be used in overseas manufacture of airplanes and engines. [This includes the compensation of the purchasing agent, The J. G. White Engineering Corporation, amounting to 3 per cent of the purchases, or \$262,662.02.]-----
 9,005,074.31 |

Total-----

25,605,074.31

The unpaid balances of advances to contractors (whose contracts are embraced in the obligations for airplanes and engines above described), these advances being repayable

REPORT ON AIRCRAFT PRODUCTION INQUIRY

to the Government, amounted on June 30, 1918 (exclusive of interest) to \$21,491,551.14. The principal contractors who have received these advances are specified below:

Contractor.	Ad- vances author- ized.	Ad- vances made.	Balance un- paid June 30, 1918 (without interest).
Curtiss Aeroplane & Motor Corpora- tion.....	\$8,000,000	\$8,000,000	\$5,561,645.94
Dayton Wright Air- plane Co.....	2,500,000	2,000,000	1,405,222.57
Duesenberg Motors Corporation.....	1,650,000	1,650,000	1,632,447.97
Fisher Body Cor- poration.....	2,000,000	2,000,000	1,944,933.33
Lincoln Motor Co.....	6,500,000	6,500,000	6,255,382.00
Nordyke & Mar- mon Co.....	2,000,000	2,000,000	2,600,000.00
Packard Motor Car Co.....	5,000,000	5,000,000	1,731,232.00
Trego Motors Cor- poration.....	315,000	285,000	281,695.70
Willys-Overland Co.....	2,500,000	2,500,000	451,861.25
Various other con- tractors.....			227,120.38
Total.....			21,491,551.14

The amounts paid, to June 30, 1918, on account of experimental and development work on airplanes and engines amounted to \$1,697,830.19, of which the principal items are these:

Expenditures of experimental station at McCook Field.....	\$974,300.20
Director, Bureau of Standards.....	64,077.33
Department of Agriculture.....	34,540.82
Packard Motor Car Co.....	249,159.10
Dayton Wright Airplane Co. [Other vouchers allowed be- fore June 30, 1918, but not paid until later, \$39,630.52].....	48,120.39
Dayton Metal Products Co.....	66,097.14
Miscellaneous payments.....	261,535.21
Total.....	1,697,830.19

Deducting these advances and the payments of experimental and development work, the disbursements to the end of the fiscal year, June 30, 1918, for airplanes and engines and their parts manufactured or in process of manufacture in the United States amounted to \$106,741,490.77, as follows:

Total disbursed for airplanes and engines.....	\$155,535,946.41
Less—	
For over- seas man- ufacture.....	\$25,605,074.31
For ad- vances to contract- ors.....	21,491,551.14
For experi- mental and de- velop- ment work.....	1,697,830.19
	48,794,455.64

Disbursed on account of
production in United
States.....

Airplanes and Engines Delivered During
Fiscal Year Ending June 30, 1918.

The reported deliveries of airplanes and engines made prior to June 30, 1918, are as follows:

AIRPLANES.			
Elementary training planes:			
JN4-D.....	2,972		
SJ-1.....	1,600		4,572
Advanced training planes:			
JN4-H.....			
Training.....	402		
Gunnery.....	321		
JN6-HB.....	100		
S4-B.....	100		
S4-C.....	73		
Penguin.....	50		1,046
Combat and bombing planes:			
DeH-4.....	529		
Bristol Fighter.....	24		553
Total Planes.....			6,171

ENGINES.			
Elementary training:			
OX-5.....	5,474		
A7a.....	2,188		7,662
Advanced training:			
Hispano, 150 horsepower.....	2,188		
Gnome, 100 horsepower.....	209		
Le Rhone, 80 horsepower.....	68		
Lawrence, 28 horsepower.....	114		2,579
Combat and bombing:			
United States 12 cylinder (Army type).....	1,615		
United States 12 cylinder (Navy type).....	775		
Hispano, 300 horsepower.....	2		2,392
Total engines.....			12,633

For some of the units thus delivered payments had not yet been made at the close of the fiscal year. The payments to June 30, 1918, covered, about 5,530 of the airplanes delivered and about 9,750 of the engines delivered. In addition, there had been deliveries of various planes and engine parts, and the greater part of these were also covered by the payments above mentioned. And there were also large payments to contractors under cost-plus contracts for labor, materials, and overhead charges in connection with work in process.

Allocation of Payments to June 30, 1918.

The payments for the production of airplanes and engines, and parts, were made under two classes of contracts, (1) fixed-price, and (2) cost-plus contracts:

Payments under fixed-price contracts.....	\$57,193,621.06
Payments under cost-plus contracts.....	49,547,869.71
Total.....	106,741,490.77

Fixed-Price Contracts.

In the case of payments under fixed-price contracts the payments presupposed delivery to and acceptance by the Government of the articles contracted for. Most of the JN training planes, 150 of the Standard J-1 training planes, metal parts for Handley-Page planes, all the engines for the elementary training planes and 1,500 of the Hispano-Sulza 150-horsepower engines are embraced in the orders placed on a fixed-price basis. Large numbers of parts of planes and engines were ordered on the same basis.

The payments under fixed-price contracts are shown to have been distributed as follows:

For engines and their parts.....	\$23,216,930.28
For airplanes and their parts.....	33,976,690.78
Total.....	57,193,621.06

Cost-plus Contracts.

The cost-plus contracts for engines and parts related to the Liberty engines (United States twelves), most of the Hispano-Sulza, and the Le Rhone, Gnome and Bugatti engines. Among airplanes, 1,450 of the Standard J-1 elementary training planes, the De Havilland four and Bristol service planes, and the Handley-Page wood parts, were under cost-plus contracts. The following is the distribution of payments under cost-plus contracts to June 30, 1918:

For engines and their parts.....	\$23,348,437.44
For airplanes and their parts.....	21,199,382.27
Total.....	49,547,869.71

These payments (being exclusive of advances in the nature of loans) embraced (1) cost of special tools and "increased facilities" owned by the Government but located in contractors' plants, (2) fixed profits on completed units delivered, (3) royalties on completed units delivered, (4) cost of manufacture of completed units delivered, and (5) payments for work in process, that is, for materials, labor and overhead expense applicable to units in course of production. The distribution of these payments to June 30, 1918, is:

Special tools and increased facilities owned by Gov- ernment.....	\$6,840,971.70
Fixed profits on completed units delivered.....	3,279,028.18
Royalties on completed units delivered.....	374,986.40
Payments to June 30, 1918, under cost-plus contracts for labor, materials and overhead charges applic- able to delivered units and to work in process.....	39,052,883.43
Total.....	49,547,869.71

It is impossible at this time, by reason of the state of the accounts, to divide the last item covering cost of manufacture so as to give separately the manufacturing cost (exclusive of fixed profits and royalties) of the units which had been delivered and the cost of work in process at the close of the fiscal year.

APPROPRIATIONS AND OBLIGATIONS

FOR FISCAL YEAR JUNE 30, 1918, to
JUNE 30, 1919.

Continuance of Prior Appropriations.

The act of July 9, 1918, making appropriations for the fiscal year 1918-19, continued the prior appropriation of \$640,000,000, and other aeronautical appropriations, thus making them available for the present fiscal year and for the payment of obligations incurred prior to the passage of the act. Under this provision the production orders given in the last fiscal year, which remain uncanceled, will be continued and payments will be made in accordance with the terms of the existing contracts as production progresses.

New Appropriations.

The act of July 9, 1918, also made a new appropriation for the Air Service of \$884,304,758. This appropriation is available for the purchase, manufacture, maintenance, repair, and operation of airships, war balloons, and other aerial machines, with equipment, aviation stations, schools, and fields; for the expenses of officers, enlisted men, and civilian employees; and also for training, experimental work, creation, expansion, acquisition, and development of plants, etc. Of this amount there has been apportioned for Air Service production the sum of \$760,000,000, of which \$200,000,000 has been set aside for airplanes, their spare parts, instruments and accessories, \$250,000,000 for engines, their repair parts, instruments and accessories, and \$200,000,000 for foreign expenditures. Various items for balloons, oils, gases and chemicals, transportation, plants, miscellaneous equipment and supplies, experimentation, and pay of Reserve Corps and civilians make up the remainder.

Against this new appropriation, thus apportioned, the obligations incurred to September 30, 1918 (exclusive of the sales department) amounted to \$151,580,503.33, of which \$21,603,470.90 is for airplanes, their spare parts, etc., and \$102,746,372.91 is for engines, their repair parts, etc. The total payments against the new obligations amounted to September 30, 1918, to \$3,670,707.66 (exclusive of foreign expenditures and transfers to other departments), leaving then unexpended of the new appropriation of \$760,000,000, apportioned to Air Service production, the sum of \$756,329,292.34.

Payments Since June 30, 1918, and Total Payments to Date.

The last financial reports available are of September 30, 1918. The disbursements to that date which were made after June 30, 1918, for all aeronautical purposes and were chargeable to the appropriations for the prior fiscal year (continued as above stated) are as follows:

Disbursed from the \$640- 000,000 appropriation (act of June 24, 1917).....	\$128,265,038.31
Disbursed from other aero- nautical appropriations.....	7,250,915.36

Total disbursed since
June 30, 1918, under
prior appropria-
tions for aeronau-
tical purposes.....

	135,515,953.67
The total disbursements for aeronautical purposes from June 30, 1918, to September 30, 1918, are in the aggregate:	
Under appropriations prior to June 30, 1918.....	\$135,515,953.67
Under appropriations after that date, as above.....	3,670,707.66
Total.....	139,186,661.33

These disbursements for all aeronautical purposes can not at present be apportioned so as to show separately the amounts disbursed since June 30, 1918, for airplanes and engines and parts.

Deliveries to October 11, 1918.

The total deliveries of airplanes and engines (exclusive of spare parts) to October 11,

REPORT ON AIRCRAFT PRODUCTION INQUIRY

1918, appear, by the Government's reports, to be as follows:

Training Planes.

	Since June 30, 1918.	Total to Oct. 11, 1918.
JN-4D.....	615	3,587
SJ-1.....		1,600
JN-4H and JN-6H.....	609	1,432
S4-B.....		100
S4-C.....	225	298
Penguin.....	245	295
E-1.....	12	12
Total.....	1,706	7,824

Engines for Training Planes.

OX-5.....	2,532	8,006
A-7a (Hall-Scott).....	62	2,250
Gnome 100 horsepower.....	69	278
Le Rhone 80 horsepower.....	679	747
Hispano, 150 horsepower.....	824	3,012
Lawrence.....	328	442
Total.....	4,494	14,735

Service Planes.

De Havilland fours.....	1,821	12,850
Handley-Page (parts 85 per cent complete).....	2100	100
Le Pere.....	5	5
SE-5.....	2	2
Total.....	1,928	2,457

Engines for Service Planes.

Liberty (U. S.) twelves.....	7,299	19,639
Hispano, 180 horsepower.....	242	242
Hispano, 300 horsepower.....	3	5
Bugatti.....	1	1
Total.....	7,545	9,937

¹ Since the above was prepared information has been received that to Oct. 18, 1918, 2,556 De Havilland fours and 10,563 Liberty (U. S.) twelves have been delivered.

² 25 sets of wooden parts and no metal parts delivered to June 30, 1918.

PAYMENTS FOR AIRPLANES CONDEMNED.

Standard J-1 Training Planes.

This type of plane was condemned as dangerous in June, 1918, because of the unsuitability of the motor (Hall-Scott, A7a) used with it. There were 1,600 of these SJ-1 planes ordered and delivered, and all deliveries had been made prior to June 30, 1918. The entire amount disbursed for these planes and their spare parts to September 30, 1918, the date of the last financial statement, is \$11,027,733.61, of which \$8,593,576.11 was under cost-plus contracts.

There were 2,250 A7a engines ordered for these planes, all of which, with parts, have been delivered. The amount disbursed for these engines and parts (exclusively under fixed-price contracts) to September 30, 1918, amounted to \$6,487,124.75.

The aggregate cost of the SJ-1 planes with the A7a engines with spare parts to September 30, 1918, amounted to \$17,514,862.36.

There appears to have been no defect in the SJ-1 plane itself, and there is an expectation that it may be utilized by the installation of another engine. The cost of adapting these planes to such an installation may amount to \$2,000 a plane.

What salvage may ultimately be gained in this way, or on the A7a engines can not now be determined.

Bristol Fighters.

The Bristol Fighter was condemned as unsafe in July, 1918. A contract for 2,000 of these planes and for 1,200 sets of spare parts had been placed with the Curtiss Aeroplane and Motor Corporation on a cost-plus basis, at an estimated cost of \$19,190,100. Orders were also given to the Hayes-Ionia Co. and to the Lewis Spring & Axle Co., each for 400 sets of spare parts, at the estimated cost of \$1,890,000, or \$3,780,000 in all. The estimated cost

of the Bristol planes and spares was thus \$22,970,100.

Only 27 had been delivered prior to cancellation, but there was a large amount of work in process. The amount shown by the accounts of the Bureau of Aircraft Production to have been paid on these contracts to September 30, 1918 (exclusive of "increased facilities" owned by the Government) is about \$2,350,000. Taking the materials purchased for the Bristols, the labor and estimated overhead charges, it would appear that the total amount expended by the Curtiss Co. in the course of the production of the Bristols was about \$3,000,000. This does not include any claim for damages for the cancellation of the contract. The finance division of the Bureau of Aircraft Production makes a general estimate (which includes unpaid vouchers and possible claims for damages growing out of the cancellation of contracts) that the aggregate cost of the Bristol will amount to about \$6,500,000. What salvage there may be on the materials can not now be determined.

The Liberty engines intended to be used in the Bristols can be utilized in other planes.

On this estimate, the cost to the Government of the SJ-1 planes (with engines), and on the Bristol planes, subject to reduction by whatever salvage there may be, amounts to \$24,000,000. [Further information has been received that a contract is contemplated under which about \$3,500,000 of Bristol parts may be used in a new type of plane, which, if successful, would reduce the estimated loss on the Bristols to \$3,000,000 and the total loss on SJ-1s and Bristols, subject to salvage on the SJ-1s, to \$20,500,000.]

SECOND. RESPONSIBLE OFFICERS AND ADVISORY BOARDS.

By the act of July 24, 1917, full authority was given to the President to provide, through the War Department, for the purchase, manufacture, maintenance, and operation of all types of aircraft, with all necessary equipment.

Signal Corps.

Under the Secretary of War, the authority to establish the aircraft program and the control and administration of matters relating to aircraft production for the Army were vested in the chief signal officer, Brig. Gen. George O. Squier. It was under his direction that the organization of the Aviation Section of the Signal Corps, with its various departments of production, supply, inspection, and accounting, was effected. The matter of aircraft production was intrusted to the equipment division, which was organized on August 2, 1917. Edward A. Deeds was made chief of this division with Sydney D. Waldon as his assistant. At the same time Robert L. Montgomery was made chief of the finance and supply division. There was a reorganization on August 29, 1917, by which these two divisions were abolished and the functions of both were transferred to a new Equipment Division with Edward A. Deeds in charge. Robert L. Montgomery was made the head of the finance department of the equipment division. Deeds, Montgomery, and Waldon had been members of the Aircraft Production Board and in or about August, 1917, they were commissioned with the rank of colonel. Thus, Col. Deeds as the head of the equipment division had direct charge, under the chief signal officer, of all matters relating to aircraft production. On January 14, 1918, Col. Deeds became Industrial Executive in the Executive Division of the Signal Corps, and was succeeded by Col. Montgomery as head of the Equipment Division, but despite the change in technical relation it is apparent that Col. Deeds remained in practical charge, under the Chief Signal Officer, of production. In February, 1918, William C. Potter became the head of the equipment division, and remained in this position until the passage of the act of May 20, 1918.

Bureau of Aircraft Production.

By order of the President, dated May 20, 1918 (promulgated May 24, 1918), the chief signal officer was put in charge of military signal duties not connected with the Aviation Section; Gen. W. L. Kenly was appointed Director of Military Aeronautics and charged with the duties which had formerly pertained to the Aviation Section, except so far as they related to aircraft production, and for the latter purpose the executive agency known as the Bureau of Aircraft Production was established. Mr. John D. Ryan was appointed head of this bureau and thus became Director of Aircraft Production, Mr. Potter taking the post of assistant director.

ADVISORY BODIES.

National Advisory Committee for Aeronautics.

By the act of March 3, 1915, an advisory committee for aeronautics was established to consist of two members from the War Department, two from the Navy Department, a representative each of the Smithsonian Institution, of the United States Weather Bureau, and of the United States Bureau of Standards, together with not more than five additional persons qualified as experts. The prescribed duty of the committee was to supervise and direct the scientific study of the problems of flying with a view to their practical solution. This body has been continuously maintained; it has examined numerous inventions and has been engaged in scientific study. But it has had nothing to do with the formulation of the aircraft program or with decisions as to the types of planes or engines selected for production.

The committee was also active in securing the adjustment reflected in what is known as the cross-license agreement for the payment of royalties for the use of patented inventions pertaining to aircraft.

Joint Army and Navy Technical Aircraft Board.

This board was constituted in the early part of May, 1917. It was composed of officers of special qualifications by reason of scientific study and experience, who were designated by the Secretary of War and the Secretary of the Navy, respectively. The declared purpose was "to standardize, so far as possible, the designs and general specifications of aircraft except Zeppelins." The board has been in continuous existence and has made various recommendations. These, however, have not been controlling and the board has had no authority to enforce its views.

Aircraft Production Board.

The Aircraft Production Board was created in May, 1917, pursuant to a resolution of the Council of National Defense. Its function was solely advisory. The initial steps in organization were taken under the authority of the Council of National Defense by Howard E. Coffin, who became chairman of the board and selected the civilian personnel consisting of Edward A. Deeds, Sidney D. Waldon and Robert L. Montgomery. Mr. Coffin—vice president of the Hudson Motor Car Co.—was a member of the Advisory Commission of the Council of National Defense. Mr. Deeds had been engaged in manufacturing enterprises at Dayton; in April, 1917, he had been appointed a member of the munitions standards board and placed on the subcommittee on fuses and detonators. Mr. Waldon had formerly been a vice president of the Packard Motor Car Co. Mr. Montgomery was a member of the firm of Montgomery, Clothier & Tyler, bankers and brokers, of Philadelphia. In addition to the four civilian members, the chief signal officer and Rear Admiral D. W. Taylor, Chief of the Bureau of Construction, were appointed members of the board, representing the Army and Navy, respectively.

While the Aircraft Production Board had no authority to commit the Government, the board was continuously active in the formulation of programs and the adoption of resolutions of advice. Numerous contracts for airplanes and engines were placed upon its recommendation. When the equipment division of the aviation section of the Signal Corps was organized in August, 1917, the work of the board became of less actual importance, though it was still conspicuous in routine. Col. Deeds, Col. Waldon, and Col. Montgomery now had executive duties in the equipment division under the chief signal officer and for the most part the recommendations relating to the Army aircraft program naturally followed the views of the Army officers who were in actual control. Similarly, the recommendations relating to the Navy reflected Navy proposals. The board, however, afforded a valuable opportunity for the interchange of opinion and the unification of effort.

Aircraft Board.

The Aircraft Board, superseding the former organization, was established by the act of October 1, 1917. This was composed of nine members, including the chief signal officer (Maj. Gen. Squier) and two other representatives of the Army, and the Chief Constructor of the Navy (Rear Admiral Irwin) and two other naval officers. For the Army, the Secretary of War designated Col.

REPORT ON AIRCRAFT PRODUCTION INQUIRY

Deeds and Col. Montgomery; and for the Navy, the Secretary of the Navy designated Capt. N. E. Irwin and Lieut. Com. A. K. Atkins. The civilian members, appointed by the President with the advice and consent of the Senate, were Mr. Coffin (chairman), Richard F. Howe (who had been connected with the International Harvester Co.), and Harry B. Thayer (president of the Western Electric Co.)—the last named being appointed in February, 1918.

The act creating the Aircraft Board empowered it under the direction and control of the Secretary of War and the Secretary of the Navy, "to supervise and direct, in accordance with the requirements prescribed or approved by the respective departments, the purchase, production, and manufacture of aircraft, engines, and all ordnance and instruments used in connection therewith, and accessories and materials therefor, including the purchase, lease, acquisition, or construction of plants for the manufacture of aircraft, engines, and accessories: Provided, that the board may make recommendations as to contracts and their distribution in connection with the foregoing, but every contract shall be made by the already constituted authorities of the respective departments."

It was also provided that "except upon the joint and concurrent approval of the Secretary of War and the Secretary of the Navy there shall not be established or maintained under the Board any office or organization duplicating or replacing, in whole or in part, any office or organization now existing that can be properly established or maintained by appropriations made for or available for the military or naval service."

In February, 1918, Acting Judge Advocate General S. T. Ansell gave an opinion to the effect that the provisions of the act should be construed to contemplate "only advisory or recommendatory functions." Thereupon, the Chief Signal Officer, in an order approved by the Secretary of War and the Secretary of the Navy, defined the duties of the Aircraft Board as follows:

"(a) To act as a clearing house between the General Staff and the Signal Corp for all matters pertaining to raw materials for foreign governments for the production of aircraft, the Equipment Division of the Signal Corps to act as purchasing agency.

"(b) To act as a clearing house between the General Staff and the Signal Corps for all information in relation to requirements of foreign governments for aircraft to be manufactured in the United States.

"(c) To act as a clearing house for all information as to requirements as between the Army and Navy for aircraft and raw materials.

"(d) To study the requirements of the Army and Navy as regards combat and training planes. To study types with the technical divisions of the Army and Navy to the end that recommendations be made that given types be placed with industrial plants best fitted to undertake their manufacture. The Aircraft Board shall have no direct communication with manufacturing plants, except through the medium of the procurement divisions.

"(e) As a result of above studies the Aircraft Board may recommend that preparations be made for production before actual contracts are made.

"(f) To recommend the placing of experimental contract.

"(g) All programs should be made up by the board from information which shall be furnished by the proper Army and Navy military and naval branches on the one hand, and the equipment and production divisions of the Army and Navy on the other. All foreign cables respecting aircraft production should be cleared through the board.

"(h) The Aircraft Board should be the instrumentality through which contact is made on matters of large policy with other bodies such as Shipping Board, allied representatives, etc."

Despite the broad language of the act of Congress as to the power which might be committed to the board under the direction of the Secretary of War and the Secretary of the Navy, it will be observed that this executive order had the effect of greatly limiting the authority of the board, and that it was denied even the right to hold "direct communication with manufacturing plants." It was further provided that all programs should be made up by the board "from information which shall be furnished by the proper Army and Navy military and naval branches on the one hand and the equipment and production divisions of

the Army and Navy on the other." The manifest purpose was to leave no question that the actual control of aircraft production rested with the military and naval officers.

The Aircraft Board held frequent sessions, and continuously made recommendations upon which action was taken and contracts placed, the service of the board being virtually that of a clearing house for proposals which generally emanated from the responsible authorities, and in all cases were dependent upon the action of these authorities for their final approval and execution.

THIRD. PERSONAL INTERESTS.

There are no common law offenses against the United States, and a charge of crime under Federal law must rest exclusively upon the violation of a Federal criminal statute (United States v. Baton, 144 U. S. 677, 687; United States v. George, 228 U. S. 422).

The applicable statutes of the United States, dealing with the question of personal interest of officers and agents of the Government in Government contracts are the following:

(1) Section 41 of the Criminal Code of the United States, formerly Section 1783 of the Revised Statutes, provides:

"Sec. 41. No officer or agent of any corporation, joint stock company, or association, and no member or agent of any firm, or person directly or indirectly interested in the pecuniary profits or contracts of such corporation, joint stock company, association, or firm, shall be employed or shall act as an officer or agent of the United States for the transaction of business with such corporation, joint stock company, association, or firm. Whoever shall violate the provision of this section shall be fined not more than two thousand dollars and imprisoned not more than two years."

Under this statute, it is not enough that an interested person merely recommends or advises transactions with the Government. To constitute a violation of the statute, the interested person must "be employed" or "act as an officer or agent of the United States for the transaction of business with such corporation," etc.

(2) Section 3 of the act of August 10, 1917 (food and fuel control act), provides:

"Sec. 3. That no person acting either as a voluntary or paid agent or employee of the United States in any capacity, including an advisory capacity, shall solicit, induce, or attempt to induce any person or officer authorized to execute or to direct the execution of contracts on behalf of the United States to make any contract or give any order for the furnishing to the United States of work, labor, or services, or of materials, supplies, or other property of any kind or character, if such agent or employee has any pecuniary interest in such contract or order, or if he or any firm of which he is a member, or corporation, joint stock company, or association of which he is an officer or stockholder, or in the pecuniary profits of which he is directly or indirectly interested, shall be a party thereto. Nor shall any agent or employee make, or permit any committee or other body of which he is a member to make, or participate in making, any recommendation concerning such contract or order to any council, board, or commission of the United States, or any member or subordinate thereof, without making to the best of his knowledge and belief a full and complete disclosure in writing to such council, board, commission, or subordinate of any and every pecuniary interest which he may have in such contract or order and of his interest in any firm, corporation, company, or association being a party thereto. Nor shall he participate in the awarding of such contract or giving such order. Any willful violation of any of the provisions of this section shall be punishable by a fine of not more than \$10,000, or by imprisonment of not more than five years or both: Provided, That the provisions of this section shall not change, alter or repeal section forty-one of chapter three hundred and twenty-one, Thirty-fifth Statutes at Large."

This section covers those who act in an advisory capacity. It has no application to transactions occurring before its passage.

It is apparent that the section was guardedly drawn and its limitations should be noted. The first sentence of the section applies to interested persons only where they "solicit, induce, or attempt to induce" any person or officer, who is "authorized to execute, or to direct the execution of contracts," to make any contract or give any order for labor, services, materials, etc. The use of different expressions in the different clauses of the section suggests possible shades of

meaning. The act of recommending does not come within the first sentence unless it is found to amount to "soliciting," "inducing," or "attempting to induce," nor does the first sentence cover solicitations addressed to others than the persons or officers duly authorized to make the contracts or give the orders.

The second sentence relates to "recommendations" by interested persons, but it is limited to recommendations made "to any council, board, or commission of the United States or any member or subordinate thereof" in the absence of the disclosure described. Apparently this sentence does not cover recommendations made to individual officers acting under the authority conferred upon them by law, who are not members or subordinates of a "council, board, or commission."

The third sentence provides that the interested person shall not "participate in the awarding of such contract or giving such order." This would seem to relate to those who take part in the actual awarding of the contract or giving of the order and not to those who act in an advisory capacity only.

The section concludes with the proviso that its provisions shall not alter or repeal section 41 of the Criminal Code above quoted.

To come within these statutes an interested person must either (1) act as an officer or agent of the Government for the transaction of business with the concern in which he is interested, or (2) solicit, induce, or attempt to induce the person or officer, who is authorized to execute or direct the execution of contracts, to make a contract with, or give an order to, the concern to which the interest relates, or (3) take part in a recommendation to a "council, board, or commission," or subordinate or members thereof, without the disclosure stated, or (4) participate in the award of the contract or giving of the order.

In connection with these statutes attention may be called to the following provision, which appears as a rider in the appropriation act of March 3, 1917, immediately following an appropriation for the distribution of documents (39 Stat., p. 1106):

"Provided, That on and after July first, nineteen hundred and nineteen, no Government official or employee shall receive any salary in connection with his services as such an official or employee from any source other than the Government of the United States, except as may be contributed out of the treasury of any State, county, or municipality, and no person, association, or corporation shall make any contribution to, or in any way supplement the salary of, any Government official or employee for the services performed by him for the Government of the United States. Any person violating any of the terms of this proviso shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than \$1,000 or imprisonment for not less than six months, or by both such fine and imprisonment, as the court may determine."

It will be noted that this provision, enacted in March, 1917, is not to be operative until July 1, 1919. It may be contended with force that this constitutes a legislative declaration, by implication, that the action described by the provision—that is, the mere supplementing of the pay of Government officials by private contributions, should not be deemed contrary to law prior to the date fixed.

INDIVIDUAL RELATIONS OF OFFICIALS.

Present Bureau of Aircraft Production.

JOHN D. RYAN—WILLIAM C. POTTER.

There is no suggestion and no evidence that either Mr. Ryan or Mr. Potter has taken any part in Government transactions with any concern in which he has a personal interest.

Members of the Aircraft Board.

The relations of the members of this board who received commissions in the Army are stated hereafter. As to Mr. Coffin, and as to the naval officers who were members of this board, it should be said that there is no evidence that any one of them has taken any part in transactions or recommendations relating to any corporation, firm, or association in which he has an interest. Disclosures of interest in particular corporations have been made from time to time by Mr. Howe and Mr. Thayer, and with respect to such corporations it appears that they have abstained from participating in the recommendations made by the board, except that Mr. Howe in his disclosure of interest to the board on February 12, 1918, stated that he was interested in a corporation holding preferred stock of the

REPORT ON AIRCRAFT PRODUCTION INQUIRY

Willys-Overland Co. and that he was present at the meetings of the board on December 7 and December 18, when resolutions involving a contract with that company were passed, but that he was not aware of such financial interest at those times. As the board acts in an advisory capacity simply, section 41 of the criminal code can not be regarded as applicable, and the limitations of section 3 of the act of August 10, 1917, with respect to mere recommendations, have already been pointed out.

Officers of the Signal Corps Formerly in Control of Aircraft Production.

(1) *The Chief Signal Officer.*—It does not appear that Gen. Squier had any interest in any corporations or concerns transacting business with the Signal Corps. The defects in the organization, which was created under his direction for the purpose of aircraft production, are matters distinct from any question of personal interest and will be considered in another division of this report.

(2) *Col. Edward A. Deeds.*—The charges pertaining to personal interest in Government contracts relate particularly to Col. Edward A. Deeds and grow out of the highly suggestive transactions with his former business associates at Dayton. These transactions have been subjected to careful scrutiny.

Col. Deeds was born near Granville, Ohio, on March 12, 1874. There is testimony that he once said that his name originally was "Dietz." No public record has been found to this effect. Col. Deeds denies making the remark attributed to him and states that his family has borne the name of Deeds for at least four generations—his great-grandfather of that name coming from Pennsylvania. For many years Col. Deeds was an officer of the National Cash Register Co. and was one of several connected with that organization who were indicted in the Federal District Court for the Southern District of Ohio, in 1912, for violation of the Sherman Antitrust Act. Upon the trial Deeds, with other defendants, was convicted, but this conviction was set aside by the Circuit Court of Appeals (*Patterson v. United States*, 222 Fed. 599) and the prosecution went no further.

At the time of our entry into the war, Mr. Deeds had large business interest at Dayton. His intimate business associates were Charles F. Kettering and H. E. Talbott. Mr. Deeds and Mr. Kettering (an inventor and engineer of ability) have been jointly associated in many enterprises with equal shares, it being their policy to organize corporations and to take their respective interests in stocks. Mr. Deeds has supplied the financial talent and Mr. Kettering, who is without any aptitude for business details, the engineering skill. They have had, and still have, a common agent of a highly confidential sort, George B. Smith, of Dayton, who holds the power of attorney of each, keeps their respective books, has charge of their bank accounts, signs their checks, and generally looks after their financial affairs. They are still associated in various undertakings and their relations are of the most intimate character.

In 1904 Kettering was employed in the National Cash Register Co. as a designer in the engineering department, and later he became associated with Deeds in the development of what is known as the Delco ignition system for automobiles. In the course of this development Deeds and Kettering organized the Dayton Engineering Laboratories Co., known as the Delco Co. The enterprise was successful and the common stock was sold by Deeds and Kettering in 1916 to the United Motors Corporation for several million dollars in cash and certain shares of stock. Deeds and Kettering each retained a few shares of preferred stock; Deeds continued as president of the corporation, with a salary of \$60,000 a year, and Kettering as vice president, with a salary of \$50,000.

In April, 1915, Deeds, Kettering, H. E. Talbott, sr., and his son, H. E. Talbott, jr., organized the Dayton Metal Products Co. with a capital stock of \$200,000. The stock was held as follows: Talbott, sr., 900 shares; Deeds, 500 shares; Kettering, 499 shares; Talbott, jr., 99 shares; Charles H. Mead, 1 share; and George B. McCann, 1 share. Prior to our entry into the war this company had profitable fuse contracts with the British Government, and had accumulated a considerable surplus. It appears that in the spring of 1917 both Deeds and Talbott were appointed on the subcommittee on fuses and detonators of the Munitions Standards Board. In 1916 the company had a contract with the Navy Department for fuses, and it received other fuse contracts from the

Navy and the Ordnance Department of the Army in 1917. As vice president of this company Deeds had a salary of \$25,000 a year. The relation of the Dayton Metal Products Co. to aircraft production is that this company, in the latter part of the year 1917, acquired all the stock (save four qualifying shares) of the Dayton Wright Airplane Co., and also has subcontracts for metal parts with contractors making airplanes and engines. The Dayton Metal Products Co. also subscribed and paid for 1,000 shares (par value, \$100,000) of the stock of the Lincoln Motor Co., which was organized to build Liberty engines, and has a paid-up capital stock of \$850,000.

In September, 1916, Deeds and Kettering organized the Domestic Building Co., of Dayton, for the purpose of erecting and financing plants for the use of various companies. The capital stock is now \$1,000,000, of which all but four qualifying shares are held by Deeds and Kettering in equal parts. This company owned the land and erected the building acquired by the Dayton Wright Airplane Co. for its principal airplane plant.

On April 9, 1917, the Dayton Wright Airplane Co. was incorporated with a capital stock of \$500,000 by Deeds, Kettering, H. E. Talbott, and H. E. Talbott, jr., in conjunction with Orville Wright. They had taken over the former Wright organization and thus had started an airplane enterprise at Dayton in a small way in the summer of 1916. The larger enterprise of the Dayton Wright Airplane Co. was launched about the time of our entry into the war, manifestly with the expectation of obtaining Government contracts. While Deeds was one of the incorporators, he did not become a stockholder, the subscriptions for the first 5,000 shares being as follows: H. E. Talbott, 1,990 shares; C. F. Kettering, 2,000 shares; H. E. Talbott, jr., 990 shares; George H. Mead, 10 shares; and C. A. Craighead, 10 shares. In August, 1917, the capital stock was increased to \$1,000,000 (\$600,000 common and \$400,000 preferred). The new common stock was taken by Messrs. Talbotts and Kettering in the proportion of two-fifths, two-fifths, and one-fifth. There were early negotiations for a Government contract, and as early as June 12, 1917, a contract with the company was recommended by the Aircraft Production Board. The contract was executed on August 17, 1917 (under date of August 1, 1917, and was for 400 Standard J-1 training planes at the fixed price of \$6,500 each. For this there was substituted the contract dated September 7, 1917, which was also recommended by the Aircraft Production Board and was approved by Gen. Squier. This contract was for 400 Standard-J airplanes, 2,000 DeHaviland nines and 1,500 Martinsydes with spare parts. By later modifications the Martinsydes and DeHaviland nines were omitted and provisions was made for 4,000 DeHaviland fours. These contracts were on a cost-plus basis, the estimated amount involved being upward of \$30,000,000. There was to be a fixed profit of \$620 on each Standard-J plane and \$875 on each DeHaviland, making a total fixed profit of about \$3,750,000, exclusive of fixed profit on spare parts covered by the contract, thus expected to be earned, according to the contemplated deliveries, before the end of 1918. The contract also provided for additional profits to the extent of 25 per cent of the saving under the bogy or estimated cost of the planes (\$7,000 on the DeHavilands), and it is estimated that the additional profit on this basis would have amounted to over \$2,600,000. When the bogy cost of \$7,000 was fixed, letters were obtained from the Dayton Wright Airplane Co. and from the Fisher Body Corporation (which also had a contract for DeHavilands) that after 250 machines had been produced there would be an equitable adjustment if the bogy cost was found to be "materially wrong."

Accordingly, a contract is now about to be signed reducing the bogy cost to \$5,000 and the fixed profit to \$625 per plane. Even at this rate, the fixed profit on the 4,000 DeHavilands will be \$2,500,000, and it is believed that there will be an additional profit through saving under the bogy cost and on spare parts, of not less than \$1,000,000. In August and September, 1917, when the first Government contracts were awarded, the capital stock of the company (\$1,000,000) had not been paid in. It was not paid in until December 1, 1917, when, in one transaction, the stock was paid for and all the shares, preferred and common, save five qualifying shares were transferred to the Dayton Metal Products Co., which thus became and still remains the owner of the Dayton Wright Airplane Co. As the latter company practically received nothing on the issue of its capital stock save the fixed property represented by its

plants, it was lacking in working capital and this at the outset was supplied by various loans and advances of the interested parties. In December the Government agreed to advance the company \$2,500,000, of which \$1,500,000 was advanced at once.

The name of Orville Wright was used in this enterprise, but his chief activity has been as a consulting engineer in connection with experimental work. He has not been responsible for production. Mr. Kettering is an engineer of ability, but his work also has been that of experimental engineering; he is not a manufacturing or production expert. Much emphasis is placed by the parties concerned upon the fact that they were able to avail themselves of the old Wright organization which has been continued as already stated. But this was a very slender basis for the prompt selection of this newly organized company, which had not even completed its financial arrangements, as one of the few companies immediately admitted to the advantages of large and highly profitable Government contracts. The promoters of this enterprise, not content with these profits which were to accrue to them either directly or through their ownership of the Dayton Metal Products Co. at once took advantage of the opportunity to increase their gains by salaries as executive officers of the Dayton Wright Airplane Co. Dating from August 1, 1917, the salaries thus allowed were as follows: H. E. Talbott, sr., \$35,000; C. F. Kettering, \$35,000; and H. E. Talbott, jr. (30 years old, who was made president of the company), \$30,000. Talbott, sr. was at the time receiving, and continued to receive, \$60,000 a year as president of the Dayton Metal Products Co.; Kettering received a salary of \$25,000 from the Dayton Metal Products Co. and \$50,000 from the Delco Co.; and Talbott, jr., was also receiving a salary of \$18,000 from the Dayton Metal Products Co.

There would seem to be no question but that the members of the Aircraft Production Board in recommending contracts had confidence in the capacity of those undertaking the venture, and the previous success of this group, while Mr. Deeds had been associated with them, was well known. But the fact remains that practically at the inception of the Government's aviation activity in connection with the war, and within the sphere of Col. Deeds's important if not commanding influence, his former business associates were placed at once through Government contracts in a position where they had the assurance of very large profits upon a relatively small investment of their own money and in addition were able to secure generous salaries which they charged against the Government as part of the cost of manufacture.

That Deeds, Kettering and Talbott continued to be on the most intimate and confidential footing in connection with the prosecution of the Government work by the Dayton Wright Airplane Co. is apparent from their correspondence, of which the following are excerpts:

Letter, Deeds to Kettering, June 13, 1917:

WASHINGTON, JUNE 13, 1917.

MR. C. F. KETTERING,

City National Bank Bldg., Dayton, Ohio.

MY DEAR C. F.: You will be interested to know that the standard training machine is going to be called the U. S. primary training and will not be called the Curtiss J.N. This was decided last week and I forgot to tell you when in Dayton.

Provision will be made for either Mr. Coffin or myself to appear before the S. A. E. [Society of Automotive Engineers] and as I am one of the committee on arrangements will see that the plans of the Aircraft Production Board get properly before the association.

Relative to the design of planes, I do not care to write what is being done but will discuss it with you when I get home and you will see that we have already gone away down the pike in this matter. Everything is lining up now in pretty good shape.

Yours very truly,

E. A.

Telegram Deeds to Talbott, July 3, 1917:

JULY 3, 1917.

MR. H. E. TALBOTT,
Dayton, Ohio.

Gen. Squier went direct to Detroit. Will probably spend fourth at his old home in Michigan. May be in Dayton Thursday or Friday arriving there from Detroit or from Champagne, Ill. Harold, Kettering, and Wright can take care of him. He will be interested in the Dayton Wright factory and laboratory, Orville Wright laboratory, and especially Mr.

REPORT ON AIRCRAFT PRODUCTION INQUIRY

Kettering's views on scientific subjects. In general he is highly technical.

E. A. DEEDS.
Telegram Kettering to Deeds, August 4, 1917:

DAYTON, OHIO, August 4, 1917.
E. A. DEEDS,
Room 527 Munsey Building,
Washington, D. C.

We believe all confidential telegrams should be sent to Mr. H. E. Talbott, sr., City National Bank Building, or George B. Smith, instead of the Dayton Wright Airplane Co.

C. F. KETTERING.
Telegram Deeds to Kettering, August 4, 1917:

AUGUST 4, 1917.
Mr. C. F. KETTERING,
City National Bank Building,
Dayton, Ohio.

Hereafter all confidential telegrams will be sent to H. E. Talbott, sr., instead of to the Dayton Wright Airplane Co.

E. A. DEEDS.
Telegram Deeds to Talbott, September 16, 1917:

OLD POINT, VA., September 16, 1917.
Mr. H. E. TALBOTT,
Dayton, Ohio.

For your personal information as coming from your local attorney, Judge Advocate General has ruled it legal for Government to select one, contractor one, and the two a third, as appraisers of market value of plant at expiration of contract. If you care to raise the question the above will be found to be the final ruling.

E. A. DEEDS.
When this last telegram, which puts in a strong light the relations of the parties, was sent, Deeds was an officer in the Army. This highly improper conduct, in holding communication in this manner with his former business associate in a transaction pending between the Dayton Wright Co. and the Government department in Col. Deeds' charge, demands the attention of the military authorities.

But evidence of favoritism, influence, or confidential communications of this sort, however otherwise reprehensible, do not make out criminal liability under the statutes above quoted, unless it appears that the representative of the Government has a pecuniary interest in the Government contract or order, or is an officer or stockholder of, or has a pecuniary interest in, a corporation, firm, or association which is a party to the Government contract or order. And the question is whether Col. Deeds had such an interest. His statement is that he had no such interest but on the contrary had given up large salaries to devote himself to the Government service.

About the time he received his commission as colonel in the Army, Mr. Deeds addressed the following communications to the Secretary of War and to the Aircraft Production Board, under date of August 28, 1917:

WASHINGTON, D. C., August 28, 1917.
Hon. NEWTON D. BAKER,
Secretary of War,
Washington, D. C.

DEAR SIR: You have honored me by appointment temporarily as an officer in the Regular Army of the United States, and as a member of the Aircraft Production Board connected with your department. It is possible that this board in the development of the airplane work may wish to recommend a contract with some of the corporations in which I have had an interest. Following the advice of counsel, I have resigned my official relations with these corporations, and made bona fide transfers of my stock therein to other parties.

For your protection as well as my own, I desire to file with your department a copy of a written disclosure of my relations, both past and present, to these corporations which I have this day filed with the Aircraft Production Board and I inclose same herewith.

In serving in the positions to which you have appointed me, I desire to comply with both the spirit and letter of the law, and to do no act which might invite criticism upon myself or your department.

I count it an honor and privilege to be thus called into the service of our country and am pleased to make whatever sacrifice of time and money that service may demand.

I inclose a second copy of my statement to be filed with you as chairman of the Council of National Defense.

Yours, very respectfully,
(Signed) E. A. DEEDS.

WASHINGTON, D. C.

August 28, 1917.

THE AIRCRAFT PRODUCTION BOARD,
Washington, D. C.

GENTLEMEN: As a member of your board and interested in the letting of contracts on the recommendation of that board on behalf of the Government, I desire at this time to make a full and complete disclosure of the interest I may have in any corporation which might be a party to any such contract, or which might furnish supplies to the Government through the instrumentalities of your board.

I was a stockholder and officer in the following, to wit:

(1) The United Motors Co. of New York, being a union of several companies manufacturing automobile parts.

(2) The Dayton Engineering Laboratories Co., of Dayton, Ohio, manufacturers of ignition and starting devices for automobiles.

(3) The Dayton Metal Products Co., of Dayton, Ohio, engaged among other things in the manufacture of munitions.

(4) The Domestic Building Co., of Dayton, Ohio, a corporation formed for the development of real estate and which now owns the land and buildings leased to the Dayton Wright Airplane Co.

In all of the foregoing corporations I have severed my official connection therewith by resignation and have made a bona fide transfer to other parties of all my stock therein.

In addition to the above corporations, I was an incorporator of the Dayton Wright Airplane Co., but never owned any stock therein. I am also the president of and a large stockholder in the Domestic Engineering Co., of Dayton, Ohio, makers of Delco light plants, and expect to retain my official connection therewith and my financial interest therein.

I also own the ground embraced in the Moraine Experimental Flying Field near Dayton, Ohio, used for aviation purposes but out of which I receive no compensation.

I make this disclosure now so that your board, as the representative of the Government, may be fully informed as to my relations, past and present, with these corporations, and be thus enabled to act wisely on any order or contract involving any of these corporations either directly or indirectly. I desire that this written disclosure be recorded in the minutes of your board for the mutual protection of all of us.

Yours, very respectfully,
(Signed) E. A. DEEDS.

The facts with respect to the disposition of Col. Deeds' interests (so far as pertinent to this inquiry) and the method of disposition, are as follows:

United Motors Corporation—Dayton Engineering Laboratories Co.

The significance of Col. Deeds' statement with respect to the disposition of his interests in these corporations is that the Delco ignition system is used in the airplane engine known as the Liberty motor. In the planes manufactured abroad the magneto ignition system had been used and, prior to its use on the Liberty motor, it appears that the Delco system had not been employed on an airplane engine. In the specifications for the Liberty motor the Delco system was required to be installed with the first 20,000 engines. As already stated, the Delco system is controlled by the Dayton Engineering Laboratories Co. (Delco Co.), and this company is owned by the United Motors Corporation.

On the sale of his Delco stock to the United Motors Corporation, Deeds had received, in addition to cash, 30,000 shares (no par value) of its stock. [The total issued stock amounted to 1,200,000 shares.] After certain distributions, he still held at the time in question 17,500 of these shares. He also had an interest in a pool of certain shares, on which 3,880 additional shares were received in November, 1917. In his letter (above quoted) to the Aircraft Production Board, Deeds stated that he had severed his official connection with the United Motors Corporation and had made a bona fide transfer of his shares. He had resigned as vice president and director on August 16, 1917. The only transfer made by him of any of his shares in that company was by gift to his wife. He indorsed for transfer the certificates for 17,500 shares on October 13, 1917, and they were transferred to Mrs. Deeds's name on October 17, 1917. Thereafter, it is testified, they were held by the confidential agent, George B. Smith, for her account. Entries of the transfer were made in Col. Deeds's books by Smith not earlier

than October, 1917, and were dated back to August 28, 1917. In the statement of his assets on August 31, 1917, submitted to him by Smith, the shares appear as part of his property. Mrs. Deeds's name first appears in the statement of assets of October 31, 1917. The remaining shares (3,880) received on the dissolution of the pool, about November 22, 1917, were transferred from the pool manager directly to Mrs. Deeds, as Mr. Deeds's donee, and the certificates were received by Smith on her behalf. Prior to the transfer of the stock in October and at the time of Col. Deeds's letter to the Aircraft Production Board he had simply told his wife that it was to be her stock, and it does not appear that there had been an effective gift of the shares. The actual value of the 21,380 shares was approximately \$500,000.

In addition to these shares in the United Motors Corporation, Deeds also held 38 shares of Delco preferred stock, which he had retained at the time of the sale of his common stock. These preferred shares he transferred to Kettering. It appears that the transfer was first entered by Smith in Col. Deeds's private journal in December, 1917. The date of the entry was afterwards changed to August 28, 1917, to correspond to the date when Smith was notified that Col. Deeds had received his commission in the Army. The stock was transferred to Kettering on the books of the company on October 13, 1917. The payment was made by debits in Deeds's open account with Kettering.

If there were evidence that Col. Deeds had acted as officer or agent of the Government in the transactions with the Delco Co., or with the United Motors Corporation, prior to October 13, 1917, there would be ground by reason of his interest for charging a violation of the statute, and it may be doubted whether there was then or thereafter such a transfer as would avail to take the case out of the statutory prohibition. But there is no evidence that Deeds acted for the Government in any transaction with either of these corporations. So far as appears, the Government made no contracts for Delco ignition either with the Delco Co. or with the United Motors Corporation. The contracts for the Delco system were made by the contractors who were manufacturing the engines under contracts with the Government, and the dealings with the Delco Co. or with the United Motors Corporation in relation to the Delco system were had by these contractors. It must also be said that, despite the natural inference from former business association and interests, the proof is lacking that the selection of the Delco system was due to the solicitation of Deeds. It can hardly be questioned that the design of the Liberty motor contemplated the use of the Delco system, and that the magneto system could be used only by a special adaptation. The Delco system, however, had been extensively used for automobiles, notably by the Cadillac and Packard companies, and was in high favor with those who were developing the Liberty motor. While there has been a question as to which system was preferable, and it has been understood that foreign representatives at first did not approve the departure from foreign practice, and many may still be found to disapprove it, there is considerable evidence that the use of Delco ignition has been growing in favor, and there has been testimony in this investigation from impartial and competent sources commending its adoption.

Special attention has been given to the memorandum directing the use of the Delco system in the first 20,000 Liberty motors. In the first memorandum by Maj. Gray, chief of the specification section, under date of October 6, 1916, the accessories recommended were so placed that the Delco ignition came last on the list. This was then rearranged, apparently to attract less attention to Delco, in alphabetical order. The recommendation, Maj. Gray testifies, for the use of the Delco system and the other accessories specified came from Maj. Vincent, one of the designers of the Liberty motor and then executive officer of the airplane experimental department of the equipment division, who stated that he did not believe they would be justified "in specifying for quantity production any other accessories than those which had thus far been tested out satisfactorily." The situation was a delicate one, says Maj. Gray, as Maj. Gray himself had been president of the Hess Bright Co. (he had resigned his office and disposed of his holdings in June, 1917), whose ball bearings were required as one of the accessories, and Col. Deeds had developed the Delco system. Maj. Gray testifies that he brought the question to Col. Deeds's attention, who said, "I do not like

REPORT ON AIRCRAFT PRODUCTION INQUIRY

really to have anything to say about it, because in that list is the Delco ignition and if I authorize it it will look as though I have an ax to grind." The sum of the matter is that there is no satisfactory evidence that Col. Deeds signed, prepared, or directed the order for the use of the Delco ignition, although it can not be doubted that he desired the system to be used. Nor is there evidence that any recommendation was made by Col. Deeds to the Aircraft Board or to any other council, board, or commission regarding the matter.

His statement to the Aircraft Production Board on August 28, 1917, that he had made a bona fide transfer of all his stock in the United Motors Corporation, when the stock had not in fact been transferred, and at most he contemplated a gift of the stock to his wife, was neither candid nor truthful, and is certainly not to be regarded as a "full and complete disclosure." But in the absence of proof of solicitation, inducement, or recommendation by him, or action on his part as an officer or agent of the Government in transactions with the United Motors Corporation or the Delco Co., there are no facts bringing the case within the statutory prohibition.

Domestic Building Company.

In his letter of August 28, 1917, to the Aircraft Production Board, Col. Deeds stated that he had made a bona fide transfer of his stock in this company. This was not true. It appears that on that date he resigned the office of president of the company, but he did not dispose of his stock. The stock of that company is still held in equal portions by Deeds and Kettering.

Col. Deeds was plainly led to make the statement in his letter by the fact that the Domestic Building Co. had acquired the land and had erected the building which was in course of completion, and was then occupied and intended to be used as the principal plant of the Dayton Wright Airplane Co. for the manufacture of airplanes. It is said that in anticipation of a lease of the property to the Dayton Wright Airplane Co. it had been agreed prior to August 28, 1917, that Deeds' stock in the Domestic Building Co. should be sold to Kettering. But there is not sufficient evidence of a definite and binding agreement to that effect, or of anything more than a loose understanding between intimates, whose arrangements could at any time be adjusted to suit their mutual convenience. Certainly, there had been no transfer of the stock. It was not until November that there was an adjustment of accounts with this company, and then, instead of a sale of his stock by Deeds, he retained his stock in the Domestic Building Co., and the plant erected by that company was purchased by Talbott, sr., Kettering and Talbott, jr., who at once transferred it to the Dayton Wright Airplane Co.

On February 4, 1918, the Domestic Building Co. made a direct conveyance to the Dayton Wright Airplane Co. of an additional tract of 8.34 acres, adjoining the first tract, at the price of \$13,344, or \$1,600 per acre.

However, there is no ground, so far as the retention of Deeds' stock interest in the Domestic Building Co. is concerned, for charging a violation of statute. It is not enough that the Dayton Wright Airplane Co. purchased these properties, or that certain advances by Deeds were taken into account in fixing the purchase price of the main plant, or that both parcels of land were sold at more than the amount they had cost the Domestic Building Co. The Government has never had any contracts with the Domestic Building Co. and it does not appear that Col. Deeds has acted as an officer or agent of the Government in any transactions between the Government and that company. The gratuitous statement contained in his letter to the Aircraft Production Board that he had made a transfer of all his stock in this company may be said to indicate a willingness to state, as an accomplished fact, a transaction which never took place but was merely in contemplation as a step to be taken if deemed to be necessary.

Dayton Wright Airplane Co.

Col. Deeds' statement in his letter of August 28, 1917, that he had never been a stockholder in this company was true. The stock is owned by the Dayton Metal Products Co., and if Col. Deeds had or has any interest through stock ownership in the profits on its contracts with the Government, this interest must be derived from an interest in the stock of the Dayton Metal Products Co.

His relation to the organization of the Dayton Wright Airplane Co. is this: He was an

incorporator, and while he did not subscribe for stock, and none was issued in his name, the payment of the stock of the company to the extent of upward of four-fifths of its par value was made, in substance, by the transfer to the company of the plant built by the Domestic Building Co. owned by Deeds and Kettering, and this company received therefor unsecured notes of Talbott, sr., Kettering, and Talbott, jr., only a small part of which has been paid. Thus Deeds and Kettering through the Domestic Building Co. virtually furnished the main plant of the Dayton Wright Airplane Co. on a credit to the Talbotts and Kettering. The transaction was as follows:

The airplane factory was erected on a tract which the Domestic Building Co. had acquired from the Moraine Development Co. (a corporation in which Deeds and Kettering were largely interested) at a price a little over \$753 an acre. The building was intended for the use of the Domestic Engineering Co., another concern owned by Deeds and Kettering, which was engaged in the business of supplying Delco lights for general illuminating purposes. It was later decided that it should be used by the Dayton Wright Airplane Co., which entered into possession. Still later it was arranged that the syndicate composed of Talbott, sr., Kettering, and Talbott, jr., should purchase the plant from the Domestic Building Co. and convey it to the Dayton Wright Airplane Co.

In November, 1917 (while the building was still incomplete), Mr. Allan B. Smart, a public accountant (of Barrow, Wade, Guthrie & Co.), made an adjustment of the accounts of Deeds, Kettering, Talbott, sr., and Talbott, jr., for various advances, and a balance was struck of \$683,732.16 as owing to the Domestic Building Co. In this adjustment the land (25.55 acres) was taken at \$1,200 an acre and the building at the amount of the expenditures upon it, making the price of the plant (called the Moraine plant) \$336,401.08. The balance of \$683,732.16 was covered by three individual notes of Talbott, sr., Kettering, and Talbott, jr., in the proportion of two-fifths, two-fifths, and one-fifth, as follows: H. E. Talbott, \$273,492.87; C. F. Kettering, \$273,492.87; and H. E. Talbott, jr., \$136,746.43. All of the notes were dated November 4, 1917, and were payable to the Domestic Building Co. one year after date, with 6 per cent interest. The notes are unsecured. The makers of the notes have paid interest quarterly, and, in addition, Talbott, sr., has paid \$3,492.87 on the principal of his note, reducing it to \$270,000, and Talbott, jr., has paid \$26,746.43 on the principal of his note, reducing it to \$110,000. It appears that Mr. Kettering has made payments of \$6,000. This transaction left the Talbotts and Kettering as the owners of the Moraine plant, which the Dayton Wright Airplane Co. was operating, and the stock of the Dayton Wright Airplane Co., for which they had subscribed, had not been paid in.

The payment of the subscriptions for the stock of the Dayton Wright Airplane Co., the concurrent payment by that company for two plants (the Moraine plant, already mentioned, and another at Miamisburg), and the transfer of its stock, thus paid for, to the Dayton Metal Products Co. were effected by an exchange of checks on December 1, 1917. Shortly before the Miamisburg plant had been acquired by Talbott, sr. (for the syndicate), for the sum of \$60,000 and was turned over to the Dayton Wright Airplane Co. at \$127,202, the profit being divided between himself, Kettering, and Talbott, jr., according to their respective interests in the syndicate. To accomplish the desired result the following procedure was adopted:

The Dayton Wright Airplane Co. gave to the syndicate its check for the sum of \$955,071.25, made up of the purchase price of the Moraine and Miamisburg plants (\$336,401.08 less an item of interest (\$8,531.83) for the Moraine or main plant and \$127,202 for the Miamisburg plant). The Dayton Metal Products Co. gave its checks to the syndicate for \$183,459.55, for various balances of accounts, and for \$999,500, the purchase price at par of the stock of the Dayton Wright Airplane Co. (less 5 shares retained). The syndicate thus received checks to the aggregate amount of \$2,138,030.80. The syndicate gave their check to the Dayton Wright Airplane Co. in payment of the capital stock of \$1,000,000 and another check to the Dayton Metal Products Co. for \$1,138,537.20 as the purchase price of certain securities which the Dayton Metal Products Co. sold to the syndicate, making the total of the syndicate's checks \$2,136,537.20. The Dayton Wright Airplane Co. gave its check to the Dayton Metal Products Co. in repayment of advances

for \$44,928.75, the difference between the sum of \$955,071.25 paid by the company for the plants and the sum of \$1,000,000 received for its stock. The transaction was accomplished with a minimum use of cash (less than \$1,500), and as a result the Dayton Metal Products Co. had all the stock (save 5 shares) of the Dayton Wright Airplane Co.; the Dayton Wright Airplane Co. had the Moraine and the Miamisburg plants; Messrs. Talbotts and Kettering had the securities which they had purchased from the Dayton Metal Products Co.; and the Domestic Building Co. (owned by Deeds and Kettering) continued to hold the notes which the Talbotts and Kettering had given to that company on the settlement in November.

On the transfer by the syndicate of the shares of the Dayton Wright Airplane Co. to the Dayton Metal Products Co. it was agreed that all dividends in excess of 7 per cent per annum on the transferred stock, and in excess of 8 per cent per annum on the common stock, should be paid to Talbott, sr., Kettering, and Talbott, jr., in the proportion of two-fifths, two-fifths, and one-fifth. Why they should have desired these profits to be divided in the syndicate proportions instead of taking the profits through their dividends, in the proportions in which they held the stock of the Dayton Metal Products Co., the purchaser of the shares, has not been made clear. The Talbotts and Kettering also took an option from the Dayton Metal Products Co. to repurchase all the shares at any time within five years for the sum of \$999,500.

Dayton Metal Products Company.

Col. Deeds originally held one-fourth of the stock of this company, or 500 shares. It appears from the minutes of the board of directors that at a meeting of the board in Dayton, on May 21, 1917, President Talbott stated that the company had been advised by the Ordnance Department of the Army "that, in all probability, the entire facilities of the company would be utilized for munition work, and in all probability contracts would be given to the company as soon as appropriations were made by the Government." It is further set forth that Mr. E. A. Deeds explained that he had been called to Washington and requested to take place on some of the committees of the Council of National Defense; that he had been to Washington and that he had accepted the call, and he therefore desired it that he might act as uninterested, directly or indirectly, in any manufacturing plant which was contemplating business with the Government, and that he desired to offer his resignation as vice president and as director of the company." The minutes show the acceptance of this resignation and that Mr. Kettering was elected vice president. The minutes of the meeting of May 21, 1917, conclude with the following statement:

"At this meeting Mr. Deeds offered for sale and discussed probable purchasers for his stock in the Dayton Metal Products Co., and Mr. Deeds offered to the directors his entire holdings of stock at its book value less 15 per cent to cover costs and probable losses in view of the possibility of no future Government contracts being secured and the business of the company would have to be readjusted into lines being developed by the experimental department."

Some time subsequently—in the early part of the year 1918—the accountant drew a line across the last-mentioned statement in the minutes. He explains that he did not consider it "a corporate record," but a matter between the stockholders.

The testimony of the parties concerned is that Talbott, sr., Kettering, and Talbott, jr., purchased all Deeds' shares in the Dayton Metal Products Co. at their book value as of May 1, 1917, less 15 per cent, and gave in settlement of the purchase price their notes as follows:

H. E. Talbott, 200 shares.....	\$207,706
C. F. Kettering, 200 shares.....	207,706
H. E. Talbott, jr., 100 shares.....	103,853

The notes were dated May 22, 1917, were payable to Deeds' order one year after date, with interest at 4½ per cent, and were placed in the hands of George B. Smith, the confidential agent of Deeds and Kettering. The notes were wholly unsecured. According to the stock certificate book the old certificates were canceled and new certificates issued to the Talbotts and Kettering under date of May 22, 1917.

It is not only open to doubt whether the transaction described in the minute book took place on May 21, 1917, but on all the evidence it is reasonably clear that it did not take place on that date. The minutes are type-

REPORT ON AIRCRAFT PRODUCTION INQUIRY

written and pasted in the minute book. No one of the parties is willing to testify positively that the proceedings described in the minutes took place on that day. Mr. S. S. King, of the Dayton Lumber & Manufacturing Co., has testified that he and Deeds went to Washington on the same train on May 18, 1917, and that they were in communication every day in Washington, from May 19 to 23. Furthermore, it appears that on May 21, 1917, when Mr. Deeds is represented as making his statement at the meeting of directors in Dayton, he was making his first appearance, according to the minutes of the Aircraft Production Board, at a meeting held by that board on that day in Washington. He himself testifies that he was in Washington on that day. While Mr. Deeds is represented as resigning his office as vice president of the Dayton Metal Products Co. in May, 1917, he continued to draw his salary until the end of June, 1917. The notes were placed in the custody of the confidential agent Smith, but he made no entry in Deeds's bills receivable book of these notes until September. It does not satisfactorily appear, in view of the nature of some of the items, that the adjustment of accounts in fixing the book value and the determination of the amounts of the notes could have been made before June 30, 1917. There are stock certificates bearing the date of May 22, 1917, and purporting to have been issued after the issue of the new certificates to the Talbotts and Kettering for the Deeds shares, but these certificates were issued to members of the Talbott family, dividing the shares he had formerly held.

Upon all the evidence, it is not established that the stock was purchased as early as May 22, 1917, and there are many indications that the transaction was dated back to that date.

However, Col. Deeds's stock was actually transferred on the books of the company, and the notes dated May 22, 1917, were given, apparently, not later than September, 1917.

On December 31, 1917, interest was paid by the makers on their respective notes to that date; and interest was paid quarterly thereafter. On January 18, 1918, Talbott, sr., paid \$7,706 on account of the principal, reducing his note to \$200,000; in February, 1918, Talbott, jr., paid \$3,853 on account of the principal, reducing his note to \$100,000, and on September 11, 1918, Kettering paid, on account of his note, the sum of \$10,000.

If the transaction was a bona fide sale of the stock, Col. Deeds thereby parted with all his stock interest in the Dayton Metal Products Co., and thus did not have, by virtue of an interest in that stock, an interest in the profits of the Dayton Wright Airplane Co. The parties all deny that there is any secret agreement or understanding of any sort for a retransfer of the shares to Col. Deeds, or for a sharing of profits with him.

To conclude: The fact is that the transfer of the shares in the Dayton Metal Products Co., which owns the stock of the Dayton Wright Airplane Co., was made to Col. Deeds's intimate business associates on their unsecured notes, which are overdue and unpaid save to a small extent. But there is no proof upon which it can be charged that Col. Deeds retained an interest in the Dayton Metal Products Co. and thereby in the Dayton Wright Airplane Co.

Other Aviation Activities Centered at Dayton—The Wilbur Wright Field.

This is a tract of about 2,245 acres leased to the Government by the Miami conservancy district, of which Mr. Deeds was the head. It was a portion of the area selected by the Miami conservancy district for the impounding of waters in the event of a serious flood. The property was acquired by the Government for a flying field and was developed by the erection of hangars, barracks, a storehouse, and other structures. Upward of \$3,000,000 has been expended by the Government in this development.

On April 30, 1917, Maj. (now Gen.) Foulois was directed to inspect land sites for aviation purposes at various places, including Dayton, and several tracts at Dayton were examined by him, and by Capt. (now Col.) Edgar, on May 8. These officers were met at Dayton by Mr. Deeds and both Deeds and Orville Wright accompanied them on their inspection of the tracts in the vicinity. As to these, on May 11, 1917, Maj. Foulois reported as follows:

"The largest tract of land inspected is about 10 miles from Dayton and contains about 4,000 acres. This tract of land is admirably suited for aviation purposes, is under the control of the conservancy directors, and any portion of it can be acquired by the Government at a very low cost. The purpose for

which this land has been set aside by the State of Ohio makes it extremely desirable for aviation purposes, in that it will be always used for agricultural purposes only and no buildings or other obstacles will ever be erected within the area set aside. Options on this tract of land or any portion thereof will be mailed to this office within the next few days."

On May 15, 1917, Gen. Squier recommended that the approval of the Secretary of War be obtained for the rental of several aviation training sites, including the one at Dayton, which was thus described:

"Approximately 2,500 acres in the vicinity of Dayton, Ohio, at the rate of \$17,500 per year with the privilege of renewal for three years, and the option of purchase at \$350,000, the cost of crop destruction being \$75,000. This will provide a four-squadron training field."

Mr. Coffin, as chairman, indorsed the proposal, stating that it was "in the judgment of the committee a wise and necessary action," and the project was approved on behalf of the Secretary of War by the Acting Chief of Staff. On May 19, 1917, Gen. Squier authorized Capt. Edgar to lease this site, and others, and to proceed with the contracting for the necessary buildings. The first lease was signed on May 22, 1917 (by Capt. Edgar for the Government and Mr. Deeds for the conservancy district), for 2,075 acres for the period ending June 30, 1917, at the rental of \$2,000, the Government also agreeing to pay \$73,000 to cover damages to crops. There was an option for renewal for the year beginning July 1, 1917, at the rental of \$17,660, and for a further renewal for the year beginning July 1, 1918, for a tract containing 2,500 acres (including the 2,075 acres first mentioned) at a rental of \$20,000, and for further annual periods ending July 1, 1922; and there was also an option to purchase the 2,500 acres for \$350,000.

Of the proposed tract of 2,500 acres, 505.27 acres were found to be marshy and were withdrawn and 250.47 acres, said to be of equal value, were added. This left a tract of 2,245.20 acres, for which a new lease was executed on July 1, 1917, for the period ending June 30, 1918, at the rental of \$18,404.59, with annual options of renewal at a rental of \$20,000 until June 30, 1922, with the option to purchase at the same price. The rental for the first year is explained by the fact that there were 210.47 acres of which possession could not be taken until March 1, 1918. Soon after that date the commanding officer at the field stated that 34.94 acres were in the possession of the Government, but that the remaining acres were available for occupancy but "were very low and swampy and in the present condition of no value to the Government." For the Miami conservancy district it was stated that it had settled with the tenants at considerable expense in order to get possession and it was unwilling to take back the land from the Government.

There is an adjoining tract of 32 acres (part of the original 2,500 acres) which with 8 acres additional were sold to the Government as a site for a warehouse.

It appears from the testimony of Ezra M. Kuhns, the secretary of the Miami conservancy district, that at the time of our entry into the war the district had been able to secure options on only about 300 acres of the tract in question, but when negotiations with the Government began there was swift action. Mr. Deeds had brought the matter to the attention of Mr. Waldon as early as April 24, 1917, and had sent to him one of the district's engineers with maps. The following telegrams show the activity of Deeds and Talbott:

Telegram Deeds to Kuhns, April 30, 1917:
WASHINGTON, D. C., April 30, 1917.

EZRA M. KUHN,

Miami Conservancy District, Dayton, Ohio.

Subject of our trip yesterday moving very rapidly and very satisfactorily. There is no doubt in my mind but what we will be successful. Avoidance of publicity very essential. Inspection will be made end of this week or first of next. You and Morgan [Morgan was the engineer of the Miami conservancy district] must plan now as though it was decided.

E. A. DEEDS.

Telegram Deeds to Kuhns, April 30, 1917:
WASHINGTON, D. C., April 30, 1917.

EZRA M. KUHN,

Miami Conservancy District, Dayton, Ohio.

Options should be rushed in the vicinity of Fairfield, raising the price if necessary.

E. A. DEEDS.

Telegram Deeds to Kuhns, April 30, 1917:
WASHINGTON, D. C., April 30, 1917.

EZRA M. KUHN,

Miami Conservancy District, Dayton, Ohio.

Ohio State University is ordered to-day to cooperate with the Dayton School and Magruder, Lord, and Knight instructed to report at Camp Borden, Canada, Monday to learn course of instruction. Publicity will follow these instructions, and no one outside of Signal Corps officers knows of our plan for the larger school, and so far as everyone is concerned Dayton School is the Wright Field civilian school. Think you should advise Wright, Morgan, Harold, Talbott, and Kettering so that they will not disclose anything inadvertently. The civilian school will continue regardless of what is done with the other plan, and Ohio State will give the preliminary instruction in military tactics and all classroom work, while the Wright Field Co. will give the instruction in aviation. Harold Talbott should be the channel through which publicity is given out, and there is no objection using the last statement if called upon.

E. A. D.

Telegram Deeds to Talbott, May 11, 1917:
WASHINGTON, D. C., May 11, 1917.

H. E. TALBOTT,

Dayton, Ohio.

Think your whole plan is ideal.

E. A. DEEDS.

Telegram Talbott to Deeds, May 11, 1917:
May 11, 1917.

E. A. DEEDS,

Care New Willard, Washington, D. C.

Contracts remaining secured to cover 2,500 acres will be closed by to-morrow evening. Will start Monday on immediate possession of land, so the fields will be ready when buildings are finished. This applies to central 1,000 acres in front of building. Builders may retain use of buildings and barns for a few months and in some cases until winter, but main fields must be prepared without delay if they are to be used this fall. Think best to give no reason for immediate possession and feel sure we can arrange it. We can arrange financial matters as suggested. Wire if you approve.

H. E. TALBOTT.

Telegram Deeds to Talbott, May 11, 1917:
WASHINGTON, D. C., May 11, 1917.

H. E. TALBOTT,

*City National Bank Building,
Dayton, Ohio.*

With few exceptions owners can, if necessary, continue to live in their houses for a year, thus avoiding necessity of moving this summer. Their teams will be employed, giving revenue to them. District wants to try out flying on large scale and wants to try experiment at once. This is only a suggestion. You doubtless may have a better one. May be necessary to exercise option at once, and if so I will gladly go on District's note for full amount.

E. A. DEEDS.

Telegram Deeds to Talbott, May 12, 1917:
WASHINGTON, D. C., May 12, 1917.

H. E. TALBOTT,

*City National Bank Building,
Dayton, Ohio.*

Suggest Kuhns, Emmett, Grant, and Brown be here Monday morning for conference on conservancy, bringing description of entire 2,500. Tax value and tax rate of property under discussion. Will be helpful. Publicity can be delayed at this end without difficulty. Everything moving nicely.

E. A. DEEDS.

The partiality for this site does not appear to have been warranted by any advantages it can be said to possess. Indeed, no satisfactory reason appears for the securing of so large a tract, as apparently 1,400 or 1,500 acres would have answered the purpose.

Fields of about 650 acres were selected at Rantoul and Detroit for two-squadron fields, and the field at Dayton was for four squadrons. Both the leasehold interest and the option to purchase are subject to a flood easement. The evidence is that in case of a flood such as that of the year 1913, the impounded water (that is, after the completion of the dam, which it is understood will be completed in two or three years) would cover the lowland to a depth of about 40 feet; the lowest hangar would have 24 feet of water, that is, over the eaves, and the highest hangar would have 13 feet of water. The barracks and various buildings, which stand on higher ground, would not be seriously affected. The

REPORT ON AIRCRAFT PRODUCTION INQUIRY

warehouse itself (a large structure) is in a dry place, and the suggestion that some of the property stored there during the past year has suffered from moisture is not supported. Aside from the consequences of flood in the Miami Valley and the use of the area as a detention basin, it should be added that a considerable part of the tract consists of swamp land, which is unsuitable for the use for which it was leased.

There is no evidence that Deeds himself had any interest in the land acquired. He was head of the Miami conservancy district, but this was a public enterprise not organized for profit. Apparently at an earlier period advances had been made by the Dayton Metal Products Co. (a portion of which had originally been charged to Deeds personally and later credited back to him and charged to the maintenance account of the company, which had been used for the purchase of options for the district. The result of this transaction was to leave the Dayton Metal Products Co. a creditor of the enterprise but without interest in the land. Mr. Deeds had been appointed on the Munitions Standards Board in March, 1917, and he accepted appointment on the Aircraft Production Board on May 11, 1917. At this time, however, he was acting only in an advisory capacity, and it was before the passage of the act of August 10, 1917. He testifies that his only interest in this project was as a citizen of Dayton.

The Contract for the Development of the Wilbur Wright Field.

The next step was the placing of the contract for development. The contract was signed by Capt. Edgar, under the direction of the Chief Signal Officer, and its terms were not unreasonable. It was on a cost-plus basis with a sliding scale, which as applied to the amount actually expended gives the contractor a commission of 7 per cent, with a maximum limit of \$140,000. The contractor, the Dayton Lumber & Manufacturing Co., was recommended by Deeds. This company had done nothing in an extensive way for several years, having been engaged since the year 1908 in selling material and in operating a planing mill and a lumberyard. Its capital stock was \$75,000. Prior to April, 1917, one S. S. King had owned 117 of the 750 shares. King's holdings were then increased to 417 shares, and in acquiring these 300 shares King was backed by H. E. Talbott, who as president of the City National Bank of Dayton arranged for a loan of \$60,000 for the purpose. King wrote to Talbott on April 25, 1917: "As to the ownership of the stock, if you see fit to back me up in it, this can be determined in any manner that you see fit." It was not long after the control of the Dayton Lumber & Manufacturing Co. was thus acquired that the arrangement was made for giving to this company the contract to develop Wilbur Wright Field. King's narrative of the circumstances in which this contract was obtained is very illuminating and affords a notable contrast to the difficulties of many who unavailingly sought contracts with the Government.

King was sent for by Talbott and informed that he (King) had been recommended down at Washington to assume the responsibility of putting up some buildings for Wilbur Wright Field, and suggested that he immediately set about effecting an organization for the purpose. This was on Saturday, May 17, 1917, and on Sunday Talbott telephoned to King, asking him to leave immediately for Washington. Accordingly King went to Washington on Sunday afternoon, taking the same train with Deeds. It was arranged that King should call the next day at Deed's office, which he was informed was on the same floor with that of the contracting officer, Capt. Edgar. Accordingly on the following day, May 19, Deeds introduced King to Capt. Edgar and in two or three days, on May 23, the contract was signed. As Col. Edgar testifies: "King was brought down here by Col. Deeds and recommended to us as a proper contractor, the most available in Dayton for the work."

The following is a portion of the correspondence between Deeds and Talbott relating to this contract:

Telegram Deeds to Talbott, May 23, 1917:
WASHINGTON, D. C., May 23, 1917.

H. E. TALBOTT,
City National Bank Building, Dayton, Ohio.
King probably returns to Dayton this evening. He is undertaking something which he alone is unable to get through with. It will be important that you give him a vision of this job, and some very definite suggestions how to hit it in a big way. This is the biggest undertaking that has ever been put across in Dayton.
E. A. DEEDS.

Telegram Deeds to Talbott, May 23, 1917:

WASHINGTON, D. C., May 23, 1917.

H. E. TALBOTT, Dayton, Ohio.

Suggest you personally direct publicity regarding contract to be given soon, so that it will avoid criticism and at the same time tell the story. This is particularly vital because of Capt. Waring to start work Friday and the visitors whom I am bringing, who may read the papers. Your good judgment is needed on this.
E. A. DEEDS.

Telegram Deeds to Talbott, May 24, 1917:

WASHINGTON, D. C., May 24, 1917.

H. E. TALBOTT,
City National Bank Building,
Dayton, Ohio.

In arranging for contract do not overlook a local contractor and lumber man in Osburne. Ezra Kuhns knows his name. He has been friendly to us, and I promised him something to do on this job.
E. A. DEEDS.

Telegram Talbott to Deeds, May 28, 1917:

MAY 28, 1917.

E. A. DEEDS,
Care New Willard, Washington, D. C.

Just to remind you chartered accountants of Government selection, expense to be paid by contractor and charged to cost of work. Piece work for labor only on various unit sections in various classifications of work, will do much toward speed and economy. Each individual transaction to have the approval of officer in charge before it is effected.
H. E. TALBOTT.

Telegram Deeds to Talbott, May 31, 1917:

MAY 31, 1917.

H. E. TALBOTT, Sr., Dayton, Ohio.

Wire what progress has been made on Dayton Field. This is for our report to the council. If foundations have been started, for instance, and how many men on the job. This only needs to be a rough estimate.
DEEDS, Aircraft Production Board.

Telegram Talbott to Deeds, June 1, 1917:

JUNE 1, 1917.

DEEDS,
Aircraft Production Board,
War Department,
Washington, D. C.

Steam shovel and large trench digging machine now in place. Three cutting gangs at work. Teams and tractors on ground. Carpenters finishing sheds and office for construction purposes. Foundation excavations in progress. Have plant and equipment for six concrete gangs which will be at work early in the week. Sidewalks progressing. Repairing highways to facilitate trucking operations from Dayton. Purchased five new Packard trucks to augment transportation over the existing available trucks. Next week will see everything booming along. All material, lumber, cement, planks, board roofing located and on the way. Wish you would think over method of authority which can be given me to rush transportation of railway cars. This looks like the main point of congestion. All departments of construction now organized with experienced and competent supervisors and foremen. All this in spite of the fact that it has rained every day since Waring has been here.
H. E. TALBOTT.

Despite the indications of these messages, and of his transactions with King, Mr. Talbott testifies positively that he had no interest in the enterprise, except as a citizen of Dayton and got nothing out of it beyond 6 per cent interest received by the Dayton Metal Products Co. on money loaned.

King had no capital available for the enterprise, nor had the Dayton Lumber & Manufacturing Co. King's testimony is:

"Q. Did you have the capital to swing that? A. Not without assistance.

"Q. Where did you expect to get the assistance? A. When I talked to Mr. Talbott he told me on the Saturday afternoon, I said, 'Well, this will take a good deal of money.' He said, 'Yes, but,' he said, 'you need not worry about that. We will work out some way for that.' He said, 'I do not know how we will work it out, but we will work out some way for that.'"

The financial assistance that King needed was obtained upon the credit of the Dayton Metal Products Co., supported by the personal guaranties of H. E. Talbott and C. F. Kettering. Notes of the Dayton Lumber & Manufacturing Co. to the extent of \$400,000, were discounted by the Dayton Metal Products

Co. with the American Exchange National Bank, of New York. It was originally contemplated that these notes should be indorsed by Deeds and Talbott, as is shown by the following extract of a letter to Mr. Talbott from W. H. Bennett, vice president of the American Exchange National Bank, under date of June 25, 1917:

"Referring to the conversation which the writer had with you on Thursday, I have conferred with Mr. Kenzel, assistant cashier of the Federal Reserve Bank, and upon your statement that the Dayton Lumber & Manufacturing Co. is under contract with the United States Government for the preparation of the aviation field at Dayton, and that said company is to receive payments on the 10th of each month on the presentation of receipted vouchers for work completed in the previous month; and that it is the intention of the Dayton Metal Products Co. to make advances to said Dayton Lumber & Manufacturing Co. of amounts necessary to carry on the work, he ruled that the paper executed by the Dayton Lumber & Manufacturing Co. and indorsed by the Dayton Metal Products Co. to cover said funds so advanced will be eligible for rediscount with the Federal reserve bank.

"Therefore, we feel that it will probably be of mutual advantage to provide for the advance of \$400,000 requested from us by a three months' note executed by the Dayton Lumber & Manufacturing Co., to the order of the Dayton Metal Products Co. and indorsed by Mr. H. E. Talbott and Mr. E. A. Deeds. If you so desire, the indorsement of the individuals can be secured by an assignment from the Dayton Metal Products Co. of certain securities now in safekeeping with us to the individuals referred to."

It was subsequently arranged that the indorsements should be those of Talbott and Kettering, who also gave their separate agreement of guaranty. The avails of discounted paper were passed by the American Exchange Bank to the credit of the Dayton Metal Products Co. It appears from the accounts between the Dayton Lumber & Manufacturing Co. and the Dayton Metal Products Co. that, while the latter company ultimately paid the notes, their proceeds were used in large part from time to time for the benefit of the Dayton Metal Products Co.

The credit to the Dayton Lumber & Manufacturing Co., thus extended to it upon its notes, was furnished without security, or, as Mr. Talbott put it, with "no further security except in the man (King). I trusted the man; I knew his contract." After the contract had been obtained, King increased his stockholdings in the Dayton Lumber & Manufacturing Co. by the purchase of 104 additional shares, borrowing for the purpose \$20,000 from the Dayton National Bank.

It appears that the total amount paid by the Government under the contract with the Dayton Lumber & Manufacturing Co., to August 14, 1918, amounted to \$3,115,161.94. This represents the amount paid for the cost of the work, that is, for lumber, materials, etc. The commission or profits of the contractor, which had been paid to that date, amounted to \$102,430.04. There has been considerable trouble in connection with the contract, and the accounts are far from being in satisfactory shape. An audit of the books of the company was made by Barrow, Wade, Guthrie & Co. to November 30, 1917. They reported that they found "the pay rolls very incomplete, full of errors, corrections, and erasures" and that there was "abundant evidence that great laxity and carelessness has been exhibited by the employees of the company, especially those in the paymaster's department." These statements are amply confirmed by the evidence in this investigation, and the accounts are in course of being audited by Government accountants. The consideration of the various irregularities in the accounts and of the questions to which they give rise must await the result of this examination. It will be observed that the Government has withheld a large part of the compensation of the contractor until a satisfactory adjustment has been made. Of the profits received from the Government, it would appear that the moneys have been retained in the business of the company, except to the extent of a dividend of \$27,500, that is, 50 per cent on the capital stock. Of this dividend, King was entitled, on the 521 shares acquired in his name, to \$26,050, and of this amount it appears that he had received 70 per cent, or \$18,235, to July 1, 1918. He had paid \$11,000 on account of his loan (\$21,000) to the Dayton National Bank. He had paid nothing on the \$60,000 loan from the City National Bank. No agreement has been proved

REPORT ON AIRCRAFT PRODUCTION INQUIRY.

for a division of profits on this contract, and there is no proof that Col. Deeds has had an interest in the contract or in the Dayton Lumber & Manufacturing Co. Even if it appeared that the Dayton Metal Products Co. was interested in the contract (which would explain transactions otherwise difficult to understand), this fact would not affect Col. Deeds unless he were found to be interested in that company. The question would thus come back to the transfer of his stock in the Dayton Metal Products Co., which has already been considered.

McCook Field (Formerly Known as North Field.)

This is a field of approximately 200 acres in and adjacent to Dayton, which was leased by the Government from the Dayton Metal Products Co., and has been used for the purpose of making various tests. Lieut. Col. Vincent first suggested another field (South Field or Moraine Field) and brought the matter to the attention of Col. Deeds by whom that field was principally owned. On September 27, 1917, Col. Deeds sent the following telegram to Mr. Talbott:

WASHINGTON, D. C., September 27, 1917.

MR. H. E. TALBOTT,
City National Bank Building,
Dayton, Ohio.

Col. Clark takes letter regarding Moraine flying field with him to Dayton to-night. George McCann has another letter, for Mr. Kettering. Government will lease land, put up buildings and operate experimental field. Lease will be for three years without privilege of purchase, as that is not necessary. Have complete description of property prepared, also statement of cost of buildings already erected and suggested monthly rent arrangement and have George McCann bring them to Washington to complete lease. Have him prepare deed for this property to Mr. Kettering, who in turn will lease it to the Government.

DEEDS, Equipment Division.

Talbott and Kettering refused to consent to this use of South or Moraine Field, as it was said to be needed for experimentation in connection with the Dayton Wright Airplane Co., and they suggested North Field, or what afterwards became known as McCook Field. The latter tract had originally been purchased by Deeds and Kettering, each of them bearing one-half of the cost, and they had made some improvements such as leveling, removing trees, etc., and had erected one or two small buildings. The object of their purchase had been to develop a training field for airplanes, to be used by civilians, but this project could not be carried out. The suggestion was that this parcel, with approximately 82 acres of land adjoining which was owned by the Dayton Metal Products Co., would be suitable for the Government's use as an experimental station. Deeds did not wish to be a party to the lease, and conveyed to Kettering his undivided one-half interest in the parcel owned by them in common, and Kettering then conveyed that parcel to the Dayton Metal Products Co. which thereupon leased the entire tract to the Government.

The lease was dated October 4, 1917. Col. Deeds was present at the conference at which the terms were settled and sent the following telegram to Talbott on October 3:

WASHINGTON, D. C., October 3, 1917.

MR. H. E. TALBOTT,
City National Bank Building,
Dayton, Ohio.

Have worked out a lease for the North Dayton Field, \$12,800 a year without cash payment. It is the best thing that can be done under the circumstances and suggest its acceptance. Craighead will discuss it with you in detail when you see him.

DEEDS,
Equipment Division.

Lieut. Col. Edgar, under the authority of the Chief Signal Officer and the approval of the Chief of Staff and of the Assistant Secretary of War, signed the lease on behalf of the Government. The rental is at the rate of \$12,800 a year, with an option of renewal from year to year, until June 30, 1921. There is no option to purchase; the lessor agrees that at the expiration of the lease the lessee may remove the structures and improvements erected by it upon the premises.

The contract for the development of the field was made with the Dayton Lumber and Manufacturing Co., notwithstanding the fact that the contractor had failed to give satisfaction in connection with the Wilbur Wright

Field. This is explained by Col. Edgar as follows:

"We had an organization at the Wilbur Wright Field. We had practically reorganized King's force, and it was determined to take them over to McCook Field, which was brought to us by Col. Deeds as a rush job which must be done immediately. * * * He personally brought the proposition to me as a proposition that had to be put through immediately. They had no place to test the planes that were coming out. We did not pick out McCook Field; we had nothing to do with its location. A contract was made for the rental of the ground of the McCook Field, and we were importuned to take our organization over there with this contractor and finish this job up and it was done.

"Q. Importuned by whom? A. By Col. Deeds."

The total amount expended by the Government upon McCook Field, to August 14, 1918, amounts to \$949,085.35, and the contractor's compensation is 7 per cent of the cost with a maximum limit of \$46,200. The amount paid, to that date, as contractor's profit was \$26,667.65. The remaining portion of the total compensation has been withheld awaiting the audit of the contractor's accounts.

There is no proof that Col. Deeds has had an interest in the contract for the development of this field. Nor does it appear that he had an interest in the lease executed by the Dayton Metal Products Co. to the Government, or in the rent reserved. While Col. Deeds originally owned a part of the tract leased to the Government, he conveyed—by what purported to be an absolute sale—his interest to Kettering, and was not interested in the lease by Kettering's grantee, the Dayton Metal Products Co., unless he was interested in the stock of that company, a question already considered. It is understood that the amounts advanced by Deeds in connection with the development of that portion of the tract in which he had an undivided one-half interest were taken into account in the settlement that was made in November, 1917, when the amount to be paid (by notes) to the Domestic Building Co. for the plant acquired by the Dayton Wright Airplane Co. was determined; but this fact is not sufficient to establish an interest in the lease so as to bring the matter within the range of the Federal penal statute.

South Field or Moraine Field.

This is a tract of about 110 acres lying south of the city of Dayton and a short distance from the plant of the Dayton Wright Airplane Co. The greater portion of the land belongs to Col. Deeds. It has been improved by the erection of a number of hangars and other buildings. This land was leased about November 30, 1917, to the Dayton Wright Airplane Co. for a period of three years, at a rental of \$1 per year. It is used by that company as a place of experimentation. The expenditures for hangars and improvements upon South Field which had been made by Col. Deeds had been taken into account in the settlement made with the Domestic Building Co.

Acceptance Field.

This is a field lying close to the plant of the Dayton Wright Airplane Co., upon which the airplanes it manufactures for the Government are taken out for trial. The greater part of this field belongs to the Moraine Development Co., and it appears that Deeds is interested in this field as a stockholder in that company. Deeds and Kettering each hold 2,055 shares out of a total of 10,003 shares, the majority of the stock being held by Adam Schantz. This field is leased to the Dayton Wright Airplane Co. The transactions relating to South Field and Acceptance Field were with the Dayton Wright Airplane Co., and not with the Government.

(3) Col. Sidney D. Waldon.

During the period in question Col. Waldon was a stockholder in the Packard Motor Car Co. This interest he retained but he disclosed it to the Aircraft Production Board at its meeting of August 27, 1917, and to the Secretary of War, and it does not appear that he took part at any time in any proceedings of the board, or in any other transactions in relation to the Packard Co. No interest on his part in any other concern having dealings with the Government is shown.

(4) Col. Robert L. Montgomery.

At the time Col. Montgomery entered the service of the Government he was one of the directors of the J. G. Brill Co., of Philadel-

phia, holding one share of common stock. Col. Montgomery states that he resigned from the board of directors and sold his share of stock on September 22, 1917, before any contract was made by that company with the Government and that he did not negotiate the contracts in which that company is interested. Col. Montgomery further states that at the time he entered the Government's service it was agreed with his partners that no member of the firm should have any interest in any concern connected with aircraft work. It appears that the wife of one of his partners held for some time 200 shares of the stock of the Curtiss Aeroplane & Motor Corporation, which she had purchased in her own right, and then sold it, and that subsequently she bought some 500 shares of the stock of the Wright-Martin Aircraft Corporation. With these transactions Col. Montgomery had no connection.

Col. Montgomery's firm (Montgomery, Clothier & Tyler) in August, 1917, took an interest of \$250,000 in an underwriting syndicate through the National City Co. for the flotation of \$5,000,000 6 per cent notes of the Electric Auto-Lite Corporation. Later, Montgomery, Clothier & Tyler issued a circular offering the notes for sale to the public. These notes of the Electric Auto-Lite Corporation were secured, in part, as the circular states, by a specific pledge of collateral, among which were shares, amounting to \$12,500,000 in par value of the common stock of the Willys-Overland Co. The Farmers' Loan and Trust Co. of New York was made trustee to receive the pledge. The sale of all the notes was completed by September 12, 1917, \$116,000 being sold through Montgomery, Clothier & Tyler, who received \$8,500 in settlement of their interest in the underwriting. Col. Montgomery states that this transaction, with others, was undoubtedly mentioned to him by his partners at or about that time, but that he never saw the circular or had the transaction fully explained to him until May of this year. In August and September, 1917, at the time of this transaction, Col. Montgomery on behalf of the Government was negotiating contracts with the Willys-Overland Co. for the manufacture of engines for training planes. The Willys-Overland Co. not only made these contracts, but also had a substantial interest in the Curtiss Aeroplane and Motor Corporation, which at the time had contracts with the Government for airplane engines. While the Electric Auto-Lite Corporation was affiliated with the Willys-Overland and Curtiss Cos., the transaction in question concerned the flotation merely of notes of the Electric Auto-Lite Corporation, and the interest of purchasers of these notes in the stock of companies having dealings with the Government was only through the pledge of the Willys-Overland stock as collateral security. It appears that while Col. Montgomery's firm took part in the sale of the notes as members of the underwriting syndicate, none of the notes were actually purchased by his firm, either for firm account or for any individual partner, and in these circumstances it is believed that there would be no sufficient ground for holding the above-quoted statutes to be applicable.

Apart from the above matter, there is no evidence that Col. Montgomery has had an interest in any corporation, association, or firm with which he has dealt as an officer or agent of the Government.

OTHER OFFICIALS.

Lieut. Col. Jesse G. Vincent.

In April, 1917, Mr. Vincent was vice president of the Packard Motor Car Co. in charge of engineering, with a salary of \$25,000 a year. Under his contract with that company, made in 1912, he was entitled to subscribe for certain shares of its stock. On August 15, 1917, having resigned his office, he made a settlement with the company, receiving his salary to that date and a bonus of \$5,000 for the preceding year's work, and at the same time, through the exercise of his option, he acquired \$15,000 of common stock at par, which with the stock dividends previously declared thereon gave him approximately 847 shares. He had purchased outside about 82 shares, so that he became a stockholder in the Packard Motor Car Co. to the extent of 429 shares of the common stock of the par value of \$42,900. This stock he has continued to hold since August, 1917; he has received dividends of 13 per cent quarterly, with the exception of one quarter for which a dividend was passed.

From about May 27, 1917, until August 15, 1917, Mr. Vincent, while paid by the Packard Co., was actually at work for the Government in the development of the Liberty motor. It

REPORT ON AIRCRAFT PRODUCTION INQUIRY

is said that for this period he was "loaned" by his company to the Government. On September 3, 1917, he received a commission in the Army with the rank of major and later he was raised to the rank of lieutenant colonel. About July 1, 1917, he was put in charge, as a civilian, of the engine design section of the Signal Corps and he remained in this service after he was commissioned and until October 1, 1917. On the latter date the airplane experimental department of the Signal Corps was established in charge of Lieut. Col. Clark, with headquarters at McCook Field, Dayton, and Maj. Vincent was associated with this department as its executive officer with his office at the Lindsey Building, Dayton. On February 6, 1918, he was put in charge of the airplane engineering department at Dayton and in command of McCook Field. He is now in charge of the airplane engineering division of the Bureau of Aircraft Production.

Both before and after Maj. Vincent received his commission in the Army he had transactions with the Packard Motor Car Co. in which he acted on behalf of the Government. On June 6, 1917, the Aircraft Production Board adopted a resolution which provides, after recitals, as follows:

"Therefore be it resolved, That the board proceed immediately to secure space wherein to bring together sufficient draftsmen under a competent engineering organization to produce complete designs of 8 and 12 cylinder motors, to be known as the US-8A and US-12A, respectively; that the design for the 4 and 6 cylinder motors follow as soon as practicable, these motors to be known as the US-4A and US-6A, respectively. These designs and drawings to be made to include the designs and drawings for the special tools necessary to produce the parts of these motors. The board should undertake to have the parts made wherever in its judgment they can be most quickly and advantageously done and have them sent to Washington and assembled here in space to be secured, parts to be made for five (5) US-12A and five (5) US-8A.

"And be it further resolved, That the board recommend to the office of the Chief Signal Officer that the sum of \$250,000 be immediately set aside to carry on this work and that a disbursing officer be assigned to handle this fund."

This allotment, or \$249,159.10, was paid to the Packard Motor Car Co. for drawings, models, tests, etc., and for six US-8A's and five US-12A's, which were to serve as standardized engines. No written contract for this work or written order for this work setting forth unit prices or specifying the terms on which the work was to be performed is found in the files of the Signal Corps, and in this respect the proceeding was very irregular. Instead of there being an appropriate agreement or written order, it appears that verbal orders were given from time to time by Mr. Vincent, which, it is testified, were confirmed in conversations with Mr. Deeds.

The first voucher presented by the Packard Co. for this development work was for \$104,500, which was paid on August 11, 1917, upon a certificate of Mr. Deeds, then a civilian in charge of the equipment division. While Mr. Deeds was familiar in a general way with the work, it does not appear that he or any one else acting for the Government, except Mr. Vincent, had detailed information as to what had been done or as to actual cost. The exact amount of the outlays could not then be stated either by the company or by Mr. Vincent, and while definite amounts were placed opposite the particular services and engines described in the voucher, these amounts were mere estimates. The voucher did not so state, but the payments were virtually payments on account. Included in this first voucher (paid Aug. 11) were the salaries and traveling expenses, as estimated, of those in the engineering organization which Mr. Vincent had effected for this development work, including the salary of Mr. Vincent himself after he came to Washington as above stated. As he testified:

"In other words, this item was intended to cover not only the making of drawings, but the moving of engineers here to date and also a lot of traveling expenses incident thereto * * * that was all lumped under original design work * * * Q. Was there any itemization of that anywhere? A. There was not, because it was impossible to make any such itemization. I knew roughly what it would cost. * * * Q. How much of that amount of \$37,000 included in that voucher (that is, the voucher for \$104,500) was for salaries? A. I should say about one-

third. Q. For what period were those salaries allowed? A. They were allowed for the period that the men were actually on the job.

"Q. Is your salary included in the \$37,000? A. I think it is."

Another voucher in similar form for \$73,194.72 was presented by the Packard Co. on November 20, 1917. It was accompanied by a letter from Maj. Vincent representing the engine design section of the Signal Corps, to Col. Deeds which stated:

"I have personally supervised this work and hereby certify that all of the above material has been delivered to the Government and is now being used for Government purposes.

"The prices at which the engines are billed are only approximately correct and may be high or low, but this can not be determined until a final checkup is made when the job is completed. There are several engines yet to be delivered and before we pay for the final ones, I will arrange to have a checkup made in order to insure that the total amount paid for the entire job is entirely fair to both the Government and the Packard Motor Car Co. I would ask that payment be made the Packard Motor Car Co. promptly in this connection, as they are going to a great deal of trouble to do this experimental work for us."

A third voucher for \$60,000, for three engines, which was also a mere estimate, was paid on December 6, 1917, on Col. Deeds's certificate.

The fourth, and final, voucher was paid on January 19, 1918, for the two remaining engines, which were put down at \$5,732.19 each so as to bring the total amount expended for the development work within the above-mentioned allotment of \$250,000. The Packard Co. at this time submitted an itemized statement of its outlays which Maj. Vincent examined and approved. This statement purported to show the total cost of the entire work; that is, the cost of material, and of labor, the direct expense (including traveling and other expenses of the organization which Mr. Vincent brought to Washington for the purpose of working on the design of the Liberty motor) and the overhead charges. These items aggregate \$221,474.75, to which a profit of 12 1/2 per cent (\$27,684.35) was added, making a total of \$249,159.10. Maj. Vincent wrote the following letter to Col. Deeds in submitting the final voucher with his approval of the itemization of cost:

DAYTON, OHIO, January 19, 1918.

From Maj. J. G. Vincent, airplane experimental engineering department, Lindsey Building, Dayton, Ohio.
To Col. E. A. Deeds, Southern Railway Building, Washington, D. C.
Subject: Final payment on the Liberty engine development order.

1. I am inclosing herewith bills from the Packard Co. for the last or No. 6 8-cylinder engine, and the last or No. 5 12-cylinder engine. These bills have been held in abeyance until the Packard Co. could furnish us with a final accounting covering the cost of the job.

2. You will remember that the joint Army and Navy Technical Committee set aside an appropriation of \$250,000 to cover the cost of this job. At the time they set aside this amount and asked me to have 10 engines built I was afraid it could not be done within the appropriation, but am glad to be able to advise you that altogether we built 11 engines, as well as two wooden models and ran several tests under this order and still kept within the appropriation. You will note that the last two engines are built at \$5,732.19 each, as this just balances out the net cost to the Packard Co. plus 12 1/2 per cent profit.

3. As a matter of general information I want to point out that the Packard Co. cooperated with us to the limit on this job, and many of their executives gave a great deal of their time to this work for which they received no pay whatsoever. It is also a fact that this work was put ahead of a great deal of other work, causing losses which can never be computed. They did this cheerfully because their heart was in the job, and my only object in mentioning it is to in some degree give them credit for their attitude, as I know no one at Washington can possibly realize what this brand of cooperation costs.

4. I want to go on record as stating that I do not know of any other place in the world where this job could have been done at anything like this cost.

5. During the last two years that I was with the Packard Co. they spent approximately a half million dollars on aircraft de-

velopment work—the spending of this money not only put me in position to know what should make an aircraft engine, but it also resulted in the development of an organization at the Packard plant which was ready and waiting to grab this Liberty job. I think you will find the brief résumé of costs entirely satisfactory, but I simply want to state that the Packard Co., of course, have a complete record of all the transactions, if they should ever be required. I think, however, that this job is so obviously reasonable that nothing else will be required. I want to urge that you have final payment made to the Packard Co. immediately, as they are carrying on a lot of development work for us and are, therefore, carrying considerable investment at all times.

(Signed) J. G. VINCENT,
Major, S. O., U. S. A.

The irregularity of proceeding in this manner without a contract or proper order in writing is apparent. No price had been fixed for the work or materials; if only outlays were to be reimbursed, it was necessary that outlays should be appropriately proved before payment was made, and this had not been done in the case of the first three payments. Nor does it appear that at the time the first voucher for \$104,500 was passed, on or about August 11, 1917, Mr. Deeds had any authority in the absence of a written contract or a proper written order to give the certificate. The Chief Signal Officer testifies that he did not have such authority. Nor was his certificate itself accurate in its terms, as there was no agreement for a price, and if there was an agreement for the reimbursement of actual outlays, the voucher, being a mere estimate, was not in accordance therewith.

It should be said, however, that the evidence does not afford ground for the conclusion that the Government was defrauded or that there was any intent to defraud the Government on the part of any of the parties concerned. The work was development work, these first engines being made by hand in advance of tooling up for quantity production in order to standardize the design, and it does not appear that the services rendered were not worth the amount paid or that the estimates of the outlays were not fair estimates; that is, that the amounts as estimated were not actually expended as set forth in the final statement. Both Maj. Vincent and Mr. MacCauley, the president of the Packard Motor Car Co., testify that the amount paid under these vouchers as finally adjusted did not embrace any expenses incurred in the original work of the Packard Co. in developing an aircraft engine, that is, prior to the time when Mr. Vincent came to Washington on May 27, 1917. Viewed as an arrangement for services on a cost plus basis, the allowance of profit does not seem to be excessive. While the vouchering was irregular, there is no sufficient basis for a charge under the statutes relating to false and fraudulent vouchers or the facilitating or obtaining of payments with intent to defraud the Government.

A distinct question, however, is presented as to Lieut. Col. Vincent. Section 41 of the Criminal Code explicitly prohibits any person who is directly or indirectly interested in the pecuniary profits or contracts of a corporation from acting as an officer or agent of the United States for the transaction of business with such corporation. It is manifest that Lieut. Col. Vincent acted as an officer and agent of the Government for the transaction of business with the Packard Motor Car Co., in which he was a stockholder, and that this was in violation of the statute.

Lieut.-Col. George W. Mixer.

Lieut. Col. Mixer, formerly vice president of Deere & Co., of Moline, Ill., manufacturers of agricultural machinery, came to Washington in July, 1917, to undertake the organization of the inspection department of the aircraft engineering division of the Signal Corps. He was later chief of the inspection department of the equipment division of the Signal Corps. He was commissioned as an officer in the Signal Corps, with the rank of major, about August 15, 1917. The work of the inspection department covered the inspection or acceptance of material and manufactured articles furnished to the Signal Corps, including the inspection of airplanes and engines manufactured under contracts with the Government. As chief of the department, Maj. Mixer dealt with the matters of organization and personnel and exercised a general supervision over the department in matters of administrative policy. In May, 1918, Maj. Mixer was made production manager and on the reorganization which resulted in the establishment of the Bureau of Aircraft Pro-

REPORT ON AIRCRAFT PRODUCTION INQUIRY

duction he continued to carry the title of production manager, being directly under Archer A. Landon, who is director of the production division, which is broadly charged with the actual execution of the aircraft program after the receipt of engineering data.

Prior to his connection with the Government, Mr. Mixer held 25 shares (par value \$2,500) of the preferred stock of the Curtiss Aeroplane & Motor Corporation. He has not disposed of this stock. He testifies that he had sold his common stock in the company about two years ago and that he had not given thought to the retention of the few preferred shares; that his personal accounts are kept at his office in Moline and are in charge of his secretary. The Curtiss Co. had important contracts with the Government for the production of aeroplanes and Lieut. Col. Mixer was in charge of the organization of the inspection of materials and products at its plant as well as at other plants, and he visited the Curtiss plant from time to time in the exercise of his authority as head of the inspection department and as production manager, and as an officer of the Government he dealt with such questions at this plant as required attention.

The statutory phrase "transaction of business" is broad enough to embrace the activity of officers or agents of the United States who are heads of divisions having charge of the inspection of products under contracts requiring the action of Government inspectors in course of performance. It would be a narrow construction to hold that the statute (Crim. Code, sec. 41) is limited to the making of contracts or the placing of orders or transactions relating to payment or discharge. It would seem to be quite as important that the chief of a department of inspection, selecting the inspectors who act under his instructions at the plants of contractors, should be free from interest in the corporation whose work is inspected, as the inspectors themselves, and both the chief of an inspection department and the inspectors may properly be regarded as agents of the Government for the transaction of business with the corporation. The same would be true of the production manager having supervision of production under contracts with the Government. No ruling in the Federal courts with respect to the applicability of the statute to such an officer or agent of the Government has been found. In the view that the statute has the scope suggested, Lieut. Col. Mixer acted as an officer or agent of the United States, contrary to the prohibition, for the transaction of business with the Curtiss Aeroplane & Motor Corporation, in which he was a stockholder. His holdings were small, but it can not be said that for that reason the statute is inapplicable.

Maj. Howard C. Marmon.

Maj. Marmon joined the Signal Corps about June, 1917, and almost immediately was sent to Europe with the Aeronautical Commission. On his return he was assigned to duty with the airplane experimental department at McCook Field, Dayton. Prior to his service with the Government he was vice president and engineer of the Nordyke & Marmon Co. of Indianapolis, which was engaged in manufacturing mill machinery and motor cars, and he held \$15,000 in par value of the stock of that company, its book value being several times its par. On entering the Army, he gave to his brother a power of attorney to dispose of his shares and they were transferred to his mother, Mrs. Elizabeth C. Marmon, and have since stood in her name. The transfer was a gift; Maj. Marmon testifies that he has no interest in the stock. His mother turns over to him the income of other property which is the equivalent of the salary he had previously received from the Nordyke & Marmon Co.

The Nordyke & Marmon Co. has a contract for 3,000 Liberty engines, and spare parts, and previously had a contract, which was filled, for 1,000 Hall-Scott engines and spares. The evidence is that Maj. Marmon had no part in the negotiations relating to these contracts or with the supervision of inspection, production, or payments. He has been engaged in the airplane experimental department, or engineering department at McCook Field. It does not appear that he has had any transaction with the Nordyke & Marmon Co. save that he sent to that company, with others, from McCook Field, the blue prints for the Liberty engine. It also appears that he signed a communication from McCook Field relating to a Marmon automobile which had been ordered by Lieut. Col. Vincent for that department. Taking

all the facts into consideration, there is no sufficient ground for a charge of violation of the statute in his case.

Second Lieut. Samuel B. Vrooman, Jr.

In a subsequent portion of this report, reference is made to the Mahogany Manufacturers & Importers Association, a voluntary association of the leading mahogany manufacturers of the United States, which was formed last January in connection with negotiations for the purchase by the Government of mahogany for airplane propellers. One of the members of the association is the S. B. Vrooman Co., of Philadelphia. Second Lieut. Vrooman is the son of Samuel B. Vrooman who was the head of this company until his death a short time ago. Second Lieut. Vrooman is 31 years of age and for upward of 9 years was at work in his father's company handling lumber, inspecting, and selling. On his marriage in June, 1917, his father gave him \$10,000 in par value of the company's stock, which for some years has paid 20 per cent dividends annually. This stock he still holds. In addition to the dividends on his stock the S. B. Vrooman Co. has continued to pay him since he entered the service of the Government, the sum of \$50 a week, which is the equivalent of the compensation he previously received for his services to the company.

In December, 1917, S. B. Vrooman, jr., became identified with the Equipment Division of the Signal Corps as a civilian and was made an inspector of mahogany purchased by the Government. In February, 1918, he was put in charge of the inspection of all propeller lumber. He selected the district officers, who in turn selected the inspectors. Mr. Vrooman issued instructions to the district officers, visited the plants to see that the inspectors were doing their duty, and passed on disputed points. He has continued in this service, and in July, 1918, received a commission as second lieutenant. Among the plants subject to his jurisdiction as head of inspection of propeller lumber is that of the S. B. Vrooman Co., which has had contracts with the Government and is within the territory assigned to the district office at New York. S. B. Vrooman, jr., selected the head of this office, Mr. McCullough, who was responsible to him for the efficiency of the inspection and for the carrying out of his instructions, which related to the inspection at the Vrooman plant as well as others. The conclusion is not to be escaped that S. B. Vrooman, jr., was the agent of the Government directly responsible for the proper inspection of the mahogany delivered by the S. B. Vrooman Co. to the Government under its contracts, and that his acting as such agent for the transaction of business with the corporation in which he was a stockholder was in violation of the statute.

FOURTH. THE AIRCRAFT PROGRAM.

At the time of our entry into the war we had no combat planes, and only a few planes for training and scouting purposes. Approximately 100 airplanes had been delivered to the Army up to the year 1917. There were few flyers and still fewer who had any acquaintance with aviation engineering. The airplane manufacturing industry was in its infancy in this country. But these difficulties were not concealed. The necessity of prompt endeavor to surmount them and of securing at once the full benefit of foreign experience was obvious.

On May 22, 1917, the Joint Army and Navy Technical Aircraft Board, consisting of officers of the Army and Navy especially qualified by reason of aeronautical experience, made a series of recommendations to the Secretary of War and the Secretary of the Navy, which were duly approved by each Secretary. It was recommended that there should be purchased by the Army (from the Curtiss Aeroplane & Motor Corporation) "700 Curtiss JN-4 advanced training planes, equipped with the Curtiss OX-5 engines, with 50 per cent extra engines and appropriate amount of engine and airplane spares." The purchase of 100 Gnome engines (40 for the Navy and 60 for the Army) from the General Vehicle Co., was also advised. It was recommended that no action be taken on the suggestion by the Aircraft Production Board for the purchase of the Standard J airplanes, pending tests of this machine by Army flyers." Other recommendations were as follows:

"9. The board recommends that the Aircraft Production Board take immediate steps to obtain complete working drawings, complete machines for use as samples, and to ar-

range for the manufacture in this country of the following airplanes and engines:

" AIRPLANES.

- " Sopwith, 1½ strutter.
- " Spad, 1-place pursuit type.
- " S. E. 5, 1-place pursuit type.
- " Sopwith, 130 H. P. Clerget, 1-place pursuit type.
- " D. H. 4, 2-place reconnaissance.
- " B. E. 2 D, 2-place reconnaissance.
- " White, Gnome pusher, seaplane.
- " Two types of Fairley seaplanes; 130 H. P. Clerget type and also a Campania type.
- " Farman, with a 150 H. P. Hispano-Suiza engine, seaplane.

" ENGINES.

- " Lorraine-Dietrick, 250 H. P.
- " Clerget, 130 H. P.
- " Hispano Suiza, 200 H. P.
- " Rolls-Royce, 270 H. P.
- " B. H. P., 200 H. P.
- " Gnome Mono-soupape, 170 H. P."

The same board on May 23 made further recommendations to the Secretary of War and Secretary of the Navy, which were also approved, as follows:

"3. It is estimated that the needs of the United States Army for heavier-than-air aircraft until July 1, 1918, will be as indicated hereinafter and it is recommended that a building program to accomplish these needs be started at once.

Under the present conditions in order to meet the needs of the United States Army only:

TRAINING.

Type of airplane.	Number required.	Type of engine.	Number required.
JN-4.....	3,500	OX-5.....	7,000
DeH-4.....	1,750	RR or equivalent.	3,500
SE-5.....	600	HS.....	1,200
SPAD.....	600	HS.....	1,200
Sopwith.....	600	Clerget 130.....	1,200
JN-4 (stop-gap order).	0	Half-Scott 47a.....	1,000

In the event that the United States are called upon to train foreign flyers in addition to United States Army flyers:

TRAINING.

Type of airplane.	Number required.	Type of engine.	Number required.
JN-4.....	5,000	OX-5.....	10,000
DeH-4.....	2,500	RR or equivalent.	5,000
SE-5.....	800	HS.....	1,600
SPAD.....	800	HS.....	1,600
Sopwith.....	800	Clerget 130.....	1,600

"6. It is recommended that the Aircraft Production Board of the Council of National Defense take steps immediately to advise concerning the formulation of the plans how best to obtain in this country the following airplanes and engines with the designs of these airplanes and engines and the rights to manufacture them in this country.

AIRPLANES.

Type.	Number.	Type.	Number.
DeH-4.....	2	Savoia.....	2
SE-5.....	2	R-R.....	4
SPAD.....	2	H-S.....	4
Sopwith.....	2	Do.....	4
BE2C.....	2	Clerget 130.....	4
Farman seaplane.....	2	RAF.....	4
Martinsyde.....	2	H-S.....	4
Sopwith 1½ strutter.....	2	R-R-190.....	4
Handley-Page twin.....	2	Clerget 110.....	4
Caproni.....	4	R-R.....	16
Savoia.....	2	GUR 92 Rh 110.....	4
		With engine.....	4
		Do.....	8

"7. In addition all such modern German airplanes complete with engines as it may be

REPORT ON AIRCRAFT PRODUCTION INQUIRY

possible to obtain. These may be obtained either from the allies or from Holland.

8. Additional engines desired:
- " 4 Lorraine-Dietrich, 250 H. P.
 - " 3 Clerget, 130 H. P.
 - " 2 Hispano Suiza, 200 H. P.
 - " 3 Rolls-Royce, 270 H. P.
 - " 2 B. H. P., 200 H. P.
 - " 4 Gnome Mono soupape, 170 H. P."

Report of Aeronautical Commission.

Two months after we had entered the war an aeronautical commission was sent to Europe. This commission, which sailed on June 17, 1917, in charge of Maj. (afterwards Col.) R. C. Bolling, was composed of Army and Navy experts and civilians. Capt. Virginius E. Clark and Capt. Edgar S. Gorrell represented the Army, and Navy Constructor G. C. Westervelt and Lieut. Warren G. Child represented the Navy.

Maj. Bolling's report was sent from Paris on August 15, 1917. The governing principle for the American production program was stated by Maj. Bolling to be:

"First. The United States must first provide itself with all airplanes and engines required for training purposes in America.

"Second. The United States must next provide the airplanes and engines necessary for use strictly in connection with the operation of American forces in the field. It is best known in Washington what will be the size and composition of the American forces in the field at any given dates in the future. You have the information as to the number of types of airplanes required in direct connection with military operations of these forces. We have learned nothing to change the views on that matter which were held by Maj. Foulois when we left Washington.

"Third. After these first two considerations comes the American program of putting into the field next year air forces in excess of the tactical requirements of its Army in France. It is greatly desired that the United States shall do this. Such air forces should consist of fighting airplanes and bombers." (Then follows a statement of the proportions deemed advisable.)

The conditions of European production were described; and the advisability of obtaining through foreign orders the supply of airplanes and engines required for use at the front and in training abroad for a period extending to July 1, 1918, was strongly emphasized, as is shown by the following extract from the report:

"In our opinion, these American needs may be divided into two periods: First period, from the present time to July 1, 1918. Second period, subsequent to July 1, 1918. With every confidence in the ultimate performance of the American production program our investigations of production experience over here, and of the sea tonnage situation, have convinced us that airplanes and engines produced in America can not be actually delivered at the front in any great quantity prior to July 1, 1918. Subsequent to July 1, 1918, we believe that American production will not only take care of our needs, but may become a large factor in maintaining the air forces of our allies. In considering the period between now and July 1, 1918, due weight must be given to the experience of all foreign countries and manufacturers in the delays in airplane and engine production which were not and could not be foreseen. Only at close hand can one appreciate how many and how great those delays have been. * * *

"After long and careful consideration of this subject, we and all others here have come to the very strong conviction that most of the airplanes and engines for American use at the front and for our training here between now and July 1, 1918, must be produced either in France or Italy, where effective and successful methods of production are already in full operation. Because we consider this imperative and absolutely essential to prevent failure of our air campaign next year, an arrangement has been made with the French Government under which they are to produce for us the airplanes and engines shown on the attached table which also includes a schedule of guaranteed deliveries. * * *

"You will also find annexed a schedule of approximate prices of these airplanes and engines and a draft of the proposed agreement between the American and French Governments which is now in the final stages of execution, although the orders have been actually placed by the French Government with its manufacturers. This agreement has been prepared after conference with the Judge Advocate General and his staff here and considerations of the arrangements under which England is having engines built in France."

FOREIGN ORDERS.

Accordingly Maj. Bolling reported that the following orders had been placed abroad:

IN FRANCE.

TRAINING AIRPLANES.

Seven hundred and twenty-five Nieuports with Le Rhone engines and 150 Spads with Hispano engines. Deliveries to be in time to meet United States training program in France.

SERVICE AIRPLANES.

	Nov.	Dec.	Jan.	Feb.
1,500 Breguet (Renault & Fiat).....	60	60	460	460
2,000 SPAD (200 HP Hispano).....				135
1,500 New Spad (150 Gnome) or			50	100
1,500 Nieuport (150 Gnome).....			300	400

	Mar.	Apr.	May.	June.
1,500 Breguet (Renault & Fiat).....	460			
2,000 SPAD (200 HP Hispano).....	300	400	550	615
1,500 New Spad (150 Gnome) or	290	300	350	500
1,500 Nieuport (150 Gnome).....	400	400		

SERVICE ENGINES.

	Nov.	Dec.	Jan.	Feb.
1,500 Renault (300 HP).....	60	60	460	460
4,000 Hispano (200 HP).....			135	375
3,000 Gnome (150 HP).....			400	400

	Mar.	Apr.	May.	June.
1,500 Renault (300 HP).....	460			
4,000 Hispano (200 HP).....	565	755	945	1,225
3,000 Gnome (150 HP).....	400	600	600	600

IN ITALY.

Five hundred S. I. A. 6 B (reconnaissance and day bombing airplane similar to the Breguet). Deliveries to begin October and be completed in December.

Two hundred to three hundred Caproni biplanes with the new Isotta-Fraschini engine. Deliveries prior to June 30, 1918.

A formal contract was made between Gen. Pershing and the French Government under date of August 30, 1917, for the 5,000 service planes and 8,500 engines above described. The French Government entered into this contract upon the express condition that the United States should furnish the machine tools and raw materials which were fully listed. In order to perform this condition, a contract was made under date of October 4, 1917, by the United States Government with the J. G. White Engineering Corporation, by which the latter was to act as an agent for the purchase of the required materials on the basis of cost plus three per cent as compensation. It turned out that there was great difficulty in obtaining these materials as the French specifications in important instances could not be met at the time by American manufacturers. While the contract with the French Government called for deliveries of materials for planes two and one-half months before delivery of the finished planes, and materials for engines, three and one-half months before delivery of finished engines, and that all materials advanced by the French production service should be replaced not later than November 1, 1917, it appears that only 14 per cent of the required materials had been placed at points of embarkation in the United States by November 1, for shipment to France, 46 per cent by January 1, 1918, and 67 per cent by March 1, 1918; 91 per cent was delivered at points of embarkation by June 1, 1918, and 99 per cent before the end of August. From information recently received it appears that all materials shipped under the contract arrived safely in France and that substantially all have been satisfactory as to quality. For the materials thus delivered during the fiscal year ending June 30, 1918,

there had been paid to the J. G. White Engineering Corporation \$9,005,674.31, of which \$8,742,412.29 represents the purchase price and \$262,662.02 the agreed compensation.

It is understood that in December, 1917, in view of the existing conditions and the serious need for airplanes on the part of the French, the original contract was modified by a new contract calling for about one-quarter of the deliveries within the period contemplated in the first contract. The exact terms of the second contract are not now available here. It is also understood that further orders were placed with the French Government from time to time.

The deliveries originally contemplated on the foreign orders were not made; most likely by reason of the delays on the part of the United States in furnishing the required materials and the increased pressure of the needs of the allies.

Deliveries on Foreign Orders.

Up to February 1, 1918, it appears that only about 600 planes had been received under the orders placed with the French Government, of which only about 70 were fighters and bombers. The situation as it then existed is disclosed in the cable from Gen. Pershing under date of February 16, 1918: P. 610 Paragraph 1-A.

Dated FEBRUARY 16, 1918. Conference to-day between Chief of Air Service, A. E. F., and French under Secretary of State for aeronautics develops fact that due to nonarrival in France of sufficient raw materials French production of aeroplanes and engines is insufficient to meet needs of French and American air service during the next three months. Nine American squadrons will be available for front-line service next month, and if military necessity requires that they be put into front-line service several of these squadrons must be equipped with inferior types of aeroplanes purchased from the French Government, a procedure which is strongly disapproved. Urgently important every effort be made to expedite remainder shipment of J. G. White & Co. materials destined for France—almost 14,000 tons—and also urgently request no delay in shipment of service aeroplanes from the United States.

PERSHING.

Plight of Our Cadets Abroad.

There may also be noted at this point the serious delays which occurred in securing adequate provision for the training of American cadets abroad. Hundreds of these cadets were held at concentration camps and other places for several months without suitable training. This was the more regrettable because these students embraced a large number who were exceptionally proficient, and who had gone abroad early on the assumption that they would have important and superior advantages in training. It is said that their numbers were larger than the capacity of the French and British schools which it was expected would receive them.

In his cable of March 13, Gen. Pershing speaks of the plight of these cadets as follows: P. 726, paragraph 1.

Dated MARCH 13, 1918.

For Chief Signal Officer. Approximately 700 cadets are now under flying training in Europe. These cadets had to wait an average time of three months before commencing flying training. Approximately 700 cadets in Europe awaiting flying training. These cadets have already waited from three to five months for training, and it is estimated that some of them will have to wait at least four months before their training can be commenced. All of those cadets would have been commissioned prior to this date if training facilities could have been provided. These conditions have produced profound discouragement among cadets. In order to remedy injustice and to relieve cadets in Europe on equitable basis of rank with cadets trained in the United States request approval of plan to immediately issue to all cadets now in Europe temporary or reserve commissions in Aviation Section, Signal Corps, subject to revocation in all cases where on completion of training cadets so commissioned are found not to have requisite qualifications for officers in the Air Service. If plan approved will recommend cadets by groups according to seniority. Strongly recommend approval.

PERSHING.

The Secretary of War observed this condition during his visit to France in the spring, and cabled that these cadets should at once receive their commissions, which were to be held subject to revocation if later they were not

REPORT ON AIRCRAFT PRODUCTION INQUIRY

found to be qualified. Gen. Pershing stated in his cable of March 30, 1918, that this relieved the principal difficulty so far as training was concerned and the situation as it then existed was "difficult because of lack of machines for front and not because of lack of training facilities."

Lack of Information Here as to Exact Status of Foreign Orders.

Despite constant interchange of cables, information was lacking here as to the exact status of the foreign orders. While cable inquiries had been made from time to time, it appears from a letter written by Lieut. Col. Horner for the Chief Signal Officer to Col. Bolling, as late as March 12, 1918, that the desired information had not been obtained. There had been apparently an utter lack of an adequate system of communication by which proper records could be kept here of the transactions abroad. Tables and charts of the foreign orders and deliveries were finally received here, but it seems that there still was considerable uncertainty as to the extent of the foreign obligations, and at the beginning of this investigation the extraordinary statement was made by Lieut. Col. S. E. Wolff, then head of the finance division, that notwithstanding repeated inquiries, extending over many weeks, he had been unable to ascertain within \$100,000,000 what obligations had been incurred abroad.

Agreement with French Government of May 3, 1918.

On May 3, 1918, a new agreement was made with the French Government by which the contract of August 30, 1917, was canceled. Provision was then made by the French Government for the acceptance of orders of the American Government for aeronautical material, and for the acceptance by the American Government of orders of the French Government for raw materials and other supplies. As these orders would be intended to meet, in the common interest, the military needs of each country presenting them, it was agreed that each Government should fill the orders so far as compatible with its own requirements and resources. It was further agreed that upon the arrival in France of the raw materials included in the contract of August 30, 1917, they should be delivered to the French Government on the assurance that they would be utilized in accordance with the conditions set forth in the new agreement; and also, that until the American Army should be able to meet its own requirements in aeronautical material, the French Government should place at the disposal of the American aviation units, and such instruction units as may be required, the same aviation material as used by the corresponding French units, both as to quality and quantity.

It would seem that by May 23, 1918, there had been delivered by foreign governments for our use abroad about 1,400 training planes and about 850 service planes. Since that time there have been additional deliveries, and according to a list obtained by Gen. Kenly the approximate number of airplanes received by our forces from European sources to July 31, 1918, were as follows:

School or training planes..... 1,617
Service or combat planes..... 1,512

PRODUCTION IN THE UNITED STATES.

Recommendations of Bolling Commission.

While Maj. Bolling's commission, in anticipation of delays here, placed large orders abroad, it is evident that the speediest production in this country that was possible, of a variety of airplanes and engines, was contemplated. The Bolling commission recommended for production here:

"AIRPLANES.

- "Advanced training Bristol Scout with 80 Le Rhone.
- "Division or Corps d'Armée Bristol Fighter with 200 Hispano.
- "Long-range reconnaissance and day bombing DH-4 with Rolls-Royce or some other equivalent engine to be later adopted. Fiat 300 has proved successful here.
- "Fighting or Pursuit (fixed engine) Spad with 200 H. P. Hispano.
- "Fighting or Pursuit (rotary engine) New Spad with 150 Gnome. (This airplane is now undergoing final tests.)
- "Night-bombing Caproni triplane, with 3 Isotta Fraschini 270 H. P. engines, or other equivalent engine to be later

adopted. For very long distance bombing with heavy loads the Italians are now arranging to use the Caproni biplane with 3 Isotta Fraschini engines, instead of the heavier Fiats now used. For distances of 400-500 miles (out and back included) the much greater consumption of gasoline and oil by the triplane gives it little greater bomb-carrying capacity than the biplane with Isotta-Fraschini engines and the biplane can be produced much more quickly and in greater quantities. It is also much easier to house at the front. For bombing at shorter distances nothing gives such great bomb-carrying capacity as the triplane.

"ENGINES.

- "80 Le Rhone for training purposes.
- "200 Hispano Suiza for fixed engine one-place fighters and division or Corps d'Armée airplanes.
- "150 Gnome Monosoupape for rotary engine fighters.
- "Rolls-Royce for United States production only under some special arrangement of a Rolls-Royce factory in the United States. This engine is not considered suitable for great quantity production. It also requires very skillful mechanics to keep it in commission at the front.

"While we have investigated many other excellent engines such as Renault, Fiat, Isotta-Fraschini and S. P. A. all of them are too heavy per horsepower to be recommended as engines for great quantity future production in the United States. Renault, Fiat and Isotta-Fraschini all have new designs now under test which may prove very desirable. The Bugatti engine appears perhaps to offer the most interesting future development for light weight per horsepower and ease of quantity production. The developments with our United States engine now under test are probably the most important consideration in this question of engine production in the United States. Of course, we are without any adequate information over here as to these developments."

Recommendations of Army and Navy Technical Members of Bolling Aeronautical Commission.

Capt. Clark, U. S. A. S. C., Capt. Marmon, U. S. A. R. S. C. Naval Constructor Westervelt, U. S. N., and Lieut. Child, U. S. N., the Army and Navy technical members of the Bolling commission, on their return to the United States made a report to the Secretary of War and the Secretary of the Navy under date of September 4, 1917, which embraced the following recommendations:

"23. So far as land airplanes are concerned, the types at present indicated as necessary, are the following:

- "(A) Primary training—dual control—about 90 H. P.
- "(B) One or two types of machines for training toward the fast fighter—single seater—using for the present the 80 H. P. Le Rhone rotary engine.
- "(C) Army observation—two seater—using probably between 225 and 250 H. P.
- "(D) Single-seater fighter—using a rotary engine of about 170 H. P. (If a water-cooled engine can be built which will, at altitudes, give more power per total weight than the rotary, this type of aeroplane should be eliminated.)
- "(E) Single-seater pursuit—should mount an engine which will give about 150 H. P. at 20,000 feet altitude.
- "(F) Day bomber—should mount one engine which will give about 325 H. P. at 15,000 feet.
- "(G) Night bomber—should mount two or three of the engines mentioned under (F).

"In order to minimize the number of types of engines, it might be desirable to use the same engine in the Army observation and in the single-seater pursuit. Such an engine should give about 180 H. P. at 15,000 feet."

Recommendations of Capt. (afterwards Lieut.-Col.) Clark.

Capt. Clark, who had a larger experience in aeronautics prior to our entry into the war than any other member of the commission, was the expert largely relied upon to make

suggestions as to the planes which should be manufactured. He visited numerous factories in England, France, and Italy and also observed the types of planes in operation at the front. He testifies that his final recommendations on his return to this country in early September, 1917, after learning the situation with respect to engine production here, were for the production of the following types of planes:

Day bomber DeH-9 with the Liberty direct drive, 12-cylinder high compression engine.

Army observation Bristol fighter with the same engine.

Night bomber, a Caproni triplane with 3 Liberty low compression geared engines (Handley-Page an acceptable substitute).

Two-seater fighter, a Bristol fighter with a Liberty 8-cylinder, or with that number of cylinders which should be developed.

Single-seater pursuit—the Spad, with the Hispano-Suiza.

Single-seater combat with a rotary engine, 150 H. P. Gnome.

Advanced training machine, Bristol Scout, with 85 H. P. Le Rhone.

PROGRAM AS ADOPTED.

Elementary Training Planes.

There were selected for production to be used as elementary training planes the Curtiss type known as the JN4-D, with the OX-5 engine, and the Standard type known as SJ-1 with the Hall-Scott or A-7a engine. The program called for 4,800 JN4-Ds (later reduced to 3,700, and this number was somewhat increased after May, 1918); for 1,600 SJ-1s; for 7,950 OX-5 engines, and 2,750 Hall-Scott, or A-7a engines (reduced to 2,250).

Advanced Training Planes.

For advanced training, it appears that there were originally chosen the Bristol Scout with the Le Rhone 80 H. P. engine, the Thomas Morse S-4 with Gnome 100 H. P., and the U. S. Training with the Hispano (150 H. P.). There were modifications which resulted in the adoption of the types known as S4-B (with Gnome 100 H. P.), the S4-C (with Le Rhone 80 H. P.), the JN4-H and JN6-H (with the Hispano 150 H. P.), and the Penguin (with the Lawrence 28 H. P.).

Service or Combat and Bombing Planes.

The types first selected for production were the Spad (single-seater pursuit) with the 200 H. P. Hispano Suiza engine; the Spad using the U. S.-8 engine; the Spad Monocoque, using 150 H. P. Gnome engine; the Martinsyde; the DeH-9, the Caproni and the Handley-Page, with the Liberty engine (U. S.-12). Subsequently the Martinsyde and the Spads were rejected, the production of the DeH-9 was first limited and then postponed, the Caproni and the Handley-Page were not treated as a part of the immediate program, and the plans for production were centered on the DeH-4 and the Bristol Fighter with the 12-cylinder Liberty engine (U. S.-12).

The program charts which were prepared show extraordinary variations with respect to quantities and surprising expectations as to deliveries. Thus the program for DeH-4s shows a total program on August 2, 1917, of 8,000; August 16, of 7,500; August 22, of 5,000; August 24, of 6,000; August 25, of 15,000; August 31, of 6,000; September 4, of 15,000; October 17, of 250; October 29, of 1,000, at which number it appears to have been continued until January 18, 1918, from which time it was increased until 4,500 appear in the program of February 11, 1918, and 8,000 in that of February 19 and thereafter.

According to this program or schedule it seems to have been anticipated on August 2, 1917, that 25 DeH-4s would be delivered in October, 100 in November, 425 in December, 750 in January, and 1,000 in February, and more in each of the succeeding months. Even as late as September 4, 1917, the schedule shows expected deliveries of 62 in October, 1917; 250 in November; 1,063 in December; and in the program of November 5, 50 were scheduled for delivery in December, 100 for January, etc.

The program of September 5, 1917, for the DeH-9s calls for 2,000 of this type; that of October 9 for 4,000; October 17, 6,750; October 25, 7,750; October 29, 7,000, at which it continued until January 18, 1918, when it became 7,500, to be reduced on February 1 to 5,400; and on February 12 the DeH-9 schedule was canceled.

On September 5, 1917, according to this schedule, deliveries of DeH-9s were expected

REPORT ON AIRCRAFT PRODUCTION INQUIRY

as follows: November, 1917, 50; December, 200; January, 250; and 300 in February, March, April, May, and June. On November 5, 1917, 50 seem to have been expected in January and 300 in February, 1,050 in March, 1,500 in April, 1,900 in May, and 2,200 in June. As late as January 18, 1918, 40 are scheduled for March and 500 for April.

The program for the Bristol Fighters started on August 2, 1917, with 1,000. It appears to have been raised to 3,000 on August 16, 1917, within one week it was dropped again to 1,000, and on November 26 the program was finally raised to 2,000. It seems that on August 2, 1917, deliveries of 25 were scheduled for October, 50 for November, 100 for December, 125 for January, etc. On November 5, 1917, the schedule calls for 50 in January, 150 in February, 200 in March, etc.

On August 9, 1917, the Caproni program called for 500; on August 16, for 9,000; on August 22, for 2,000; on August 24, for 500, and there were other variations until the program appears to have settled down after September 28, 1917, to 1,000. On February 19, 1918, the program dropped to 50; it called for 250 on May 3, 1918, and was afterwards increased to 1,000.

On August 9, 1917, when the program for Capronis called for 500, monthly deliveries of 100 were scheduled to begin in February, 1918. A week later, on August 16, 1917, when the program was increased to 9,000, deliveries of 900 were scheduled for December, 1,250 for January and each month thereafter. When the schedule was dropped to 1,000, deliveries appear to have been expected of 100 in February; and in February deliveries of 100 seem to have been looked for in May.

The Handley-Page program shows on September 5, 1917, a total of 1,500, with anticipated deliveries of 100 in December, 300 in January, 400 in February, etc. As late as January 8, 1918, deliveries were scheduled for February of 110, 190 for March, 200 for April, etc. On March 18, 1918, the program had dropped to a total of 50.

These programs, with their variations and schedules of deliveries, appear to be grotesque in the light of the actual facts, but they bear the imprimatur of the planning department of the equipment division with the countersign (except in the case of the DeH-9s) of official approval.

Suspension of the Program for Single-Seater Pursuit Planes.

On October 5, 1917, in reporting the failure of the Spad Monocoque the cablegram from our representatives overseas also contained the following advice as to single-seater pursuit planes with rotary engines:

"Recommend you build no rotary engine single-seater pursuit airplanes to be sent to Europe existing machines this type will be outclassed by changing time yours arrive; build only what you need for use in United States training purposes."

This, however, did not touch the Spad intended to be used with the fixed engine—that is, with the Hispano Suiza engine. That machine was not experimental. As early as July 15, 1917, there was official advice that "200 H. P. Hispano Suiza (is)-now fighting on front in Spad aeroplanes." Col. Bolling reported in his cablegram of August 1, 1917, that the Spad with that engine is "the best-fixed engine fighter now in service." There is no reason why this fighting plane should not have been produced here in quantity many months ago. The failure to do so was not due to lack of facilities, but simply to a change of opinion at a critical time as to what was advisable.

Responding to repeated and urgent recommendations for production of Spads in this country, an order for 3,000 Spads was placed with the Curtiss Aeroplane & Motor Corporation under date of September 19, 1917. But this order had barely been placed when doubt was cast upon the enterprise, and after preparation for production was well under way the order was canceled on November 7, 1917. This is the date of the cancellation, as testified by Mr. Morgan, then vice president of the Curtiss Co. It was nearly six months later that the production of a single-seater pursuit plane (the S. E. 5) was undertaken, and thus there was a serious loss of time through a reversal of judgment which was in turn reversed.

It should be noted that virtually all the cables of advice sent by our military representatives abroad are signed "Pershing," but doubtless they most frequently come from subordinate officers and, with respect to the subject under consideration, from those in charge of the Air Service overseas. In a cablegram

received here on October 5, 1917, the following appears:

If USA 8 cylinder heavier than Hispano Suiza pounds per horse power build no monoplace pursuit airplanes with USA 8 cylinder engines. Machine will be useless by time it arrives here. Increase number DH 4s or DH 9s by number monoplace pursuit airplanes. This is necessary providing USA 12 is success. Useful loads increasing so rapidly here that engines now in United States are not considered powerful enough meet requirements. Two-place pursuit airplanes considered most urgently needed airplanes next year."

The view thus set forth found support in influential quarters here. On October 27, 1917, Lieut. Col. Clark in a memorandum sent to Mr. Coffin expressed the opinion that "all fighting and bombing by day will be done in two-seaters flying in regular formation." And he added, "The single-seater will be eliminated." A few days later the following cablegram was received:

NOVEMBER 8, 1917.
No. 252 (S. D. 2709) par. 1.

"Your 359, paragraph 7, and other cables concerning American engine program. Situation here has changed much during three months since original recommendations and continues changing constantly. Following general principles appear clear to us: First, Single-seater fighter will probably become obsolete general use next year, although small numbers will always be used special purposes. Recommend you to produce number already actually under contract and started. Believe we can obtain here all this type required future above number actually under contract here and America. This applies both single-seater fighter airplanes and engines. Second, Two-seater fighter airplane with stationary engine will supersede single-seater. Four hundred horsepower probably sufficient next six months after that 500 horsepower necessary. This summarizes cables already sent you."

It will be observed that while this message recommended against further production, it distinctly stated that the number, already under contract and started, should be produced. But this was not done.

On November 30, 1917, Col. Deeds cabled:

"Curtis company have completed drawings and ordered material for Spad for 220 H. P. geared Hispanos. We have canceled that order. Tulasne suggests possibility of helping the French program by building Spad planes here to be equipped with 220 H. P. geared Hispano engines built in France. We could get production in February without materially affecting output of two-place fighters. We are not urging this because of the fact that we have ordered material which can be utilized in other machines, but if it would help your program here is a quick source for these machines."

To this there was a reply (from London) on December 14, 1917, as follows:

"* * * With reference to paragraph 1 your cablegram 461 do not recommend unfinanced production Spad airplanes for France. No such request received from French here. Believe they can produce all these airplanes they need. Think our only efforts should be applied airplanes and engines already on our program. United States should leave production single place fighter to Europe."

The Spad contract having been canceled and preparations for the production of single seaters in this country abandoned, in less than two months there was an urgent request from our military representatives abroad that Spads be produced here. As early as February 10, 1918, it was recommended that steps be taken to "put into production 1,000 Spads one-place with 220-horsepower Hispano Suiza engines for earliest possible delivery in France." It was said that "French delivery of one-place Spads very uncertain and can not be depended upon. Should have more definite information next two weeks as to whether your production Spad one-place fighter should be further increased." While this new proposal was evidently the result of the breakdown in the French deliveries, it seems that a closer inquiry into the progress of our deliveries of raw material abroad and the conditions of French manufacture would have revealed the serious importance of continuing the production of single-seaters in this country in accordance with the original program.

However, the authorities here were not then ready to follow the new recommendation, and two weeks later, on February 25, 1918, they cabled the following reply:

"Production of Spads with 220 H. P. Hispano Suiza engines does not fit well into our program because engines can not be put in

production without material delay. Probably first deliveries in France in December. We could somewhat more easily produce the 300 H. P. Hispano Suiza engine. We are now producing large number of 150 H. P. engines for training planes, and could even increase production. We believe with this information you will probably decide not to request production of Spads here. Please give us your full advice."

It was not until March 9, 1918, that this cablegram was answered, with the statement that "question being considered. Will advise you soon." On April 6, 1918, Mr. Potter cabled that the British Air Board had advised that they could supply at once 200 SE-5 planes without engines. He added, "We can arrange production for 180 H. P. Hispano Suiza engines for same at rate of five per day within 30 to 60 days. Shall we arrange engine supply. If so, will you arrange contract for planes." On the same day Col. Deeds cabled:

"We could within four weeks begin to supply 180 H. P. high compression direct-drive Hispano Suiza engines to be shipped to England, to be installed in the planes by the plane manufacturer. Would this type of fighting machine be of value to you, and if so shall we proceed to provide them for you? We are advised that this type is in successful use by the British on the front."

On April 19, 1918, the following urgent message was received from our representatives abroad:

"The United States should make immediate preparations for the production of single-seater machines to supplement those we may receive from France and England."

But on April 21, 1918, there was a further cablegram (referring to Mr. Potter's cable of April 6, 1918), stating that the whole subject was still under consideration. This message was (in part) as follows:

"Will the production of 180-horsepower Hispano Suiza engines be interfered with by contracts placed by French or English. If not, we strongly recommend production of this motor for our needs this year on following basis." (Giving delivery dates.) * * *

"The situation with reference to single-seater fighters for remainder of 1918 is as follows: Both France and England have a plane production in excess of their engine production, and as the 180-horsepower Hispano Suiza is already in production in the United States in small quantity, our only practical means of securing the necessary number of single-seater fighters will be for the production of this engine for overseas duty to be increased so as to provide the number indicated and for us to distribute these engines here month by month as conditions require. The entire question of the provision of single-seater aeroplanes for 1918 and 1919 is being thoroughly investigated, and a comprehensive report, with all data necessary, will be forwarded by an officer familiar with the entire situation."

On April 24, 1918, Mr. Potter cabled that contract could be made with the British Government for SE-5s at the rate of 30 per week beginning July 1; that 180-horsepower high-compression Hispano Suiza motors could be supplied from here for those planes at the same rate, and that the same machine could be put into production here and shipments begun in September. He asked quick advice if arrangements were desired which would permit of "quickest possible delivery of single-seater fighting planes on the front," and he added "SE-5 equipped with 180 Hispano is the only machine we can produce quickly."

To this an answer was received on May 4, 1918, disapproving the production of SE-5s, as follows:

"Production of SE-5 for 180 Hispano in America disapproved, since it appears that necessary planes for this engine can be obtained in Europe, either SE-5, Spad, or both."

This was followed on May 12, 1918, however, by a cablegram stating that the question was still open pending final report of board of air service officers and that final recommendation would be cabled in about 10 days.

On May 15, 1918, Mr. Potter cabled referring to the message from overseas of April 19, 1918, urging immediate preparation for production of single-seater fighters and calling attention to the fact that the cablegram of May 4, 1918, was an exact reversal of the former recommendation. He said:

"We took immediate action on this recommendation and have given orders for 1,000 SE-5s. Your 1052, par. 2-A exactly reverses these recommendations. In view of this inconsistent information and also due to requests for production of SE-5 from Air Division for

REPORT ON AIRCRAFT PRODUCTION INQUIRY

training purposes, we have decided not to change our orders for production on these machines, and request that samples be sent promptly in accordance with our London 81, par. 3."

The final result is that there has been no renewed order for the production of Spads, and that the order for SE-5s is being proceeded with, but that the American machine of this type is still in an experimental stage. It is understood that the machines are being tested, and that the questions which have arisen and have been brought to the attention of the authorities are receiving their consideration. We have not as yet sent from this country to the battle front a single pursuit or combat plane, as distinguished from the heavy observation or bombing planes, and, after giving due weight to all explanations, the fact remains that such pursuit planes could have been produced in large quantities many months ago had there been prompt decision and consistent purpose.

Delayed Program for the Handley-Page and Caproni Bombing Planes.

Although the Handley-Page and Caproni planes remained in the program, production was delayed. Both these types of bombing planes were included in the modified recommendations of the Joint Army and Navy Technical Board, on November 21, 1917, and these recommendations were approved by the Secretary of War and the Secretary of the Navy.

Handley-Page Planes.

On January 25, 1918, a resolution recommending a contract for Handley-Page planes with the Standard Aero Corporation was tabled by the Aircraft Board, in view of the fact that such an order might interfere with work already undertaken by the company. On February 8 the board discussed the advisability of concentrating upon the manufacture of a single type of night bomber, and it was stated that due to the lack of history as to the comparative performance of the Handley-Page and Caproni, the decision had been made to put both types into production in the United States. Arrangements had been made for the assembly in England of Handley-Page machines for the American service, and on February 19 the minutes of the Aircraft Board show that a cable had been received on February 14 by the British War Mission indicating that it would be serious to cancel these arrangements. The minutes add that in view of "a cable received February 18 from Gen. Foullos recommending the building of both the Handley-Page and Caproni types, because of the military needs for the immediate future, it was decided that at present both types should be constructed," and the Secretary was asked to keep before the board's attention the necessity of making a decision prior to July 1 concerning the concentration on the manufacture of one of these types for the year 1919.

On March 19 the Aircraft Board recommended that a contract be placed with the Standard Aircraft Corporation for the assembling of 500 Handley-Page planes and the furnishing of such parts (other than wood parts) as the Government might require, these planes to be assembled and taken down and disassembled and packed for export shipment to such extent as the engineering department should require, but not more than 10 per cent of these, that is, 50 planes to be fully assembled for testing and flying in this country. Orders for 1,000 sets of wood parts, and for various metal parts, of the Handley-Page were placed. In a letter to Col. Bloomfield, Air Division, under date of March 20, 1918, M. W. Kellogg, director of production, thus summarizes what had been done up to that time:

"2. Some time ago miscellaneous orders were placed from time to time, either by letter or word of mouth, with people that our production department felt could facilitate this matter by having manufacturers start on the work. These manufacturers, as per list attached, have done more or less work. The ones that are further advanced are the W. B. Mullins Co., of Salem, Ohio, who are supplying approximately 75 per cent of the metal parts to be used, also the Grand Rapids Airplane Co. of Grand Rapids, Mich., on the wood parts, they having at this time received about 250,000 feet of spruce and I understand that a large part of this has been in the kilns and they will start work in a short time, which we would judge to be approximately from a week to 10 days, manufacturing some of the parts. The other manufacturers are in a more indefinite condition. We are now trying to adjust the questions between them and the Signal Corps by giving them a formal contract, and

at the same time ascertaining as far as possible the exact conditions of their detail part of the work. Some of these subcontractors have very small items. As an example, the two tire companies have only been instructed to develop and make the molds for the tires and have manufactured a very few tires each. Other companies have only made dies for a very small percentage of the stampings, etc.

"3. We gave a contract a week ago for the assembling of the machines that are going to be assembled, to wit, 50, and for the marking, listing, packing, etc., for export abroad for 450, to the Standard Aircraft Corporation who, in connection with our engineers, will use their best efforts to push the work.

"4. We are just starting at this time to line up our production department on an aggressive assembling of this material and a correlation of same with a view that if it develops that any of the manufacturers are in such a position that they would seriously delay the work, to put pressure upon them to try to overcome such a condition.

"5. We are advising you of all these facts to as clearly as possible give you a picture of the situation so that you can use your own judgment and do as he sees fit in this connection.

"6. You will note that while we have ordered numerous parts for 1,000 planes, our assembling contract only covers 500. This was done with the distinct understanding that if the contractors did their work efficiently and well and in proper time, we would favor them with a further order of not less than 500 more machines."

The first Handley-Page plane assembled in this country was flown in the early part of July.

The Standard Aircraft Corporation, it appears, was able to produce the first Handley-Page machine within 90 days from the time they were given full authority for that purpose, and the testimony is that making allowance for whatever advantage existed by reason of the fact that previous contracts had been let for certain parts the first machine could have been produced, at the outset, within 120 days. Further time, of course, would have been required for quantity production, but for the long postponement of the program of the Handley-Page no satisfactory reason is shown.

Caproni Planes.

In the minutes of the Aircraft Board, under date of February 12, 1918, it was recited that the Italian manufacturer Caproni had sent to this country samples of his triplane and biplane, with his production engineer, Capt. D'Annunzio, expert flyers, and 13 factory experts to assist the United States in placing Capronis into production. On February 7, the board had recommended that a contract be made with the Standard Aircraft Corporation for the manufacture of 50 Caproni planes. Mr. Coffin urged on February 20 that plans be laid for quantity production of Capronis, to be assembled in Italy, but it was the feeling of the board that the matter should be held in abeyance until the production of sets of Caproni parts for the Italian Government were under way.

On April 11, 1918, it appears to have been the sense of the Aircraft Board that the Caproni should be put into immediate production in view of (1) repeated cable advices to that effect; (2) the actual experience in Europe with the Caproni; (3) the fact that Capt. D'Annunzio had assured the Signal Corps that there would be no difficulty in the installation of the Liberty motor. On March 21, 1918, Mr. Potter advised the board that the Italian Government did not desire a contract for the manufacture of Caproni parts in this country because of the remoteness of contemplated deliveries, and inquired the disposition of the board as to the manufacture of 50 complete Capronis, as recommended on February 7. On March 26, 1918, the question of manufacturing the Caproni was again raised in the board and after discussion was referred to the Chief Signal Officer for the consideration of Col. Waldon, with especial reference to the question of the establishment of an assembly plant in France. On April 2, a letter addressed by the Italian ambassador to the Chief Signal Officer was referred to the board, inquiring whether the American Government intended to build Caproni planes for its own use, and if so, how many. Discussion was had of the question, "in view of cables recently received urging such production and the expense already incurred by the Government in preparation therefor."

On April 23 Mr. Potter stated to the Board that a verbal order had been given to the Fisher Body Corporation for 250 Caproni

planes and that preparations for production were under way. On May 9 it was further stated by Mr. Potter that arrangements had been made with the Fisher Body Corporation and Capt. D'Annunzio for the manufacture of 500 sets of Caproni parts by that company, contract for which would be let as soon as funds were available and that preparation for production was under way, which, however, was not promised before September. Contracts were made in June, 1918, with the Fisher Body Corporation and the Curtiss Aeroplanes & Motor Corporation, each for 500 Capronis. There were arrangements several months ago, apparently of a tentative character, with the Standard Aircraft Corporation for four Capronis of which one has been built.

There appears to be no adequate reason for this long delay in putting the Caproni planes into production. If it was due to congestion in plants selected for production, this could have been obviated by a better and wider distribution of work. This is, of course, so far as the matter of plane production is concerned. The immaturity of the Liberty motor doubtless had its effect, but it would seem that orders for the motogs sufficient to meet all appropriate demands should have been distributed in such a way that there could have been no occasion for delay in the building of planes because of the lack of orders for the engines to go with them.

Postponement of the DeHaviland 9.

In his recommendation, on his return from Europe in September, 1917 the DeHaviland 9 was preferred by Capt. Clark, as the DeH-4 appeared to him to be obsolete at the time the Bolling commission was in England, and the DeH-9 was designed along the same general lines as the DeH-4, but with its weaknesses, from a military standpoint, corrected. In other words, he regarded the DeH-9 as far better suited for bombing than the DeH-4. The principal distinction is that on the DeH-9 the rear man—the gun fighter—is moved back about 20 inches from his position on the DeH-4; the pilot is moved back so that he is placed immediately in front of the gun fighter; the fuel is moved forward so that it is near the engine, and between the fuel tank and the pilot is a bomb compartment.

The contracts with the Dayton Wright Airplane Co., the Fisher Body Co., and the Standard Aircraft Corporation, originally called for DeH-9s. When, on September 22, 1917, the program, as it then stood, was submitted to Col. Bolling on behalf of the Chief Signal Officer, it called for 2,000 DeH-9s, and the reply was that the number was not sufficient and should be doubled. It may also be noted that in the same cablegram (Sept. 22) from the office of the Chief Signal Officer it was stated that the first deliveries of the DeH-9 with the Liberty 12, and synchronized Marlin piston-type airplane gun, would be made in November, 1917.

The sample machine, however, which was first received from England was the DeH-4. The DeH-9 had not yet been put into service at the front. Apparently there was no sample DeH-9 available here until at the end of February, 1918, and it seems to have been thought that progress had been made to such a degree in the developing of the design of the DeH-4 for production that it was advisable to concentrate upon the production of the DeH-4 to the virtual exclusion of the DeH-9. Consequently, in the substitution of contracts, the DeH-4 took the place of the DeH-9 and it appears that in February, 1918, directions were received from Col. Deeds and Col. Montgomery that orders for DeH-9s were to be canceled for the present, pending information from abroad.

It seems that with an adequate production program, this improved type, or its American equivalent, could have been produced here some time ago, but it has not yet been put into quantity production. It is said, however, that the DeH-9 is now "being put out of production abroad" because of the "coming in" of the DeH-9A which is a further improvement.

Result.

For obvious reasons, it is not deemed advisable to make public the details of the present aircraft program. That can be stated by the military authorities whenever they think it wise to do so. For the present purpose it may be said that the abandonment of the program for the Spads left us, until recently, without any program for single-seater pursuit planes, and that also, until recently, so far as service planes were concerned, there remained a program for immediate production which

REPORT ON AIRCRAFT PRODUCTION INQUIRY

was virtually limited to DeHaviland 4s and Bristol Fighters.

The Bristol Fighter as redesigned to take the Liberty motor proved to be a failure and after a series of fatal accidents was discarded. The Bristol was so far removed from a machine that could carry an engine of that power that it has been admitted by high authority that it was "a very foolish thing to put the two together."

Thus, nothing is left of last fall's program for service planes save the DeHaviland 4s. The course of production of these planes is hereafter stated. It appears that after the remedying of various defects, they are being successfully used as observation and bombing planes. There are certain limitations, which it is not necessary to describe, of their military effectiveness for this purpose, and machines of the later and improved types are to be provided. By reason of a lack of maneuverability the DeHaviland 4s can not serve the purpose of a pursuit plane.

Engines for Service Airplanes.

The Bolling commission's recommendations for the production of engines in the United States for service airplanes embraced the 200 H. P. Hispano-Suiza for fixed engine single-seater fighters, the 150 Gnome for rotary-engine fighters, and the Rolls-Royce for United States production only under some special arrangement for a Rolls-Royce factory in the United States. It was said that the Rolls-Royce engine was "not considered suitable for great quantity production. It also requires very skillful mechanics to keep it in commission at the front." It was added that the Renault, Fiat, Isotta-Fraschini, and S. P. A. were too heavy per horsepower to be recommended for great quantity production in the United States and that the first three mentioned had new designs under test which might prove very desirable. Special attention was directed to the development of the Bugatti engine. And this statement of the Bolling commission concluded with the observation that the developments in connection with the United States (Liberty) engine now under test "are probably the most important consideration in this question of engine production in the United States."

Rolls-Royce and Sunbeam Engines—British Experience.

There has been considerable testimony as to the feasibility of securing, in the year 1917, the early production of certain foreign engines, notably the Sunbeam and the Rolls-Royce. In order that there might be an authoritative statement of British experience, there was obtained, through the courtesy of the British ambassador, a memorandum under date of June 22, 1918, which has the authority of the British air ministry. From this it appears that when we entered the war in April, 1917, the British had in use the following airplane engines: 160 H. P. Beardmore; 150 H. P. RAF4-A; 130 H. P. LeRhône; 130 H. P. Clerget; 190 H. P. Rolls-Royce; 150 H. P. Hispano-Suiza; 275 H. P. Rolls-Royce; 320 H. P. Cosack Sunbeam; 230 H. P. RAF3-A. The following engines at that time (April, 1917) were "coming on": 150 H. P. BR-1; 180 H. P. Viper Hispano; 220 H. P. Geared Hispano; 200 H. P. Arab Sunbeam; 220 H. P. B. R. 2; 270 H. P. Falcon, Rolls-Royce; 140 H. P. Clerget; 375 H. P. Eagle Rolls-Royce; 260 H. P. Maori Sunbeam. With respect to these engines, the memorandum furnished by the British ambassador contains the following statement:

"Of those 'in use' in April, 1917, all were good reliable engines, but it was obvious that they could not remain in the front rank for very much longer.

"Of those 'coming on' the two Rolls-Royce engines and the 180 Viper Hispano were practically certain to be a success.

"The others were undeveloped and could not have been recommended at that time; so that in April, 1917, no Sunbeam engine could have been recommended for manufacture in America, and the general opinion in England was that the Rolls-Royce was quite unsuited to American methods of production."

A further communication from the British ambassador states that what is quoted above on the Rolls-Royce and Sunbeam may be taken to apply equally to July and August, 1917. It should be added that in 1917 Col. Bolling cabled advising against the production of the Sunbeam engine in the United States.

The Hispano-Suiza Engine.

A different situation existed with respect to the Hispano-Suiza engine, which had been

used extensively abroad. In the summer of 1917 the 150 H. P. Hispano-Suiza engine was in production at the plant of the Wright-Martin Aircraft Corporation at New Brunswick, N. J. That company had received an order from the French Government in February, 1916, for 450 of these motors. Although the contract was to be fully performed by the late summer of 1916, there was serious delay and deliveries did not begin until March, 1917. This delay was due in large part to the difficulty of putting into production an article of very fine workmanship and material which was entirely new to American shop practice. The greatest problem in this sort of work has been the procurement of materials of proper refinement and texture. The delay was also apparently due in considerable measure to conditions which could have been remedied, and a comparatively small force was engaged on the Hispano-Suiza motor work during the year 1916, the main effort of the company at that time being motor-car production. (Since the fall of 1917 virtually all the facilities at the New Brunswick plant of the Wright-Martin Corporation have been engaged in the manufacture of airplane engines.) By September 1, 1917, 202 engines had been delivered under the French contract, and by October, 1917, the difficulties had been surmounted; in that month 117 were produced and the French contract was completed in November, 1917.

The Signal Corps placed a number of contracts with this company, reflecting changing purposes. Under date of July 31, 1917, it placed a contract for 500 of the 150 H. P. Hispano (type A). In September, 1917, a further contract was made for 500 of the same type and this was canceled on October 2, 1917. On the latter date the company received a contract for 4,000 of the 220 H. P. Hispanos (type F), which were the 150 H. P. engines geared to high speed. This contract was cancelled on November 13, 1917, and was replaced by the contract of that date for 1,000 150 H. P. Hispanos (type A). On November 20, 1917, the company received a contract for 3,000 300 H. P. Hispanos (type H) which was modified by two contracts in the present year postponing the delivery dates, the second of which (May 11, 1918) provided for the manufacture of the 300 H. P. Hispanos in Long Island City and for a further postponement of deliveries. On February 2, 1918, another contract was awarded to the company for 1,000 150 H. P. Hispanos (type A). On February 25, 1918, a contract was made for 1,000 type E or I Hispanos; and on May 25, 1918, another contract for 1,000 type E or I Hispanos was placed with the same company. Type E is Type A modified as to connecting rod construction, magneto drive construction, and the piston design so as to make possible the carrying of a higher compression and thereby greater power, that is, 180 H. P. at normal speed. Type I is 150 H. P. and has all the improvements of type E except the high compression.

The 300 H. P. Hispano (type H) was in an experimental stage last November and the first deliveries now due of type H are in October. Under the contract of July 31, 1917, for 500 150 H. P. Hispanos deliveries were to begin 90 days from date of contract and determination of final details. Subsequently, October 25, 1917, was fixed as the date from which the 90 days were to be reckoned and the deliveries were actually completed in February. Under the contract of November 13, 1917, for 1,000 150-horsepower Hispanos, deliveries were to be completed in April 1918, and with the exception of one motor they were completed in May, 1918. Under the contract of February 2, 1918, for 1,000 150-horsepower (type A) motors, deliveries were to be completed in July and, by the end of July, 988 had been delivered.

The type A, or the 150-horsepower Hispano, has been used for the advanced training plane known as the JN-4H. The 180-horsepower Hispano is adapted to single-seater pursuit planes such as the Spad or the SE-5 and is now in course of delivery.

On July 25, 1917, the Wright-Martin Aircraft Corporation submitted to the Aircraft Production Board a schedule for proposed deliveries of the Hispano-Suiza motor "of either direct driven or geared specifications" amounting to approximately 7,000 over and above the deliveries then due on the French contract. The offer was on the condition that "orders are placed with us or some definite arrangement made for same at once, so that we have sufficient assurance to warrant us in making the necessary capital expenditures and providing further that arrangements can be made for the Government to furnish us with the necessary working capital in excess of our present resources."

There is ample basis for the conclusion that had there been a sustained effort to produce single-seater pursuit planes, and with this definite purpose adequate orders had promptly been given so as to justify the provision of additional facilities by this company and the speedy utilization of its highest capacity, engines for these pursuit planes could have been delivered in quantity through the winter and spring and large numbers of these engines would have been available by July 1, 1918, in addition to the production needed for advanced training planes and without interfering with the development of the high-power Liberty motor. This is aside from what could have been accomplished through timely arrangements made for production by other companies.

Rotary Engines.

In the cable of October 5, 1917, in Gen. Pershing's name, it was recommended that "no rotary engine single-seater pursuit aeroplane" should be built here to be sent to Europe. On November 8, 1917, Brig. Gen. Saltzman, acting chief signal officer, requested the opinion of the Joint Army and Navy Technical Board as to the extent to which rotary motors should be included in the building program for airplanes and engines in the future. In response, the Joint Army and Navy Technical Board replied that as "the tendency in the design of fighting airplanes" appeared to point toward two-seater fighters of maximum power, it was believed that in the general building program for the coming year "rotary engines should be considered of secondary importance." It was added, however, that in order "to anticipate improvements in the art or changes in the military situation" it was desirable that the art of building rotary engines be retained in the United States, and that for this purpose "the organization skilled in rotary engine production be preserved." Referring to the schedule of production of rotary engines, the board expressed the opinion that the order for 2,500 80 H. P. LeRhône engines was larger than was necessary to preserve the art and that this order should be reduced to the minimum number that would accomplish the purpose, and it was further recommended that steps be taken to preserve the possibilities of production of the 160 H. P. Gnome engine. The immediate occasion of this inquiry was the pending question whether the Government should purchase the plant of the General Vehicle Co., of Long Island City, which was manufacturing Gnome motors. This purchase was made but the manufacture of Gnome motors was continued at this plant for a time. In May arrangement was made for the use of the plant by the Wright-Martin Aircraft Corporation in the building of 300 H. P. Hispano-Suiza. Additional orders have been placed for LeRhône engines. The rotary engines have been used for advanced training planes.

The Liberty Engine.

In the latter part of the year 1914 the Packard Motor Car Co. decided to go extensively into the development of air motors. It had received one of the Mercedes motors, used by the Germans in their airplanes, which had been imported in a racing chassis. Taking certain features from that motor and from other motors, an engine was designed in 1915, a duplicate of which was used in a racing car. This engine developed 140 H. P. at 3,600 revolutions per minute. Another model, with greater power, was completed in December, 1916, and was also used in a racing car; this was rated at 200 H. P. at 2,180 revolutions per minute. It was described in a pamphlet exhibited at the Aeronautical Show in New York in January, 1917, as "The Packard Aircraft Engine," exhibited "as a stimulant to the new aviation industry." The work of developing these motors had been under the direction of J. G. Vincent, then vice president of the Packard Motor Car Co. in charge of engineering. In the latter part of May, 1917, Mr. Vincent took his drawings to Washington for the purpose of laying before the Government the plan of the Packard Co. to manufacture these engines in large quantities through enlisting the aid of other automobile manufacturers who had experience in high-grade motor work. Mr. Vincent met Mr. Deeds, Mr. Waldon, and others. The design was not deemed to be adequate for the needs on the western front and it was necessary to increase the horsepower of the motor with lighter weight per horsepower. Mr. Vincent worked in Washington in conjunction with Mr. E. J. Hall, of the Hall-Scott Co., making sketches for the purpose of improving the motor, and

REPORT ON AIRCRAFT PRODUCTION INQUIRY

In a few days a new motor was designed embodying to a considerable extent the engineering features which had been developed during the past two years of experimental work. The first efforts were directed to the development of an 8-cylinder motor, and in a few days Mr. Vincent returned to Detroit, taking the Washington sketches for the purpose of having a wooden model made by the Packard Co., and this was done. At the request of the authorities, Mr. Vincent was loaned by the Packard Co. in order that he might take charge of the engineering division of the Aviation Section of the Signal Corps. The Packard Co. made a full-sized operating model, which was sent to the Bureau of Standards on July 3.

Later, about August, 1917, the production of an 8-cylinder engine was postponed and the immediate production of a 12-cylinder engine of the same type was decided upon. In developing the design for the purpose of quantity production various difficulties were encountered. Aside from minor changes found to be necessary in the course of production, the crank shafts, connecting rods, and bearings in the first 1,000 engines were too light, creating a dangerous condition. The crank shafts, connecting rods, and bearings had to be redesigned. It was also found to be advisable to change the system of lubrication and, again, it was difficult to obtain a development of radiators that were suitable for a motor of this size. As late as June 25 of this year Gen. Pershing's cable described a series of defects in the motors which had been shipped abroad and these, it is understood, were speedily remedied.

It now appears to be conclusively established that the Liberty engine is a great success for observation and bombing planes, and for this purpose it has found high favor with the allies. It is too heavy for the lighter pursuit planes. The following statement furnished by the British ambassador with respect to British opinion of the Liberty motor, was received on June 22, 1918:

"No bench tests have been applied to the Liberty engine in England but tests in the air, similar to those applied to British engines, have been carried out on a DH 9-A with satisfactory results. Bench tests in France were observed by members of the British technical department and were satisfactory. The tests carried out in France were the standard French tests and do not differ very largely from the standard English tests, except that the power output was taken with a fan brake instead of a Froude water brake, as generally used in England. The results were excellent, except that the design of crank shaft and connecting rod was found to be faulty, but this was well known and had been modified in the United States. The carburation was also found to be unsatisfactory but is now in course of being remedied.

"The official opinion of the Liberty engine is that it is an engine which, with a natural development in the perfecting of its details, will prove reliable and up to the power and consumption standards that have been claimed. It is eminently suited for bombing and reconnaissance aeroplanes, but not for fighting aeroplanes. The number of engines actually ordered for the British Government is 980, but 4,500 are required by the end of the year. The British Government would have prepared to place an order for 3,000 at once, but at the desire of the American Government, the order was limited to 980, the number which was allocated for delivery up to the end of June. Up to date, 205 engines have been delivered from the works.

"The following is the text of a telegram received from the air ministry on June 8:

"The British technical authorities have reported to the air minister that the Liberty engines have now been subject to sufficient air experiment in England to warrant confidence in this engine. Excellent results have so far been obtained which place the engine at once in first line of high powered engines. Naturally, service experiment in the field is still to be obtained but the Liberty engine will be a most valuable contribution to the allied aviation program and the United States should develop production with every confidence."

The following further statement was supplied by the British Air Ministry, under date of September 27, 1918:

"No severe bench tests on the Liberty engine were carried out in England, owing to the extensive tests in America.

"The only bench test in England was one short test, at nine-tenths power, for data re oil and fuel consumption. The result was quite satisfactory.

"One engine was stripped after 100 hours flying and was found to be in good condition.

"Tests in the air have been carried out in de Havilland 9-A and de Havilland 10, machines. In these the engines have performed uniformly satisfactorily.

"The performance of the Liberty engine is at least as good as that of the Rolls-Royce in identical machines. The information officially expressed four months ago, that the Liberty engine would prove satisfactory in service, is wholly confirmed."

The facts as to production will be given later.

FIFTH. SELECTION OF CONTRACTORS AND DISTRIBUTION OF WORK.

Selection of Contractors.

For engines to be used in training planes, there were orders (to June 30, 1918) for 7,950 OX-5s distributed among the Curtiss Aeroplane and Motor Corporation, the Willys-Morrov, and Willys-Ovairland companies. Orders for the Hall-Scott engines (2,250) were placed with the Nordyke & Marmon Co. and the Hall-Scott Motor Co. The General Vehicle Co. received an order for 111 Gnome engines (100 H. P.), and the unfilled portion of this order was taken over by the Aeronautical Engine Co., which also received certain additional orders for engines of the same type, when the latter corporation was organized to conduct operations at the plant of the General Vehicle Co. after its purchase by the Government. The Union Switch & Signal Co. had orders for 2,500 Le Rhone engines (80 H. P.). The orders for the Hispano-Suiza engines placed with the Wright-Martin Aircraft Corporation have already been sufficiently detailed (ante, p. 96). In addition, orders for 450 of the Lawrence engine (28 H. P.) were placed with the Excelsior Motor Manufacturing Co., and an order for 2,000 Bugstis was given to the Duesenberg Motor Corporation.

In the summer and fall of 1917 contracts were entered into for the manufacture of 22,500 Liberty motors, as follows:

August 31, 1917, Lincoln Motor Co.	6,000
September 4, 1917, Packard Motor Car Co.	6,000
September 7, 1917, Nordyke & Marmon Co.	3,000
September 11, 1917, Trego Motor Corporation	500
November 22, 1917, Ford Motor Co.	5,000
December 11, 1917, General Motors Corporation	2,000
Total	22,500

The contract with the Trego Motor Corporation was subsequently canceled. [It is understood that it has been taken over by the Ordnance Department, for tanks. It is canceled so far as its relation to aircraft is concerned]. Only one engine being delivered.

For the production of elementary training planes of the type known as the JN4-D, reliance was placed chiefly upon the Curtiss Aeroplane and Motor Corporation, which had already made planes for the British Government. Substantial orders were also given to the Springfield Aircraft Co. and the Canadian Airplane Co. (Ltd.), of Toronto. A number of small orders were placed from time to time with various concerns. The total orders to June 30, 1918, were for 3,975 of the JN4-D type.

The orders for the Standard-J training planes were distributed among the Dayton Wright Airplane Co., the Fisher Body Corporation, and the Standard corporations (Standard Aero Corporation and Standard Aircraft Corporation). The total orders were for 1,600 of this type.

For advanced training planes there were orders given to the Curtiss Aeroplane and Motor Corporation (to June 30, 1918), for 919 JN4-H and 479 JN6-H; to the Thomas Morse Aircraft Corporation (for 100 S4-B and 400 S4-C), and to the Breese Aircraft Corporation (for 300 Penguins).

With respect to both elementary and advanced training planes there were also various orders for spare parts.

In service planes the production of the De Havilland-4s was pivoted upon the work of the Dayton Wright Airplane Co. in connection with the designing of the plane for American production, as hereafter explained. There were contracts for 8,500 of the DH-4s as follows:

Dayton Wright Airplane Co.	4,000
Fisher Body Corporation	4,000
Standard Aircraft Corporation	500
Total	8,500

The contract for the Bristol Fighters (2,000) was given to the Curtiss Aeroplane and Motor Corporation.

In view of the exigency, it was inevitable that the responsible officials of the Signal Corps entrusted with the duty of aircraft production should exercise a broad authority, virtually unhampered by restrictions, in the selection of contractors. The Aircraft Board, in which the responsible Army officers sat as members, afforded a useful opportunity for the comparison of views, but not a legal, and only to a limited extent a practical, check. There have been numerous complaints from individuals and corporations who sought contracts unsuccessfully. The extent to which activities were centered at Dayton, the profitable contract promptly given to Col. Deeds's former business associates, and the preference of a small group of manufacturers in the allotment of the large contracts, created a feeling of distrust which finds frequent expressions in the record of this inquiry.

There could be no well-founded objection to a well-directed effort to standardize products for production in large quantities under conditions favoring the most economical and efficient work. So far as orders for production of planes in small quantities and various spare parts are concerned, to give an adequate statement of the facts with respect to the companies who received, or which asked and were refused, contracts would require a great variety of detail which it is impracticable to set forth. It does not appear that in the award of these contracts there was adherence to any clearly defined principle. It is sufficient to say that in many instances the parties complaining have no ground for their complaints, save that others in no better situation obtained what the complainants were denied. For while offers or requests of some manufacturers went unheeded because of alleged lack of proper facilities or of assured financial ability, in other cases contracts were made with parties equally destitute of adequate resources. Among those whose facilities were apparently adequate, some were taken and others were left.

But aside from any question of discrimination between manufacturers, it is obvious that the exigency demanded that important and needed sources of supply should not be neglected, and in this connection, without attempting to make a comprehensive statement of other available resources, the case of the Singer Manufacturing Co. deserves special attention.

Singer Manufacturing Co.

While this company had no experience in the building of airplanes, it had perhaps the largest plant in the country for cabinetwork, and one of the largest veneer plants, and its facilities available for the processes demanded in aircraft production were hardly excelled in the country. As Col. Waldon testifies, "There was every reason why they should be successful in airplane manufacture." The officers of the company were not seeking contracts, but they offered its facilities to the Government and these were not utilized. As early as July 14, 1917, Mr. Waldon, of the Aircraft Production Board, requested an interview with the vice president of the Singer Sewing Machine Co., and this was had. Later representatives of the Singer Co. visited the plants of the Curtiss Co., the Dayton Wright Co., and the Canadian Airplanes, Ltd., of Toronto, and an interview was then had with Mr. Deeds and Mr. Waldon, on August 14. Up to that time the manufacture by the Singer Co. of 3,000 training planes had been under consideration, but it was then suggested that it should build 1,000 service planes of the DeH-4 type. Before undertaking this work the representatives of the Singer Co. desired to examine the sample DeH-4 at the plant of the Dayton Wright Airplane Co. The letter of introduction to that company, however, revealed the fact that the whole proposition was still very indefinite. The letter (Aug. 15, 1917) stated:

"We are asking the Singer Sewing Machine Co. to conduct such investigations as is possible while we are making up our minds as to the part of our program they are to fulfill. When they were here yesterday we suggested that they should help in the DeH-4 production. This is not definitely settled, and they may be given some other part of the program, but we would like to have them given the privilege of an opportunity to study the details of the DeH-4, inasmuch as it represents the latest type of barge war machine from abroad."

On receiving this letter the vice president of the Singer Co. telegraphed Mr. Waldon that it was so indefinite that the trip would

REPORT ON AIRCRAFT PRODUCTION INQUIRY

be postponed until it was decided whether it was desired that they should undertake the building of the DeH-4. To this Mr. Waldon replied, under date of August 16, as follows:

"We are promptly in receipt of your telegram about the indefiniteness of our letter of August 15. Since your visit we have received a cablegram which indicates that there will be a very important change in our program, in all probability causing us to change the type of machine you would build. This was the reason I stated in my answer that it was not definitely settled that you would build the DH-4. It will be in your hands, however, whether you go to Dayton and look over the DH-4 as a sample of an up-to-date war machine. The one we have in mind now that we would ask your assistance upon would be quite a little larger than this."

On August 17 Mr. Waldon telegraphed "change in program will probably make it necessary to assign a type other than DH-4." On August 20 the Singer Co. informed Mr. Waldon that they had decided to postpone their trip to Dayton "until it is more definitely settled what you wish us to do for you." In a postscript to this letter it was stated that the Singer Co. had been requested by the British Government to duplicate their order from that Government for certain airplane parts (universal joints), and they asked whether there was any objection to their undertaking this additional work. An answer was received on August 23 that this was entirely satisfactory. This additional work for the British Government required the services of perhaps 100 persons, and left the Singer Co. quite free to undertake the making of planes for the Government, but no further word was received and no order was given to the Singer Co. In the light of the correspondence no explanation has been given of the failure to enlist its important resources for the purpose of aircraft production.

Engel Aircraft Company, of Niles, Ohio.

In view of the former connection of Mr. Harry E. Baker, the brother of the Secretary of War, with the Engel Aircraft Co., the facts with respect to its organization and its contracts with the Government should be set forth.

The company was organized about August, 1917, under the laws of Ohio. Mr. Harry E. Baker testifies that it was originally intended to have a capital stock of \$3,000,000 (preferred \$1,000,000 and common \$2,000,000), but this was subsequently reduced to \$1,500,000 (preferred \$500,000 and common \$1,000,000). Mr. Harry E. Baker, of Cleveland, was president and general manager. His associates in the organization of the company were Mr. Engel, vice president and production manager, and Mr. Petterson, secretary and treasurer.

Mr. Baker had taken an option in the spring of 1917 for the plant at Niles, Ohio, formerly owned by the Engel Airplane & Motor Co., and this was taken over by the new company, which, in effect, issued his preferred stock therefor, at a cost of about \$225,000. The remainder of the preferred stock was sold for cash. The preferred dividends and, as Mr. Baker states, was to be retired at par before the common stock participated in earnings. The common stock was issued to Mr. Baker and his associates for services in promotion. As an officer of the company, Mr. Baker received a salary at the rate of \$7,000 a year.

On October 9, 1917, the Aircraft Board recommended that an order be placed with the Engel Aircraft Co. for spare parts for 100 JN4-D training planes, at the aggregate price of \$80,827.80. At the meeting of the Aircraft Board on October 19, 1917, it was recited that the Equipment Division had recommended that a larger order be placed with the Engel Co., and the board thereupon rescinded its resolution of October 9, and recommended that an order be placed with the Engel Co. for spare parts for 700 JN4-D airplanes at a total cost of \$585,077.50. Following this contract for 700 sets, Mr. Baker states that there were further orders from the Government during his connection with the company for 200 sets of spares for JN4-Ds, 200 sets of spares for JN4-Is, and another order of 100 sets of spares for JN4-Ds, the aggregate orders being for 1,200 sets of spares at a price of about \$1,000,000. Mr. Baker testifies that he ceased his connection with the Engel Co. on January 21, 1918.

The Secretary of War testifies that either before or after our entry into the war his brother (Harry E. Baker) asked him whether

there was any reason why he should not go into the manufacture of a certain flying boat for the Navy, in association with one Engel. The Secretary told him that he knew of no reason why he should not. Later his brother informed the Secretary casually that they were going to make airplanes, and asked if the Secretary objected. The Secretary replied that he had no right to object, but did not wish to be consulted about it; that he had nothing to do with it. Later, the Secretary discovered that the Engel Aircraft Co., of which his brother was president, had a contract with the Government, which was not a competitive contract, but one which had been given upon an inspection of the facilities of the aircraft company. The Secretary sent for Gen. Squier and asked for the facts. The Secretary regarded the situation as intolerable and directed that the contract should be canceled. Thereupon it was immediately canceled by telegraph and arrangements were made, through Mr. Eugene Meyer, jr., (acting for the Secretary) for the separation of Mr. Harry E. Baker from the company. The Secretary thought it was just that his brother should be paid on the basis of the value of any services he had rendered, but that his complete separation from the company was necessary before a contract should be regarded as possible.

Mr. Harry E. Baker testifies that, in January last, he was informed by telephone that all of the contracts of the Engel Co. had been cancelled; that he immediately went to Washington and had an interview with Assistant Secretary of War Crowell, who told him that his association with the aircraft business was embarrassing to the Secretary of War, and that he should retire from it. He said that he had no desire to furnish cause for embarrassment, and accordingly, after an interview with Mr. Meyer, he turned back to the treasurer of the company all of the stock that he had in his name and resigned as president and general manager. Mr. Baker testifies that the company paid him nothing for his stock. In addition to the payments of salary which, according to his testimony, he had received for two months at the rate of \$7,000 a year, Mr. Baker says that he was paid on his retirement the sum of \$15,000 in consideration of the services that he had rendered.

Being assured that the separation of his brother from the company had been effected, the secretary notified Gen. Squier that the capacity and merits of the company were the only matters to be considered. All the contracts were immediately reinstated on the same terms. Subsequently an additional order was given to the Engel Co. for 500 sets of spares for DeHaviland-4s, at an estimated cost of \$2,275,000.

Distribution of Work.

Quite as important as the selection of contractors and the development of adequate sources of supply, was the distribution of work so as to insure prompt and efficient production. Each type of plane requires special preparation and the demands of varied sorts of work may easily be mutually restrictive and demoralizing. A conspicuous instance of this is furnished in the case of the Standard Aircraft Corporation. This company with its predecessor (the Standard Aero Corporation) had the unusual features of being a manufacturing corporation under the direction of two lawyers, Harry Bowers Mingle and Max J. Finklestein, of the firm of Mingle & Finklestein, of New York City. It is unnecessary to review the financial history of the two Standard corporations, with their plants at Elizabeth and Plainfield, N. J. It is sufficient for the present purpose to say that from the time of the organization of the Standard Aircraft Corporation in November, 1917, it has been the operating company, except that recently the Standard Aero Corporation has been availed of, and it has taken the plant at Plainfield for the purpose of handling fixed-price orders, the cost-plus contracts being in course of performance at the large plant at Elizabeth. Both these corporations are controlled by Mitsui & Co., a leading Japanese firm, which holds all the preferred stock and a majority of the common stock of each company. The orders which have been given by our Government to one or the other of these Standard companies exhibit an extraordinary range of types embracing training planes of the Standard-J type, six machines and spares of the JR-1B type for the Post Office, advanced training planes of the M-Defense type, four Capronis, the assembly of Handley-Page planes, 500

DeHaviland-4s, as well as flying boats for the Navy and various orders for small parts. The effect was to put in this plant almost every variety of airplane work, a proceeding which has no justification from a production standpoint. Mr. Charles H. Day, the chief engineer of the Standard companies, whose ability is generally recognized, frankly admits the serious disadvantage of this multiplicity of orders. He says:

"There is a natural amount of confusion in having a multiplicity of those parts. * * * The engineering personnel is limited by the number of different machines you have to produce, and the executive force is limited by the same amount. The physical layout of the factory itself is very seriously affected. * * * We have on the HS boat job made entirely our own drawings. It was out of the question to work to the drawings which were supplied us and we therefore redrew the entire job. That occupied a great amount of time of the drafting room and the engineering departments of the Standard Aircraft. Then a great amount of drawing has been necessary on the DeHaviland 4, it being impossible to get Van Dyke drawings from the Signal Corps, and we have attempted to draw up a great deal of that machine, and we have redrawn in its entirety the Handley-Page machine. That involves the engineering department and the drafting department and the bill of materials department, sometimes known as the specification department, which is one of the most important we have, inasmuch as under the present regulations we are not allowed to purchase material except we bill the material. The approvals officer will not approve the materials except on the basis of a bill of materials supplied, and making the bills of materials and completing the drawings on all these different machines has been extremely difficult.

"Q. Have you had in your drawing department the HS boats for the Navy, that is the seaplane, the Handley Page planes, and the DeHaviland planes, all being worked out at the same time?—A. Yes, sir."

On the same point, Mr. Day again testified: "The order for the DeHaviland-4s is a very small order comparatively. * * * If we were to turn over our plant entirely into building the 500 DeHaviland-4s and had a go-ahead on 500 DeHaviland-4s, it would not last very long. We expected early in this year and were preparing to take over a large order for Capronis. That was before we had the DeHaviland machines, and it was supposed to be a thousand Capronis. That was a fair-sized order, and we expected we would have that alone and nothing else. But that was withdrawn, and the order for 700 sets of spare parts for the Bristol and 1,500 sets of spare parts for the DeHaviland-9 was given us, and that was a pretty fair-sized order. That in itself would have been sufficient for some length of time, but both of those orders were recalled. The interference, so far as spare parts of machines is concerned, would have been less than the interference caused by two orders for complete machines. It has been impossible for us to obtain a large enough continued order to actually know what we were going to do and to prepare for doing it."

Criticisms upon the management of the corporation do not excuse such a state of affairs. If a manufacturing corporation is to be entrusted with work, it is manifest that it should be given the work it can handle efficiently; and if its efficiency is distrusted, there is still less reason for embarrassing it with confusing orders. On the other hand, if it is deemed capable of successful production it should have a suitable opportunity to develop it. The effect of placing such an assortment of orders, coupled with the difficulties besetting production in this new industry, has not only interfered with production, but has promoted waste, made it exceedingly difficult to maintain proper cost accounts, and has confused responsibility for delays.

Other illustrations of a poor distribution of work might easily be given; the result of it is that one part of the Government's program has stood in the way of another.

SIXTH. THE COURSE OF PRODUCTION—DELAYS—MISLEADING PUBLIC STATEMENTS.

It is not deemed to be necessary to review in detail in this report such delays as occurred in the delivery of training planes and engines therefor. As early as February 16, 1918, 1,733 had been delivered of the JN4-D and 683 of the SJ-1 elementary training planes. As already stated, 2,972 of the JN4-D

REPORT ON AIRCRAFT PRODUCTION INQUIRY

had been delivered by June 30 and the total order for the SJ-1 (1,660) was completed by May 11, 1918. By February 16, 1918, there had been delivered 1,438 of the OX-5 engines and 1,083 of the A-7a engines and deliveries continued from week to week.

The elementary training planes of the JN-4D type seem to have been satisfactory. In connection with this phase of the execution of the aircraft program it should be said that the general average of accidents in training for all the camps in the United States, is one accident for every 3,200 to 3,600 hours of actual flying. The worst school, in this respect, is one accident for every 1,900 hours of flying and the best school shows one accident for every 4,800 hours of flying. While it is somewhat difficult to obtain comparative statistics with respect to accidents in French and British training camps, it is believed from reports from our officers serving in the English and French schools that we have about twice as much flying per accident as either of the other nations.

The condemnation of the SJ-1 plane as dangerous, because of the Hall-Scott engine, has already been mentioned. It is to be noted that as early as February 12, 1918, the Joint Army and Navy Technical Aircraft Board passed a resolution reciting the opinion of the Board "that the Standard airplane as completed with the Hall-Scott engine is not a satisfactory training machine" and recommending "that if it is necessary to make further purchases from the Standard Co. of types that have been developed by them, that such machines be of the type designed for the installation of the Hispano-Suiza engine and the 150 Hispano-Suiza engines be purchased for these machines." The Standard J training plane with the Hall-Scott engine continued to be used until it was condemned in June, 1918, on Gen. Kenly's return from overseas and after his careful examination of its operation. The order of Gen. Kenly, under date of June 6, 1918, is as follows:

"1. Due to the shortage of training-type airplanes in the past it was necessary to use a certain number of Standard J-1 airplanes for training as filler-in until there were sufficient JN-4 machines manufactured for all schools.

"2. At the present time there are sufficient JN-4 machines in storage to entirely replace all Standard machines in use. The Director of Military Aeronautics therefore desires that no more Standard airplanes be used in flying training and that steps be taken at once to entirely replace the Standard J-1 machines now in use by JN-4 airplanes. The Standard machines can be utilized in Mechanics' Training Schools, Ground Schools, and any other schools where it is not necessary that they be taken into the air."

With respect to advanced training planes, it may be said that by February 16, 1918, 60 had been received of the S4-B and 105 of the JN4-H. The delivery of Penguins did not begin until the middle of April, and of S4-Cs until May. There had been delivered by February 16, 1918, 121 of the Gnome (100 H. P.) and 444 of the Hispano (150 H. P.) engines. Deliveries of the Lawrence (28 H. P.) began in March and of the LeRhone (80 H. P.) in May, 1918.

Service Planes.

As already stated, the program during the period under consideration and until recently has been practically limited to the DeHaviland 4s and the Bristol Fighters.

The DeHavilands.

The contracts for these planes, after the substitution of DeH-4s for DeH-9s, called for 8,500 DeH-4s, viz: Dayton Wright Airplane Company, 4,000; Fisher Body Corporation, 4,000; Standard Aircraft Corporation, 500.

Under the first contract with the Dayton Wright Airplane Company (dated September 7, 1917), deliveries of the DeH-9s then provided for were to begin in November, and the entire 2,000 were to be delivered by the end of June, 1918. Under the modified contract of January 17, 1918, for 1,000 DeH-4s and 3,000 DeH-9s, deliveries were to begin in January and to be completed by the end of July, 1918. Under the final contract (April 1, 1918), substituting 4,000 DeH-4s, the latter were divided into two lots of 2,000 each, the first lot for immediate production to be delivered by August 1, 1918, and the remainder to be delivered as ordered.

The first DeH-4 was shipped from the plant of the Dayton Wright Airplane Co. on February 5, 1918. It was intended for the

American Expeditionary Forces in France, but it was not completely equipped; it did not have any bomb gear that would work. On February 14, 1918, the following telegram was addressed by Mr. Talbot to Col. Deeds:

"Wire received reference Secretary Redfield and Dr. Stratton. Maj. Shepler advises first 100 DeHavilands to remain in this country. If so, will you recall plane shipped for foreign shipment, allowing us to substitute plane completely equipped. Progress here encouraging."

However, the plane already shipped, was not recalled. The transport containing it sailed on March 22 and, on account of engine trouble in the Azores, it did not reach Europe until May 4.

Nine additional DeH-4s were shipped by the Dayton Wright Airplane Co. in February for the use of various fields; two on the 15th, one on the 16th, and two on the 17th, intended for Gerstner Field in Louisiana; one on the 21st for McCook Field (which was sent to South Field); one on the 22nd for the Fisher Body Corporation; one on the 23rd for the Standard Aircraft Corporation, and one on the 25th for McCook Field. Four were shipped in March; two for Gerstner Field on the 9th and 12th; two for McCook Field on the 10th, and one on the 21st was delivered to the Property Officer at the Dayton Wright Airplane Co.

There were no shipments for the American Expeditionary Forces between February 3 and April 3, 1918, when four were shipped; four more were shipped on April 14 and four on April 22, and there were no more shipped for use abroad until May 2, 1918. That is to say, up to May 2 there had been thirteen DeH-4s shipped for our forces abroad. It was in May, 1918, that what may properly be called quantity production of DeH-4s began. By the end of that month 193 DeH-4s, and by the end of June 529 DeH-4s had been delivered by the Dayton Wright Airplane Co. Of these 529, it appears 381 had gone to ports of embarkation, 116 to the Navy, and 32 to various destinations in this country, including training fields.

On June 25, advises were received that there were serious defects in the planes which had been received abroad. At the meeting of the Aircraft Board on July 31, Col. Arnold stated that all planes shipped to Europe by the Army which were found on arrival to have weaknesses were rebuilt at the aircraft production centers. At the same meeting, Mr. Potter stated that the DeHaviland planes for the Navy which had been shipped from the factory but were not yet floated should be sent back to the Dayton Wright Co. to be rebuilt.

From June 30, to October 11, 1918, the Dayton-Wright Airplane Co. delivered 1,320 DeH-4s, making 1,849 in all to the latter date.

In the contract with the Fisher Body Corporation (Nov. 6, 1917) provision was originally made for 3,000 DeH-9s, the deliveries to be completed before July 1, 1918. For these there were subsequently substituted 4,000 DeH-4s, of which 2,000 were to be delivered by September 1, 1918—afterwards extended to November 1, 1918—and 2,000 more at dates to be fixed. Up to June 30, 1918, no deliveries of DeH-4s had been made by the Fisher Body Corporation. This company got into quantity production in August, and had delivered 452 up to October 11, 1918.

For the order of 500 DeH-9s placed with the Standard Aircraft Corporation (Jan. 26, 1918) there were eventually substituted 500 DeH-4s by the contract of March 28, 1918. No deliveries had been made up to June 30, 1918, and only 49 had been delivered up to October 11, 1918.

The total deliveries of DeH-4s, to October 11, 1918, amounted to 2,350. Of these 1,617 had been floated, 388 were at ports or in transit, 177 had been shipped to camps and training fields, and 168 are described as being for "manufacturers and miscellaneous."

Bristol Fighters.

The contract with the Curtiss Aeroplane & Motor Corporation called for 2,000 Bristols to be delivered by August 31, 1918.

There was no definite release for production until February, and then only to the extent of 25 machines. Four hundred were released for production in the latter part of March, and 400 more on April 24. As already stated only 27 were delivered in all, and the order was canceled in July.

Liberty Engines.

The deliveries were to be completed as follows:

	Lincoln-Motor Co.	Packard Motor Car Co.	Nordylke & Marmion Co.	Ford Motor Co.	General Motors Co.
November.....	5	50			
December.....	80	200			
January.....	160	500	25		
February.....	275	800	125		
March.....	700	1,000	550		
April.....	1,490	1,200	700	200	
May.....	1,900	1,200	800	800	25
June.....	1,480	1,050	800	1,000	125
July.....				1,000	250
August.....				1,000	300
September.....				1,000	400
October.....				1,000	500
November.....				1,000	400

These were the actual deliveries; [There are slight discrepancies between the factory records and the Government reports, and the latter apparently based on actual receipts are used in this tabulation.]

	Lincoln Motor Co.	Packard Motor Car Co.	Nordylke & Marmion Co.	Ford Motor Co.	General Motors Co.	Total.
November.....	1	25				
December.....	7	43				
January.....	14	96				
February.....	24	153				
March.....	134	314				
April.....	106	439				
May.....	309	558		53	133	
June.....	484	724	16	197	244	
July.....	701	543	24	459	303	
August.....						
September to October 11.....	1,022	970	117	1,212	371	
Total.....	2,787	3,884	157	1,868	1,013	9,689

The total deliveries of Liberty motors (US-12s) to October 11, 1918, amounted to 9,689, of which 6,895 were for the Army and 2,794 for the Navy. Of those for the Army, 3,555 had been floated, 456 were at ports or in transit; and there had been delivered 990 to allied Governments, 260 to flying fields, 1,429 to manufacturers, etc., the remainder, or 205, being turned over to the Navy.

Contracts have recently been made for the production of the Liberty 8 (US-8), but no deliveries had been made to October 11, 1918.

Misleading Public Statements.

In the face of the delays in production a series of misleading public statements were made with official authority. While these statements were authorized by the Secretary of War, he states that they were issued in reliance upon information furnished by the Chief Signal Officer, Gen. Squier, and by Col. Deeds, who were acquainted with the actual conditions. It is unnecessary to review the delusive predictions and exaggerations contained in these utterances.

But particular attention should be directed to the official statement released for publication in the papers of February 21, 1918, which contained the following:

"The first American-built battle planes are to-day en route to the front in France. This first shipment, though in itself not large, marks the final overcoming of many difficulties met in building up this new and intricate industry."

This statement had its origin in a conversation between Col. Deeds and a representative of the Committee on Public Information a week or two before the completed statement was issued. A draft was first prepared and submitted to Col. Deeds, who examined it and made some corrections. The statement contained in the paragraph above

REPORT ON AIRCRAFT PRODUCTION INQUIRY

quoted was not only left unchanged, but was the subject of special inquiry. Col. Deeds was asked what was meant by the "first shipment," and he replied, "They are on the water now, on the way to France." He was then asked, "How many?" and he answered, "I do not know, but I do not think more than 10." The statement in its final form was then presented to the Secretary of War, who permitted it to be issued upon the understanding that it had been verified by Gen. Squier and Col. Deeds.

At the time this statement was issued (February 20) only one plane had been delivered for shipment to the American Expeditionary Forces, and while this had been shipped from the factory on February 5 it did not leave the United States until March 22. The only other service planes which had been delivered were five DeH-4s, which had been shipped for use at Gerstner Field, La. No additional shipments of airplanes for the use of our forces abroad were made until April 3. Actual production in quantity did not really begin until May.

Col. Deeds admits that this statement was brought to him before its publication, and that he went through it. He examined it minutely enough to correct with his own hand one of the paragraphs following that above quoted, which gave the number of men required on the ground for every plane in the air, his correction making 46 instead of 45. Col. Deeds denies, however, that he said in response to the inquiry upon the point that the battle planes were "on the water now, on the way to France." That he did make this statement is testified to directly and unequivocally by John W. McConaughy and Marlen E. Pew, representing the Committee on Public Information.

When Col. Deeds was examined as a witness before the Committee on Military Affairs of the Senate, on April 2, 1918, he was asked this question and gave this answer: "Senator Wadsworth, did you see or do you know whether any other responsible officers in your Aviation Section of the Signal Corps say the statement given out by Secretary Baker on February 21 before it was published?"

"Col. Deeds, No, sir; I did not see it. I do not know of anybody seeing it."

Col. Deeds admits giving this testimony. He testified that he did not then recall the paper in question.

Col. Deeds further testifies, in explanation, that when the paper was before him his information was that "four planes were on the cars on route to France," and that it later developed that only one was sent and the others were diverted to Lake Charles, that is to Gerstner Field, for tests on radiators. The shipments to Gerstner Field, however, had been made directly from the Dayton Wright Airplane Co. on February 15, 16, and 17, and these planes had not been shipped from the factory for the American Expeditionary Forces. There is evidence, also, (ante, p. 113) that on February 14 Mr. Talbot had telegraphed to Col. Deeds that Maj. Shepler advised that first one hundred DeHavillands should remain in this country and asking on this assumption for the recall of the one plane "shipped for foreign shipment," so that another could be substituted "completely equipped."

There is no question but that this grossly misleading statement was published on the authority of Col. Deeds and that the Secretary of War relied upon the fact that it had Col. Deeds's approval in giving it his official sanction. While this conduct of Col. Deeds does not come within the scope of the criminal code, it deserves the prompt attention of the military authorities.

Gen. Squier testifies that he had nothing to do with the statement that was issued for publication on February 21 and that he did not know of it before it was published. He testifies that when it was brought to his attention, he did not regard it as a proper statement to have been sent out, but that he did not institute an inquiry to ascertain who was responsible for it. It is evident that the matter called for immediate investigation and for suitable disciplinary measures, but no steps were taken either for correction or punishment.

The Secretary of War States that the responsibility for the statement clearly rested with Gen. Squier and Col. Deeds, and that he did not learn of the inaccuracies of the statement until his return from Europe in the latter part of April.

There were earlier statements of a delusive character as to the progress of aircraft production, but the particular statement to which attention has been called was inaccurate

in its specific statement of facts, and its misleading character was obvious to anyone having knowledge of the actual conditions.

SEVENTH. CAUSES OF DELAY IN PRODUCTION.

First: Lack of Knowledge and Experience.

This was a fundamental difficulty affecting production in all its stages. The industry was new, and there was a lack of engineers and skilled workmen. Novel problems were encountered at every step, and lack of knowledge bred indecision and confusion. Experience in other manufacturing enterprises gave no assurance of facility in this untried field. In addition, it was necessary to develop new sources of supply of needed materials, and the difficulties of the main contractors had their counterparts in the plants of subcontractors by which various sorts of material or fabricated parts were supplied.

Second: Defective Organization in the Signal Corps.

The duty of providing an adequate organization for aircraft production was left to the Signal Corps. It is quite clear that this undertaking was beyond the competency of the Chief Signal Officer, who had neither training nor experience for such a large industrial enterprise, and those who were brought to the task in his department failed to produce an organization which was adapted to meet the exigency.

The contracts were for production, and presupposed that the manufacturers should have an established design. The contractors agreed to produce the described machines in accordance with drawings and specifications to be furnished by the Government. In order to secure production of types of planes unknown to our manufacturers it was necessary that the Government should create an engineering department which should settle the design and furnish adequate and accurate drawings and specifications. But this essential condition of achievement was not met.

Undoubtedly the lack of airplane engineers was a serious obstacle. Still, there were a few in the country who had devoted themselves sedulously for a considerable time to the study of aviation problems, and it does not appear that there was a suitable effort to draw to the Government's service such talent as was available. Whether or not such assistance could have been obtained in this way is a question which can not be answered in the absence of an appropriate test. It was, however, entirely obvious that the exigency called for the most efficient organization, and that to add to inexperience the lack of a suitable organization and the confusion of a divided responsibility would inevitably lead to serious delays and threaten the entire program.

There was an engine design section established about July 1, 1917, in charge of Mr. Vincent, who had been engineer of the Packard Motor Car Co., but had no experience in the designing of airplanes; and this department did not have anything to do with the designing of airplanes as distinguished from airplane engines.

Capt. (afterwards Lieut.-Col.) Virgilus E. Clark, who had had perhaps as much aeronautical experience as anyone in the Army, had been in charge of airplane designing, but he was absent in Europe with the Aeronautical Commission from June until about September 1, 1917. On his return he resumed the work of airplane designing, and the Airplane Experimental Department was organized about October 1, 1917, in charge of Lieut.-Col. Clark, who was put in command at McCook Field, Dayton. This organization continued until February 6, 1918. Lieut.-Col. Vincent testifies that he had been arguing for an "engineering department" with the idea that it would take entire charge of engineering as it pertained to engines and planes" and "definitely straighten out" what he thought to be "an unsettled condition." By this he meant that "an attempt was being made to put planes into production in this country without having complete drawings or a complete understanding as to just what equipment such planes were to carry." But for the purpose of settling designs of airplanes and furnishing drawings to the manufacturers the Airplane Experimental Department proved to be hopelessly inadequate, and the result was that it was largely left to the manufacturers themselves to work out the designs of service planes, an undertaking for which they were ill-equipped.

When the Airplane Experimental Department failed to give satisfaction, instead of strengthening it and making it adequate to

the engineering work which had to be done, an additional department was created (about Jan. 1, 1918) which was called the Production Engineering Department. This department was also located at Dayton, because the Dayton Wright Airplane Co. was at that place, and there the department remained until the middle of April. It was said to be its function to supply manufacturers with engineering information, drawings, specifications, etc., from which they could produce in quantity what they were to manufacture; to specify materials, to decide upon details of design, etc. It was not, however, established merely as an aid to the manufacturer in producing according to a settled design—that is, to enable the manufacturer to cope with the difficulties which were sure to arise in the course of production, but this department was largely placed in control of the airplane design itself, which the Airplane Experimental Department had failed to establish satisfactorily. The new department was never informed or equipped so that it could perform its function adequately. It was under the general supervision of the head of the production department of the equipment division, who was inexperienced in airplane engineering or in airplane production, and this creation of another inadequate department failed to solve the difficulty.

On February 6, 1918, the Airplane Engineering Department was established in charge of Lieut. Col. Vincent, who was put in command at McCook Field. Lieut. Col. Vincent at once began to direct the efforts of the new department toward getting some well-known machines ready for production, rather than doing the purely experimental or research work and he obtained permission from Mr. Potter to take the DeHavilland 9 from the Dayton Wright Co. at South Field and put it through McCook Field. But this new department did not have a definite function with respect to the types of service planes already under contract—that is, the DeHavilland 4 and the Bristol, and these were left apparently as before, subject to the inadequate direction of the Production Engineering Department.

The consequences are easy to trace. When the model DeH-4 was received in this country it was accompanied by the English drawings. It was necessary to redesign the plane to accommodate it to the Liberty motor. The model was sent to the Dayton Wright Airplane Co. and this company, which under its contract was to produce in accordance with drawings and specifications furnished by the Government, appears to have undertaken the work of redesigning and making the new drawings. These were made and the DeH-4 as redesigned was flown on October 29, 1917. When, later, changes were required, the company expected drawings to be furnished by the Signal Corps; the Production Engineering Department apparently expected the drawing to be provided by the company. Rapid and successful production which demanded clearly defined responsibility could not be expected under such conditions. About February 21, 1918, the Production Engineering Department having been unable to secure production, the work on the DeH-4 was virtually taken out of its hands and placed in charge of Lieut. Col. E. J. Hall for the purpose of a swift effort to get results. Lieut. Col. Hall proceeded to get necessary information as to equipment, developed a little organization of his own, at once built three model planes (one for the Dayton Wright Airplane Company, one for the Fisher Body Corporation and one for the Standard Aircraft Corporation) and sought to remove as rapidly as possible the various hindrances to production. In this way, production in quantity was finally attained. But this was not the perfecting of the organization, but in substance was a desperate effort outside the regular instrumentalities of the Equipment Division because those instrumentalities could not be relied upon.

With respect to the development of the Bristol, similar conditions existed. When Lieut. Col. Hall had made sufficient progress at the plant of the Dayton Wright Airplane Co. to warrant it, he turned his attention to the production of the Bristol, at the plant of the Curtiss Aeroplane & Motor Corporation. As he testifies, "they were worse than at a standstill." "It would have been easier," he says, "for me to have taken and designed the whole machine around the equipment if they had not had the material started." He found that "practically all they did was to get in a row, so that the condition when I went in there was that everybody was damning everybody else." This was about April 11, 1918.

It appears that Capt. Clark in the fall of 1917 began the work of redesigning in order to adapt the Bristol to the Liberty motor,

REPORT ON AIRCRAFT PRODUCTION INQUIRY

and about the last of October the model Bristol with a large number of drawings was sent to the Curtiss Co. Mr. Mueller, who was the chief engineer of the Curtiss Co., states that they were unable to make the plane from the drawings, that "the dimensions would not check up," and that "it was impossible to get the machine together from the parts made from the details of the Signal Corps drawings." In January, 1918, the production engineering department took over the work on the Bristol, but differences with the contractors speedily arose, and at the end of January, for the purpose of reconciling these differences, a conference was held between the representatives of the Signal Corps and of the company, respectively, and it was determined that engineering decisions should thereafter be left to the engineer of the Curtiss Co. This authority apparently was exercised for two or three weeks, but opposition developed and there was no real progress. Lieut. Col. Hall took the matter up in April and an effort was made to drive through to production. It is apparent, however, that this plane never got beyond an experimental stage, and yet 400 were released for production in March and 400 more in April. This was evidently in response to criticism of delays. But the plane as designed for the Liberty motor was doomed to failure. Had there been an adequate engineering department to settle the matter of design and make the necessary engineering tests and decisions before production was entered upon, much time and money expended in fruitless effort would have been saved.

Throughout this period the equipment division of the Signal Corps presented an organization with a host of sections and departments, with ill-defined functions, creating disorder and confusion rather than sustained, well-directed, and expert effort. There was a vast amount of lost motion. Manufacturers were brought into contact with various divisions with overlapping powers; earnest and able scientific men, who were brought into particular sections, found themselves lacking in authority or in conflict with other sections; and uncertainty, indecision, and vacillation enfeebled the entire undertaking. Military organization was another obstacle to the rapid prosecution of what was essentially an industrial enterprise. Whatever might be accomplished by such an organization in a thoroughly understood activity, it was certainly unsuited to an entirely new industrial endeavor of this sort. A mobile force in which men could readily be moved about, tested, elevated, and disposed without regard to military rank or precedent was absolutely required. The inherent difficulties of the situation were thus greatly increased by defective organization. No doubt, also, the swift creation of a large force of inspectors, without the qualification of experience in their line of work, not only opened the door to abuses, but to an extent retarded production.

The situation, as it appeared to Archer A. Landon (Mr. Coffin's assistant) more than six months after we had entered the war, is strikingly shown in his letter to Mr. Coffin dated October 16, 1917, in the course of which Mr. Landon said:

"The lack of organization and continuity of responsibility is so apparent that success will be a miracle. * * * If we are to be successful there must be fixed, from the Secretary of War or the Secretary of the Navy down almost to the office boy, a direct line of responsibility that will make every individual assume the absolute responsibility for the work he is undertaking and under no circumstances should any conflict of authority or responsibility occur. Industrial men of known responsibility and capacity for the particular work undertaken must be selected. They should be peculiarly fitted for the positions they occupy and should be responsible for their work as in civil life. * * *

"We men who have come here in an effort to assist you find ourselves very seriously embarrassed and justly so. We are started off to do what seems to be an important piece of work only to find that this work has been delegated to somebody else in some other department and that we are treading on other people's toes. The result is that we do not get the information we want and we do not get anywhere. They do not throw us out, but they are all adept at pulling the latest Washington game of 'passing the buck,' or else frankly resenting our appearance in the matter.

"Take the spruce situation as an example of dilly dallying through a lack of organization. The first I knew of the spruce situation was around the latter part of July or the

first of August. At that time it was one of your great worries. The entire aircraft program was and is now endangered by the lack of ability to get spruce; and yet from that time until now, notwithstanding repeated conferences, there was nothing done on the spruce situation, either toward closing contracts or increasing production, until October 13, when Col. Disque was sent West on the situation; a loss of time of practically three months. If this had been your own business the men would have been on their way west the day after the matter was first brought up. The only reason that there was no action in July was because we do not possess an organization of direct responsibility, and on that account these inefficiencies are possible, and they will continue to occur until such time as somebody wakes up and thoroughly organizes the work."

After giving a further illustration, Mr. Landon continued:

"This is not intended as a criticism of Gen. Squier or the other officers, but it is intended to be a very vigorous criticism of methods of organization that make such a condition possible; and I submit to you, sir, that if this same condition exists in all departments and continues to exist, we might as well submit to the Germans now, because the one way you can beat efficiency is to match it with efficiency, and efficiency can only be obtained by a thorough organizing of our responsibilities and following them through to a definite conclusion, which conclusion should be the winning of the war."

Mr. Landon, leaving the aircraft work in October, 1917, returned to it in June, 1918, then becoming chief of the production of aircraft in the Bureau of Aircraft Production. Up to that time the policy he had recommended had not been carried out. He testifies that he "could see practically no change in the organization in six months"; that is, prior to the new organization through the Bureau of Aircraft Production, which had just been instituted.

It should be understood, of course, that the complaint so emphatically voiced was not directed at the Aircraft Board, as this, as Mr. Landon stated in his letter, was "merely an executive advisory board." The responsibility lay with the officers intrusted with the duty of effecting an adequate organization for aircraft production.

Third: Lack of Information as to the Equipment Required for Service Planes.

The model DeHaviland 4 was not received until about the beginning of August, 1917, and, as already stated, it was necessary to redesign it and make new drawings. But whatever delay was due to a failure to obtain a model earlier, or to the necessity of redesigning the plane, was greatly increased by the lack of needed information as to the equipment which was to be put on it. From the time the model machine, as redesigned, was completed and flown on October 29, 1917, several months elapsed before its equipment was finally determined upon. The engineer of the Dayton Wright Co. testifies that "the information which we were anxious to receive and which was necessary for production was not forthcoming until the middle of April."

There appear to have been several reasons for this. There was always the difficulty created by lack of experience in equipping airplanes for service in war, and there was considerable trouble in obtaining some portions of the equipment. But, in addition, it appears that there was a lack of exact and detailed information as to just what was required. The drawings and the specifications which accompanied the sample plane sent here were supposed to designate definitely the apparatus to be put upon the planes and its location. The testimony is that these drawings and specifications "did not check up with the actual plane," and there was resulting uncertainty as to what should be done. Communications with the other side were had frequently with regard to instruments, accessories, and various parts of equipment, but, despite this, the uncertainty seems to have continued for a long period, and there was apparently an inability to frame a definite bill of material which could be given to the manufacturer. The showing indicates either an extraordinary lack of decision on the part of those whose duty it was to decide, or an even more remarkable absence of administrative efficiency in seeking and obtaining necessary information.

About February 10, 1918, definite instructions were received from the other side as to the armament and instruments of the DeH-4,

but these instructions involved serious changes in the plane. And, subsequently, there were further changes in equipment, as stated below, causing still further delay.

Fourth: Changes in Design and Equipment of Service Planes.

The following statement, set forth in the testimony of Mr. Schoonmaker, the engineer of the Dayton Wright Airplane Co. which is substantially uncontroverted by the representatives of the Signal Corps, is an illuminating description of the delays in production incident to changes in design made necessary by changes in equipment so far as the DeHaviland 4 is concerned, and also indicates the waste thereby occasioned. It will be observed that changes were made necessary not only by new requirements as to equipment, but by inaccuracies in drawings and various defects. Mr. Schoonmaker testifies:

"The first sample DeHaviland machine was received on August 14, 1917. This was accompanied by an incomplete set of drawings, but with the machine as a sample and with what drawings we had at hand, we were able to complete the necessary lay-out from which to build one sample machine, which was flown on October 29, 1917. This plane was satisfactory in every detail as a machine and practically no changes have been made in the construction except where they were affected by the equipment which the machine was to carry.

"We were advised at that time, in answer to our request for information on guns, that the machine was to be equipped with the Vickers gun, and that the gun mounts would necessarily be the same as the English gun mounts. This information was requested by the Dayton Wright Co. during August, when the preliminary lay-outs of the machine were being made. At a late date we were advised that the Marlin gun would supplant the Vickers, and that the Signal Corps would take care of the necessary design of gun mount, etc. The front gun-mount design was received on January 8; after a conference with Signal Corps men, it was decided that this mount would not be satisfactory and, therefore, was discarded. The Dayton Wright Co. produced a design of gun mount and cartridge box which was built and installed and accepted by the Signal Corps after a firing test on January 26.

"Owing to the fact that the Marlin gun was not similar to the Vicker, a complete rearrangement of the cowling over what had already been designed was necessary. The first drawing of the Marlin gun which we received was delivered to us on February 12, but no bill of material on the complete gun equipment accompanied same. On February 26 we were requested to mount two stationary guns on the forward cowling. This necessitated a redesign of the gun mount already ordered into production, and this work was carried on by the Signal Corps. This also affected all cartridge boxes of which drawings had been made and which were released to production. A redesign of the cartridge boxes for the double gun mount was furnished by the Signal Corps on March 5. This design was not satisfactory as the drawings were incorrect, and the pieces manufactured from them did not assemble in the machine. A new redesign was furnished by the Signal Corps on March 15; parts were made from these drawings and were released to production. On April 1 the Dayton Wright Co. was ordered by the Signal Corps to again redesign the cartridge boxes, changing certain dimensions; since that date few minor changes have been necessary, but nothing which directly interfered with the production of these parts.

"Changing the gun equipment as mentioned above necessarily changed the shell chute layout. The first drawing which we received from the Signal Corps for the left-hand gun chute came to us on March 5. Parts made from these drawings were not satisfactory, as they did not assemble in the machine. The Signal Corps corrected these drawings, and sample parts were made, and the Dayton Wright Co.'s drawings were released for production several days later. The Signal Corps found, however, that these samples were not satisfactory, and they were rejected, as there had been an error in the drawings. The Dayton Wright Co. redesigned the chute for the left-hand gun on March 29. Samples were made from these drawings which were satisfactory to the Signal Corps, and released to production on April 7.

"The first right-hand shell chute was laid out by the Signal Corps on March 6. Samples manufactured from these drawings were not satisfactory, and did not assemble properly in

REPORT ON AIRCRAFT PRODUCTION INQUIRY

the machine. The Signal Corps proceeded on the correction of these drawings, and they were released for the production of sample. These drawings were very difficult to work to, and samples manufactured from them were not satisfactory and rejected.

"The Dayton Wright Co. produced a new design of this shell chute on March 29, which before samples could be made and tried out it was seen that a new design would be necessary, due to the change of location of the electric generator for the electrically heated clothing. A new design was started by the Dayton Wright Co. on March 30.

"A design along entirely different lines had been started in the meantime by some Signal Corps men at South Field on March 29, and this type was approved on March 31 by the Signal Corps and drawings were made and released to production. This design was tested out on the evening of April 2 and proved unsatisfactory. Another new design was started by the Signal Corps on April 3, which after a few modifications was released to production on April 11.

"The same procedure of re-design and development as was required for the shell chutes applies also to the cartridge box and shell-chute covers.

"Our first request for information on the synchronizing device was in November, 1917, but up to February 14 no bill of material or complete set of drawings had been delivered. We received on January 23 a few parts which were intended for production; however, the assembly was incomplete and the parts made would not fit the engine. We received drawings of the hand pump on February 5. During January a sample hand pump was delivered to South Field; no drawing or instructions accompanied this to show mounting and this office was never advised as to its use. When assembled on the machine in January it was found that an interference was encountered with the gasoline shut-off cocks and strainer, necessitating a re-design of these parts and the transferring of them to the other side of the fuselage. This in turn caused an interference of the spark and throttle controls, necessitating scrapping of parts then on hand and re-design of this layout.

"The first synchronizing outfit which we received caused a considerable amount of trouble and upon examination of the trigger motors it was found that practically no two of them were alike and it was almost impossible to get a pair of guns on a machine which would function correctly. The first synchronizers were delivered directly to us instead of the engine builder, and they were not made so as to be directly interchangeable with the motor crank shaft the result being that a considerable amount of hand work had to be done in the fitting up of these synchronizers.

"On April 2 it was found that the synchronizer generator did not have a satisfactory lubrication system and it was necessary to connect it to the motor oiling system. This necessitated the dissembling of the synchronizer head and welding on a special boss for the attachment of this oil line. This has been done on all of the synchronizers to date.

"Information, drawings, and bill of material for the gun sights were requested on October 19, 1917. A list of different types of sights were received on January 4, but no bill of material or drawings. Drawings for wind-vane sights were received February 6. No drawings were ever furnished on any of the sight mounts; however, the sight locations were approved February 13.

"This will recall that it was advised that the old English De Havilland be used for the mounting of guns and sights so that all of the difficulties which were likely to be encountered could be worked out on this job. Our engine cowling was held within the limit of the cowling used on the English job so that no interference would occur. On November 20 it was called to the attention of the Signal Corps that no use had been made of this machine to date, and early in the spring was shipped to Willbur Wright Field.

"On April 6 the location of the Aldis sight was removed and changed to the left-hand side of the right gun; this necessitating a change of all the parts which had been made up for the old sight and which were already released to production.

"Our first instructions regarding the bomb dropping gear were to equip the De Havilland machine with two rails similar to the English machine. Information had continually been requested on bombing apparatus but no drawings could be furnished. On January 13 we received our first information from the Ordnance Department on bomb gear. This was merely an unlocking device and we gave space in our drafting room for several Ord-

nance Department men to complete their drawings for application to the machine, they being turned over to me on February 1. On going over these drawings, it was found that they were not complete and about a week later more drawings were received which assisted in production of the first model gear. The delivery of this apparatus had been sadly deficient, it being necessary to ship a large number of planes without it, as some of this is built in the floor of the fuselage and must be put in during the various assembly operations. A further change on the operating mechanism of the bombing gear is coming through which will be incorporated possibly on the five-hundredth machine.

"Information was requested during October, 1917, on the camera and camera mounts. We were advised at that time that the camera mount which the English De Havilland was equipped with would also be used on the American-made machine. On January 19 we received from the Signal Corps a camera which would not fit the English mount. As the English mount was already built into a number of our fuselages, it was impossible for us to change this part on our early shipments. A new design of mount was made by the Signal Corps and installed in the sample machine in our shop. On February 25 this was rejected by the Signal Corps and a new design started and drawings furnished on same May 27.

"The focusing lense retainers were designed at the direction of the Signal Corps for a 4-inch by 5-inch lense. The location of these were shifted several times and the size of the lense was changed by the Signal Corps to 5-inch by 6-inch and the drawings for retainers were furnished on April 2.

"Up to February 14 we had no information on oxygen apparatus except that it was to be part of the equipment. As late as April 6, we had no samples of the apparatus or drawings showing installation same. Final approval of the oxygen installation was received June 10.

"Drawings for the radio equipment and first information regarding same came to us February 1. These were recalled for changes and new set issued which were illegible. These were returned and on February 8 a new set of drawings were received for the bonding together of all metal parts on the machine; these drawings could not be followed on a production basis. The Dayton Wright Co. then prepared a sample machine and drawings were made from this and accepted by the Signal Corps March 25. Radio instruments were received February 20 and installation according to Signal Corps drawings was stopped February 25 and new installation directed. The Dayton Wright Co. prepared drawings for this installation and wiring according to the sample which was prepared.

"On March 28 the generator mount on the side of the fuselage was abandoned. A new installation was furnished by the Signal Corps, but was found that it interfered with the landing gear strut. On April 10 the new design from the Signal Corps showing the correct location of the generator was received.

"Considerable trouble was encountered with the installation of the Holt flare lamps, as there was a misunderstanding between the Dayton Wright Co. and Signal Corps as to who was to furnish them. The first Holt flare lights were received on February 25.

"The first navigation light samples were received on March 20 and wiring instructions for same were delivered a few days later.

"The electric generator for lighting and heating was received on March 15. The Signal Corps drawings showed the location on the side of the fuselage. This was unsatisfactory, as the generator propeller interfered with the rear flying wires of the wing structure. The Signal Corps prepared new drawings for the relocating of this generator, but these were unsatisfactory, owing to the interference with the landing gear strut. On April 9 a new set of drawings were received showing the correct location of this generator.

"Radiator and water lines were approved by the airplane engineering department, Signal Corps, on November 21 after flying test. At this time, of course, there was practically no information at hand regarding the equipment of the De Havilland plane, which necessarily added considerable weight, so that the radiators which we had ordered for production were considered unsatisfactory by the production engineering division. The radiators furnished by the Signal Corps were 1 inch deeper in the core, which necessitated redesign of the shutter assembly. At a late date it was decided to make a further change on radiator design, making it 4 inches longer. This affected the under cowling of the mo-

tor, the forward cowling, water lines, and numerous other details entailing a large amount of scrapping and reoperation of parts.

"The Signal Corps advised that they would furnish us short radiators for our first 150 ships and long radiators for the next 100, after which we were to supply our own. A shortage of 50 radiators was encountered in the first agreement, which necessitated us going to the long radiator job 50 machines earlier, which caused a serious delay and complication in the shop.

"Drawings were received from the Airplane Engineering Division, Signal Corps, November 21 on gas and air lines. From these drawings all parts were ordered into production. All gas and air line connections were changed by the Signal Corps, and final information received on this change April 5. This necessitated scrapping of all parts on hand, and a delay was occasioned in securing necessary new material."

"The delays at the plant of the Dayton Wright Airplane Co., due to these changes in design, also caused delay in the other plants which were to produce De Havilland 4s, for both the Fisher Body Corporation and the Standard Aircraft Corporation were awaiting a definite design and a determination of equipment and proper drawings before proceeding to production. The Dayton Wright Airplane Co. was in advance simply because it had the advantage of the possession of the model, and it was working out the necessary drawings.

"It will be observed that these changes were required in the course of production. That is, instead of proceeding with production on the basis of a given equipment where changes in equipment would cause serious delay, and introducing different equipment in the planes subsequently produced, virtually the entire production was held up to accommodate the new demands. As Lieut. Col. Horner testifies, "We would go on changing this way and that way and let that change go through production, when it could be done without interfering with production, and if we had done it we would have had a thousand more planes on the French front to-day than we now have without any question."

"It is unnecessary to review the changes in the ill-fated Bristol. They were numerous and related to the structure of the plane itself. Production was, of course, impossible while these changes were in progress. The real effect of the changes, however, in view of the result, was not to retard the production of a useful plane, but to cause an unnecessary expenditure.

Fifth: Conditions in Manufacturing Plants.

The conditions in certain plants engaged in the manufacture of airplanes were unfavorable to production, not only because of lack of experience and the absence of mechanics trained in that class of work, but because of defective organization and want of efficiency. The Dayton Wright Airplane Co. had the difficulties inherent in a new organization, but in view of the changes that were required in the course of production it would be impossible to define to what extent, if any, production was retarded by reason of the fact that the organization was a new one. The lack of the competent organization at the North Elmwood plant (Buffalo) of the Curtiss Aeroplane & Motor Corporation is commented upon later (post, pp. 150, 156), but in view of the cancellation of the Bristol order it need not be considered here. Whatever delay there was, was in the course of an attempt to make an impossible plane. At the plant of the Standard Aircraft Corporation conditions were also far from satisfactory, but for the same reason, so far as service planes are concerned, its capacity for production was not put to a proper test. It should be added that at this plant the first Handley-Page was assembled and successfully flown within 90 days after the company had been given full charge of the matter.

There have not been lacking indications of sinister influences at various plants. The opportunities of workmen at aircraft plants to retard production or to injure material and product are quite obvious and the necessity of keeping the plants free of enemy influences is emphasized in another part of this report. But, so far as the delays in production of service planes are concerned, it is impossible in view of interrupted work and changing plans to attribute the delays in any definite measure to such a cause.

REPORT ON AIRCRAFT PRODUCTION INQUIRY

Sixth: Changes in the Liberty Engine.

In any proper estimate of what should have been accomplished in carrying out the aircraft program it is necessary that regard should be had to the development of the Liberty motor. The airplane must have its motor, and it was inevitable that in the development of a new high-power airplane engine, with the object of securing higher power with a lower weight per unit of power, that changes would be found necessary. Needed improvements were constantly suggested by experimentation, and the number of changes looms very large in the testimony of the experienced engineers who were endeavoring to get into quantity production. It is unnecessary to attempt a review of these numerous changes, for whether time could have been saved by greater expertness is a matter of opinion, and in view of the time that has frequently been spent in the development of new types of motors, there is slight ground for criticism by reason of loss of time in perfecting the Liberty motor. The difficulties were inherent in the task and the task itself was worth while. As has been said, there was no reason why the development of the Liberty motor should have stood in the way of the production of other motors, such as the Hispano-Suiza for use in single-seater pursuit planes to which the Liberty engine was not adapted. But, so far as the heavier observation and bombing planes are concerned, the weight of opinion is that it would have taken about as long to put any other high-power motor into successful quantity production in this country, according to our methods of manufacture, as it has taken to develop the Liberty motor. The attempt to secure planes and motors through foreign production for service pending this development has already been reviewed. By pursuing different methods it is possible, as testified by Lieut. Col. Hall, that there might have been a small preliminary production of Liberty motors two or three months earlier, but, making due allowances for the inevitable course of experimentation, the Liberty motor could not have been put into large production much earlier than it was. What has been called the "immaturity" of the Liberty motor placed a time limitation upon the program for the planes that were made to take this motor, but it may be observed that by May 4, 1918, 778 Liberty motors (U. S. 12s) had been made, of which 390 were taken by the Army, and only 36 DeH-4s had at that time been delivered, and no other Army planes to take this motor were available. It can hardly be said that unnecessary delays in service-plane production, caused by bad organization and lack of a settled design, were excused by unforeseen difficulties in the development of the Liberty engine; and it should also be observed that if, in the light of general experience in motor building, delay in the development of the Liberty engine was to be feared, there was the greater reason for making sure, to the full extent of ability, of the immediate production of single-seater pursuit planes for which other engines could be provided.

EIGHTH. CONTRACTOR'S PROFITS.

Under the various fixed-price contracts it is probable that large profits have been gained, but definite information as to their extent would not be available without a survey in detail of manufacturing conditions and costs in a considerable number of plants—an undertaking which would have been wholly impracticable in this inquiry. The profits allowed by the cost-plus contracts present a distinct question.

The justification for cost-plus contracts was found in the fact that the undertakings were novel and that the manufacturers did not have accurate data upon which to make a satisfactory estimate of the cost of production. This was conspicuously true in the case of airplanes of types with which manufacturers in this country had been unacquainted previously. For production in large quantity either new plants or greatly enlarged facilities at existing plants, as well as special tools, would be required to meet an exigency of uncertain duration, and it would also be necessary to procure the requisite labor and materials for the new undertakings in a rising market and to provide working capital for long periods; and, while motors had been manufactured here upon a large scale, the newly designed engines for the service airplanes required such a reduced weight per horsepower and such delicacy of construction that it was felt that the enterprise had many elements of uncertainty. In these circumstances it was not an unreasonable conclusion that if contracts for the new

types of airplanes and for the new engine were offered solely on a fixed-price basis, either manufacturers would not undertake the work or would insist upon high prices as a safeguard against the chances of ultimate loss. It was deemed inexpedient for the Government to undertake the manufacture directly, and it was decided to adopt the alternative of an assumption by the Government of the cost of manufacture through contracts upon a cost-plus basis. This practice, however, could not properly outlast the reasons which may have justified it at the outset. Contracts of this sort lead to waste, foster abuses, and impose an almost intolerable burden of cost accounting, in itself a hindrance to rapid production. Early in this inquiry it was abundantly shown that it was highly important to establish reasonable fixed prices whenever experience afforded a fair basis for estimates.

The principal features of the cost-plus contracts for airplanes and engines may be said to be these:

(1) The payment by the Government of the contractor's outlays for labor and materials and for the overhead charges incident to the work;

(2) The payment by the Government for special tools and certain "increased facilities" located in the contractor's plant, but owned by the Government;

(3) Reimbursement by the Government for depreciation;

(4) A fixed profit to the contractor; and

(5) The fixing of an estimated cost, or "bogey," and a division of whatever saving was effected under this estimate so as to give 25 per cent of this saving to the contractor as additional profit.

It will be observed that by this method the contractor is assured not only the payment of the cost of labor and material used in the process of manufacture, but of administrative outlays for management and supervision, and an allowance for depreciation of plant. To the extent that these payments are made promptly and at short intervals, the working capital required would be reduced. Provision has also been made for the supply of needed assistance by means of advances through the War Credits Board where these are deemed to be justified. The contractor is guaranteed a certain profit regardless of cost. This is called the "fixed profit." And finally, the fixing of a "bogey" cost—was designed to counteract the temptation to wastefulness by giving the contractor a substantial share in the fruits of economy. And it may here be noted that, the popular impression that under this form of contract, the contractors receive the same amount of profit, however wasteful they may be, and have no incentive to avoid unnecessary outlays, is without foundation. The bogey costs were in all cases placed so high that the contractor had every reason to expect that the actual cost would be much less and that through its share in this saving the contractor would be able to derive an increased profit from economical management. It is apparent, however, that with a large fixed profit guaranteed the incentive to economy is not as strong as when the entire venture is at the contractor's risk. And particularly when interruption of work and changes in design vex production managers, and it is difficult to maintain economical methods, there may easily be bred an indifference to an excessive cost where its burden falls upon the Government. At least this is to be inferred from conditions in certain plants, and the conclusion is unescapable that the cost-plus system of contracts for the manufacture of commodities, as distinguished from such contracts for mere service, is a vicious system and is to be tolerated only during such period as it is found to be absolutely necessary to secure immediate production.

The fact, however, that a cost-plus system is deemed advisable for a time does not justify an exorbitant fixed profit. It has already been pointed out in the case of the Dayton Wright Airplane Co. that the contract for DeHaviland-4s originally called for a fixed profit of \$375 per plane. This was arrived at on the basis of 12½ per cent of the bogey cost of \$7,000. This, however, was not an actual cost and, as the event has shown, was very far above the actual cost. If it had been thought fair that there should be a profit of 12½ per cent per unit produced, it would have been a simple matter to have given this percentage of the actual cost, as the actual cost was to be ascertained in the course of the accounting, and provide for payments from time to time on account. There is no conceivable reason for giving a percentage of the bogey cost, if the object were merely to assure the contractor a profit equivalent to a given percentage of cost. The actual cost of the DeHaviland-4s

at the plant of the Dayton Wright Airplane Co. despite all the difficulties of production and the enhanced cost of the first lot of machines produced during a period of many changes in design, is understood to be under \$4,400. A fixed profit of 12½ per cent on the actual cost of each machine would have been about \$550, instead of the \$375 which was fixed by making the calculation on the bogey cost.

Again, in a contract for manufacturing articles at the contractor's plant, the agreed profit upon a cost-plus basis should have a proper relation to the contractor's actual investment and risk. The contractor is not only reimbursed for his outlays for labor and material but for expenses of management included in overhead charge—including such reasonable salaries of officers, managers, etc., as may properly be allocated to the Government work. There is no sacred formula by which the Government is bound to pay a profit per unit of production regardless of the time in which capital is turned over. The extent to which the Government supplies the needed working capital, either by payments on account of work and materials supplied or through advances, should also be considered. A percentage of outlays, or of a bogey cost, although small in itself, may give an exorbitant profit as applied to each unit of a large production.

Service Airplane Contracts.

In the case of the Dayton Wright Airplane Co. the paid-in capital was \$1,000,000, invested in plant. Advances by the Government to the extent of \$2,500,000 were authorized, and in December and January last advances of \$1,000,000 were actually made. These were followed by additional advances, and the balance of total advances on June 30, 1918, was \$1,405,222.57. Approximately \$750,000 of the money thus borrowed from the Government at interest is represented by investment in fixed assets. The plant is exclusively devoted to Government work, and outlays for labor, materials, and overhead, as provided in the contract, are met by the Government.

The operations of this company relating to production may be said to have begun about August 1, 1917. The total fixed profit on the 400 Standard-J planes was \$620 per plane, and the fixed profit on the 4,000 DeHaviland-4s was \$375 per plane, making a total of \$3,748,000. With the saving as now estimated of approximately \$2,600 under the original bogey cost of \$7,000 the additional profit of 25 per cent of this saving would amount to \$650 per plane, making the total profits on the DeHaviland contract about \$1,525 per plane. At the present rate of deliveries the contract for 4,000 DeH-4s will be completed before March 1 next. The total profits on the 4,000 DeH-4s would have amounted to upward of \$6,100,000, and it is safe to say that including the profit on the Standard-J planes, the company would have earned a profit of more than \$6,350,000 under the original contract. This does not include whatever profits would have been made on its experimental contract or on the spares for DeH-4s. It should also be added that under its contract it was provided, in substance, that at the completion or cancellation of its contract the Government should pay the difference between the cost of its plant, including real estate, building, machinery, and appliances built or otherwise acquired for the performance of the contract, less what was found to be the fair market value at the time when the contract was completed or cancelled, and that in determining (through a board of appraisers) this fair market value, the need or requirement of such a plant in the neighborhood, and the probability of securing a tenant promptly, or having an established business available, should be considered as one of the important factors.

In the case of the Fisher Body Corporation, which had the other large order for DeHaviland 4s (4,000), as well as an order for 400 Standard-Js, the profits would certainly not have been less. Instead of establishing a new plant, as did the Dayton Wright Co., the Fisher Body Corporation had already effected a highly efficient organization and had an established plant which required, however, a considerable expansion of plant facilities and special equipment. The net investment in fixed assets, including building, land, and machinery, which was made by the Fisher Body Corporation for the Government work amounted, to May 31, 1918, to \$860,849.05. The corporation was aided by an advance through the War Credits Board of \$2,000,000, made last December. Waiting for the necessary drawings, it got into production later than the Dayton Wright Co. and up to October 11, 1918, had only delivered 452 planes. But

REPORT ON AIRCRAFT PRODUCTION INQUIRY

it should complete its production of the entire 4,000 within the next six months.

As already stated, in accordance with letters obtained at the time the contracts were made with the Dayton Wright Airplane Co. and the Fisher Body Corporation, which promised an equitable readjustment if it was found that the bogey cost was too high, it appears that contracts are now being negotiated for the reduction of the bogey cost of the DeH-4s to \$5,000 and the fixed profit to \$625 per plane. The total profit per plane with the percentage of saving (exclusive of profit on spare parts) under the new contract would amount to about \$775 per plane, or \$3,100,000 in all, which with the profit on spare parts would make the total profit on the DeHavlands not less than \$3,500,000.

Liberty Engine Contracts.

The bogey cost, as first fixed in the contracts for Liberty engines was \$6,087. This was approved by Mr. R. H. White, of Cleveland, and Mr. Henry May, of Buffalo, to whom the propriety of the estimate had been submitted by the Secretary of War. The fixed profit as originally stipulated was 15 per cent of this bogey cost, or \$913.05 per engine. Lieut. Col. Hall (who had had large experience in engine manufacture) testifies that he made an estimate about the time that contracts were being let, and told Col. Deeds that \$2,400 would cover the cost of labor and materials for the Liberty engine, without overhead charges.

In December, 1917, the bogey or estimated cost was reduced to \$5,000 and the fixed profit put at 12½ per cent of this sum, or \$625 per engine, and the contracts with the Packard, Lincoln, and Nordyke & Marmon companies were modified accordingly. This was in consideration of further allowances for depreciation and provision for advances by the Government. In last May the contract with the Ford Motor Co. was modified by the same reduction of the bogey cost and fixed profit. The contracts with the General Motors Co. were put upon the same basis.

Even at this reduced bogey and percentage the profits allowed were very large.

By September 6, 1918, that is, within a year from the date of the contract, the Packard Co. had delivered (according to the Government's report) 3,100 Liberty 12s, and the agreed fixed profit on these amounted to \$1,937,500. In the following month it produced 560 and it should complete its deliveries of the 6,000, first contracted for, not later than January, 1919, and on these 6,000 engines the agreed fixed profits would be \$3,750,000. This profit it would earn within 17 months after it received the contract, and if it could have completed the deliveries as contemplated when the contract was made, that is, according to contract schedule, the profit would have been earned in 11 months. Only the fixed profit has been mentioned, as this was definitely guaranteed, but in addition to this the company was entitled to 25 per cent of its saving under the bogey of \$5,000. The Government's estimate is that the actual cost of the first 600 Liberty engines produced at the Packard plant was \$3,873 per engine, and that the average cost of the first 1,200 motors was thus \$3,442 per engine. It would seem that the actual cost of the entire 6,000 is likely to be somewhat under \$3,200 per engine. But on the basis of \$3,200 there would be an additional profit, through the contractor's percentage of saving, of \$450 an engine, which would make \$2,700,000 additional profit, or with the fixed profit of \$3,750,000, a total profit of approximately \$6,450,000 earned on the 6,000 engines, within a year and five months, despite delays in production. To this there should still be added a considerable amount for profits on spare parts on the 6,000 engines which may be estimated at upward of \$1,500,000, and thus the aggregate profits on the Liberty engine (exclusive of the original development work) would reach about \$8,000,000.

The Packard Co. estimated that on May 31, 1918, from the standpoint of plant values, the total investment exclusively for aircraft motor work was \$11,808,404.47. This included, however, advances by the Government for working capital amounting to \$2,145,568, and inventory and other items which would be represented in the cost of labor and material ultimately defrayed by the Government. The proportion of its plant, less depreciation, employed on aircraft work was estimated by the company at \$5,500,000. It should also be noted that in the contract reducing the bogey cost and fixed profit, it was provided that on the termination of the contract the Government should pay for depreciation upon the

heat-treating building and equipment erected by the contractor for the purpose of carrying out the contract, the difference between their cost and "the value thereof to the contractor for use in its business," as determined by a board of appraisers; and that in determining this value the appraisers should be guided by the use the contractor "shall have for said building and equipment at the termination of said contract, in the ordinary operation of its business of manufacturing motor cars and trucks, and shall not include the value, if any, which the same may have to the contractor in the manufacture of further aviation motors." The Government was also to pay the full cost of facilities for testing and inspecting the engines, including the building and equipment erected by the contractor therefor, and should also reimburse the contractor for the machine tools purchased especially for the construction of aviation engines, to be used by the contractor without rental but to remain the property of the Government.

The contract with the Ford Motor Co. was for 5,000 Liberty engines. The company did not begin its deliveries until the 14th of June. It was estimated by its officers that deliveries would reach 1,500 in October, and that the entire contract would be completed by the 1st of December. It is behind its schedule, but between September 6 and October 4 it delivered, according to the Government's records, 768, and it may be expected that it will complete its contract for 5,000 by the end of January, 1919. Under the original contract it would then be entitled to fixed profits on the 5,000 engines of \$3,125,000, and the additional percentage of the saving under the bogey cost of \$5,000. With its well-known efficiency, and in view of the fact that by beginning later it did not have as much difficulty as the Packard Co. had experienced, it may be assumed that the actual cost of the 5,000 engines at the plant of the Ford Co. will be less than \$3,200 per engine and at the rate of \$450 an engine (that is 25 per cent of the difference between \$3,200 and \$5,000) its additional profits would amount to \$2,250,000, or its aggregate profits on the 5,000 engines would be \$5,375,000, earned by January, 1919. The plant investment required for this production certainly can not be regarded as any greater than that on the part of the Packard Co. The Ford Co. has not received advances from the Government. The Ford Co. also has a contract for 400,000 cylinder forgings for the Liberty engine, on a fixed price basis of \$3.25 each; these are supplied to the other manufacturers. The contract with the Ford Co. for the Liberty engines provides that there shall be allowed for depreciation on the machinery and buildings especially acquired for the performance of the contract, in addition to the facilities already owned by the contractor, the difference between the fair cost and the fair market value as determined by appraisers at the time of the completion or cancellation of the contract.

The Lincoln Motor Company has its special feature in that it was a new organization and established a new plant which is devoted exclusively to the manufacture of Liberty engines for the Government. It has a highly expert organization, with Mr. Henry M. Leland at the head. When the bogey or estimated cost was reduced from \$6,087 per engine, with a fixed profit of 15 per cent, to \$5,000 per engine, with a fixed profit of 12½ per cent, the Government made a special agreement with reference to depreciation, which is thus summarized in a resolution of the Aircraft Board:

"That the Government make an allowance for depreciation of the company's heat-treating plant equal to the difference between the cost thereof and the value to the company of the business at the termination of the contract; further, that the cost of the company's testing plant be allowed as a part of the production cost of the engines to be manufactured; further that the machinery and equipment used by the company in the performance of the contract be depreciated 40 per cent over the term of the contract."

The Government made advances during the last fiscal year to the extent of \$6,500,000; additional advances were made in July and August of \$4,300,000. In order to discharge obligations and maintain a capacity of 1,500 engines a month, making the total sum advanced by the Government of \$10,800,000.

The Lincoln Motor Company had delivered, according to the Government's reports, only 580 motors by the end of June, but it had reached a production of over 600 per month by October 4, and doubtless will soon be at full capacity so that the first 6,000 motors

will probably be delivered before the end of January. For the first 600 motors the cost of production at the plant of the Lincoln Motor Company was \$3,533, which was nearly \$300 per motor less than that of the Packard Motor Car Company, and it may be assumed that its average cost for the entire 6,000 will be not much, if any, more than \$3,000. That is the figure which appears in the company's estimate of profit. But on the basis of an actual cost of \$3,200 per motor the Lincoln Motor Company would have earned by January, 1919, (through fixed profits, and percentage of saving) on the delivery of the 6,000 motors, about \$6,450,000. There would also be profits on spare parts, which are estimated at upwards of \$1,500,000 more, making an aggregate profit of about \$8,000,000. This would be exclusive of allowances by way of depreciation.

The investment in real estate, buildings, machinery, and equipment (exclusive of the special tools to be paid for by the Government, and the cost of testing and inspection facilities on which there is to be a depreciation allowance of 100 per cent) amounts to approximately \$7,150,000, of which about \$3,400,000 is the cost of machinery, tools, and equipment (to July 31, 1918), on which the Government is to pay a depreciation allowance of 40 per cent, in addition to profits. The entire paid-in capital of the company amounts to \$850,000. At the outset, the company obtained on the credit of its officers about \$2,000,000, which served its purposes until it obtained the amounts needed for its plant, equipment, and working capital, through advances by the Government. It is pointed out very clearly that the company has provided an excellent plant for the manufacture of Liberty engines, and that ultimately its profit, after paying taxes, will represent only an equity in its plant without any assured business, as it has been devoted exclusively to Government work. On the other hand, it may be said that there is a very liberal flat depreciation allowance on machinery, tools, and equipment; that the plant is a permanent one, admirably designed for commercial work, and not merely for a temporary exigency, and that there is every prospect that it can be successfully utilized. It should also be said that from the standpoint of the Government it was free to make arrangements with existing plants, and the amount of the profits it should allow should be determined accordingly.

It is unnecessary to review the original contracts with the Nordyke & Marmon Co., which is very far behind in its deliveries, and with the General Motors Co. (Cadillac and Buick plants). The profit allowed per engine was the same as in the other contracts, but the contracts were for fewer engines, 3,000 in the case of the Nordyke & Marmon Co., and 2,000 in that of the General Motors Co. The Nordyke & Marmon Co. received advances of \$2,000,000. There were no advances to the General Motors Co.

The large percentage of the contractors' profits which will be taken by the Government in taxation is strongly emphasized and, of course, what the Government takes back through taxation should fairly be taken into account. But the contemplated tax does not justify an extravagant scale of profits which, even after payment of taxes, would permit an excessive return upon the capital invested, in view of the greatly reduced risks of the contractor under the cost-plus contracts.

Revised Contracts for Liberty Engines.

What has been said above relates to the original contracts for Liberty engines. During a recent period the contracts with the Lincoln Motor Co., the Packard Motor Car Co., and the Nordyke & Marmon Co. have been revised and put upon a fixed-price basis of \$4,000 an engine.

The revised contract with the Lincoln Motor Co. is dated July 31, 1918. The former contract for 6,000 engines is canceled and superseded and the new contract provides for 9,000 U. S. 12s and necessary spare parts, with an option to the Government to require the production of 8,000 additional engines and spare parts. The schedule of deliveries provided for in the new contract is as follows:

Previous to August 1, 1918.....	1,000
August.....	750
September.....	1,000
October.....	1,500
November.....	1,500
December.....	1,500
January, 1919.....	1,500
February.....	250

The price is \$4,000 an engine. The spare parts are to be delivered on a schedule basis

REPORT ON AIRCRAFT PRODUCTION INQUIRY

corresponding to a total price of \$4,000 for a completed engine. The contract provides for payments by the Government, by way of amortization upon a basis of 100 per cent of the actual cost of all testing and inspecting facilities provided by the contractor with the approval of the Government; for payment by the Government, by way of amortization upon a basis of 40 per cent, of the actual cost of the heat-treating building and equipment theretofore provided by the contractor; and payment by the Government, by way of amortization upon a basis of 40 per cent, of the actual cost of machinery, tools and other items furnished by the contractor. It is further agreed that in case the Government shall not order from which it has an option, or the contractor is prevented by termination of the contract from manufacturing and delivering the 9,000 engines contracted for and the 8,000 additional engines, the Government shall pay to the contractor a sum equal to 40 per cent of the difference between the actual cost of its plant, including real estate, buildings, machinery and equipment built or otherwise acquired by it for the purpose of performing the contract (exclusive of any allowance of interest) and any and all payments previously made by the Government on account of depreciation or amortization. While the new contract is on a fixed-price basis, provision is made for payments by the Government within 10 days of the determination of the various items, on account of the cost of direct materials, supplies and labor, and also for the payment monthly of amounts equal to proper ordinary depreciation, and other proper items of overhead expense not previously paid by the Government. It is also provided that in case the actual cost of manufacture shall be increased or decreased by reason of any changes in specifications or in the rates of labor, material, supplies or equipment, varying from the rates in force at the date of the revised contract, upon satisfactory proof, the contractor shall be paid the total amount of such increases, in addition to the fixed price, or in case of a decrease the fixed price shall be reduced accordingly.

Up to October 4 the Lincoln Co. had delivered, according to the Government's report, 2,566 engines, instead of the 2,750 required by the schedule to October 1, and it is likely to be somewhat behind its schedule in the total deliveries, but its deliveries of 9,000 should be completed by March next. It may be assumed, as the company assumes in its own estimate, that the 9,000 motors can be produced on an average cost of \$3,000 each, which would leave \$1,000 profit per engine, exclusive of the spare parts, making a profit on the engines of \$9,000,000 earned, it may be expected, by April 1; and assuming that the profit on spare parts will be 25 per cent of the profit on the motors, there would be an additional profit of \$2,250,000. On this basis the entire profits earned by the company on the Liberty engine contract would be \$11,250,000.

The new contract with the Nordyke & Marmion Co. was made under date of August 31, 1918. The former contract for 3,000 Liberty engines is canceled and the substituted contract calls for 5,000 U.S.-12s and spare parts, with the option of the Government to order 2,000 additional. The schedule of deliveries is as follows:

August.....	1918.	50
September.....		70
October.....		250
November.....		300
December.....		400
	1919.	
January.....		400
February.....		475
March.....		500
April.....		500
May.....		500
June.....		500
July.....		500
August.....		500

The contract is on the basis of a fixed-price of \$4,000 per engine, with a provision for increase or decrease in case of a change in the actual cost of manufacture, similar to that contained in the revised contract with the Lincoln Co. The contract also contains a provision for special depreciation which is somewhat involved, and need not be set forth.

The revised contract with the Packard Motor Car Co. was made under date of September 2, 1918. It supersedes the original contract and provides for 12,000 U.S.-12s at a fixed price of \$4,000 per engine, and spare parts on the basis of this price for a com-

pleted engine. It contains provision as to an increase or decrease of price in case of a change of the cost of manufacture similar to that found in the other revised contracts above mentioned. The Packard Co. agrees to deliver the articles at the rate of 600 engines a month, beginning with September 2, 1918. As the Packard Co. had delivered 3,660 engines up to October 4, 1918, the entire 12,000 will be delivered approximately by December, 1919. It is likely that the cost, distributed over the 12,000 engines, will not be more than \$3,000 an engine, and at this rate the profit on the 12,000 engines will amount to \$12,000,000, with probably \$5,000,000 more as the profit on spares, making about \$15,000,000 in all.

Under the original cost-plus contracts for the Liberty engines—that is, with the bogey cost of \$5,000, a fixed profit of 12½ per cent thereon, and an additional profit of 25 per cent of the savings under the bogey cost, the total profits per engine would amount to \$1,075 on the basis of an actual average cost of \$3,200 per engine, or to \$1,125 on the basis of an actual average cost of \$3,000 an engine. It will thus be seen that the change from the cost-plus contracts to the fixed-price contracts saves the Government from about \$75 to \$125 (or possibly a little more) per engine, on the fixed-profit allowance, and also whatever expense may be saved by the reduced requirements of cost supervision and accounting and in connection with material. Upon the new fixed-price contracts the contractor's profits, though reduced, still remain very liberal.

It is understood that it has been arranged that similar revised contracts on a fixed-price basis will be made with the Ford Motor Co. and the General Motors Co., but these had not yet been executed according to the latest information received.

NINTH. SUPERVISION OF PRODUCTION—WASTE.

Little need be said with respect to the supervision of the production of engines. Although the numerous changes in the Liberty engine and the remedying of the defects which were disclosed necessarily involved considerable outlays, the losses due to these causes can hardly be said to be greater than would naturally be expected in the development of a new high-powered motor for airplanes. It has already been pointed out that the actual cost of the first lot of 600 motors at the plant of the Packard Motor Car Co., which was earliest in production, was as high as \$3,873 per engine, and that this cost was subsequently reduced so that the average cost of the first 1,200 motors was \$3,442, and that it is expected that the cost per engine at this plant will fall below \$3,200. Again, the actual cost of the first lot of 600 motors at the plant of the Lincoln Motor Co. was \$3,683, and it is believed that motors can now be produced at this plant at a little, if any, over \$3,000 per engine. The enhanced cost of the first lots of engines may be said to reflect in large measure the expenditures which could have been avoided had there been no changes in design, but these outlays fell within the range of reasonable experimentation and can not justly be regarded as showing a lack of careful supervision.

The chief losses, which may be properly characterized as waste, have been in connection with the production of airplanes. A statement has already been made (ante, p. 15) of the cost of the Standard J-1 training planes which were condemned as dangerous in June, 1918, because of the unsuitability of the type of engine. The expenditures on the Standard J-1 planes, including the engines, to September 30, 1918, amounted to about \$17,500,000, and the amount which may ultimately be saved if these planes are utilized with another engine can not now be stated.

The changes in the De Havilland 4s which have been detailed (ante, pp. 126-131) caused great additional expense which could have been avoided had there been a more efficient organization and prompt decision as to equipment. The most serious waste, however, in connection with service planes was in the work and materials thrown away on the Bristol Fighter, which was in course of production at the plant of the Curtiss Aeroplane & Motor Corporation and was finally condemned in July, 1918 (post, p. 157).

Under the cost-plus contracts it was of the utmost importance that there should be the most careful supervision of production and an adequate system of cost accounting so that useless expenditures should be avoided and actual costs carefully determined. This undertaking was difficult in itself, but it was rendered even more difficult by the demand for

haste and the necessity of quickly providing a large force of inspectors and accountants in a novel undertaking. Manufacturers were in constant opposition to what they regarded as unnecessarily technical requirements by accountants, and the Government representatives themselves were admonished by their superior officers not to let strictness stand in the way of production. And it could hardly be expected that this large matter of industrial supervision and cost accounting could be adequately handled under the restrictions of military organization. Moreover, not only was efficiency hampered, but the door was open to abuses, and despite the fidelity of many who sought to protect the Government, wasteful conditions were permitted to exist which were wholly inexcusable. It should also be said that a large outlay has been caused by the fact that the Army and Navy each maintains a complete staff of accountants so that, for example, in the North Elmwood plant of the Curtiss Co. where both Army and Navy work is being done there are two sets of Government employees at work in all branches of cost-plus accounting under the respective contracts.

LABOR.

Labor conditions generally were unsatisfactory. In the labor market the Government was largely competing with itself. At the plant of the Packard Co. the labor turnover is from 400 to 600 per cent a year, which would mean 40,000 to 60,000 men coming and going in order to maintain an organization of 10,000 to 11,000 men. The larger portion of this "floating" as it is called, occurs among probably 4,000 to 5,000 men, and the testimony is that in some departments there has been a complete change about 15 times a year. Women have largely been employed in many plants with satisfactory results. The plant of the Wright Martin Aircraft Corporation at New Brunswick, N. J., is a conspicuous exception, few, if any, women being employed in the shops. The testimony is that the local labor organization has taken a stand against the employment of women, and accordingly this has not been pushed by the management.

In the case of the Wright Martin Co. also it was apparent that a very large proportion of the employees were within the draft age as fixed by the selective-service law of May 15, 1917. The records show that on August 15, 1918, 41.36 per cent, or 2,300 of the total number of employees (5,560) at the New Brunswick plant, were within the draft age, and of this number 15.83 per cent were in class 1. The report by the representatives of the Government at this plant states that the method used by the company for securing deferred classification and indefinite furloughs is as follows: When a man is employed who is in class 1 of the draft, he is given a week to "make good." If he then is found to be efficient his foreman induces an application for deferred classification, and if this is refused by the district board and the employee is called to camp, a request is made by the company to the personnel department of the Bureau of Aircraft Production for his return on indefinite furlough. Prior to August, 1918, the operations of the draft department of the company were open to serious criticism and exhibited many irregularities. In one case a man, whose duties were such that anyone who could handle a screw driver could do his work, was drafted and immediate steps were taken to have him returned as a "motor builder." Previous to his employment by the company he had been employed as a stock clerk by a manufacturer of gowns and he had no previous mechanical experience. In another case a man who was considered a deserter by his local board was finally located at the plant of the Wright Martin Co., where he was arrested and inducted into the Army. Affidavits were immediately presented for his return from camp upon industrial grounds, and he was returned accordingly. One who had been a clerk of a carpet company, without mechanical experience, and who had a minor assembly job, was drafted and was returned on indefinite furlough as a necessary employee. A former proof reader, a former skating instructor, and a former coupon clerk who had obtained employment at the Wright Martin plant were drafted and similarly returned. In other cases, men whose work was entirely clerical secured deferred classification on industrial grounds. Cases of this sort have now been brought to the attention of the Provost Marshal General. It is stated by the Government representative that at present the draft department of the Wright Martin Co. is in competent hands, and it appears that its work is being done with a better regard for the interests of the Government.

REPORT ON AIRCRAFT PRODUCTION INQUIRY

Labor Cost.

To establish the labor cost under cost-plus contracts it was necessary that there should be proper time records and suitable provision for the identification and check of employees as they entered and left the factory. The opportunities for irregular pay-rolls, through laxity or connivance, are obvious. The conditions in this respect at the North Elmwood (Buffalo) plant of the Curtiss Aeroplane and Motor Corporation were especially bad. It was at this plant (completed last fall) that the cost-plus work was done on the Bristol fighter for the Army and the HS-1 seaplane for the Navy. [The Curtiss Aeroplane and Motor Corporation has seven distinct plants: at Buffalo, the Churchill Street group (including the Churchill Street plant where training planes are made, and the plants at Niagara Street, Bradley Street, and South Elmwood, making parts for Churchill Street); the Austin Street plant, doing Navy work, including contracts for the British Government; and the North Elmwood Avenue plant. At Hammondsport, N. Y., motors are manufactured exclusively. The work, except at the North Elmwood plant, is on a flat price basis.] There is abundant testimony, with picturesque detail which can not be given here, to the effect that at the North Elmwood plant large numbers of employees were kept on the pay rolls when they were not needed; through an utter lack of a decent system men and women were paid when they did not work; employees were able to leave the factory without being detected and remain absent for hours while recorded as on duty; employees would ring one another's time cards; men who were without work enough to keep them busy during the day were employed overtime at increased rates; men were brought to the plant on Sundays when there was virtually nothing to do; and for many months there was such demoralization at this plant that it became the subject of contemptuous gossip among the employees and in the community. One of the inspectors for the Navy testifies that as late as July he, with others, went through the plant at night on a tour of inspection, and not only were they able to go from one end of the plant to another without being asked for their passes, but they found absurd conditions of idleness. In one room "the foreman and three men (were) sprawled out on the floor," and, as he put it, there were "slackers from one end of the plant to another."

It is urged in palliation that the cancellation of the Spad order and the difficulties encountered in the development of the Bristol created a state of confusion, and that the management was constantly expecting to be able to get into production and felt it necessary to maintain an adequate force for this purpose. That the force was increased heavily at the North Elmwood plant during the early period, despite the fact that there were serious difficulties with the Bristol design and the company was not ready for large production, is beyond question. In October, 1917, the average number of men working at the North Elmwood plant was 578. In December this was increased to 4,142; in January, to 5,970; in February, to 7,029; there was a decrease of a few hundred in March and April, and an increase in May to 7,557. And in June the average number at work was 9,788. To approximately 60 per cent of its capacity, this plant was either idle or working only in connection with the Bristol. The employment of men on a large scale when there was not work enough for them had much to do with the virtual destruction of the morale at the plant. But whatever loss the Government has sustained in this way is not nearly as large as it might otherwise have been, by reason of the fact that a careful reaudit is in progress, which should be strictly prosecuted, and final settlement of payments awaits a satisfactory determination of actual outlays.

Employment of Alien Enemies.

Among the regulations established by proclamation of the President on April 6, 1917, was the following:

"An alien enemy shall not approach or be found within one-half of a mile of any Federal or State fort, camp, arsenal, aircraft station, Government or naval vessel, navy yard, factory, or workshop for the manufacture of munitions of war or of any products for the use of the Army or Navy."

Under the authority granted by the President to the Attorney General for the administration of the alien enemy regulations, the Department of Justice developed a permit system whereby alien enemies could obtain permits to be employed within a munitions factory,

including one engaged in the manufacture of aircraft, within the half-mile zone. The granting of such permits is entrusted to the United States Marshal of the district, who is authorized to issue them if he is satisfied that such action will be in no respect dangerous to the community or the United States. He is required before issuing a permit to confer with the special agent of the Department of Justice in the locality, to make a thorough investigation, to get the approval of the United States attorney or assistant United States attorney of the district, and also to obtain from the employer a certificate in writing to the effect that he desires to employ the applicant, and that he is satisfied that such employment will not be to the injury of the community or the United States. Sponsors or bonds may be required and all such permits are revocable.

It will be observed that while the precaution has been taken to require suitable investigation by agents of the Government, the cooperation of the employer, who has special opportunities for obtaining accurate information, is expected. It is manifest that unless the Government is in possession of facts showing the inadvisability of the employment, the certificate of the employer in compliance with the regulations is likely to be most persuasive.

There is considerable difference in the practice of the various companies engaged in the manufacture of aircraft as to the employment of enemy aliens under these regulations. The following illustrations will suffice.

The Fisher Body Corporation states: "We do not employ any German aliens in our aeroplane factory or in our aeroplane divisions." On May 22, 1918, Mr. Kepperley, the vice president and general manager of the Curtiss Co., gave instructions that under no circumstances should alien enemies be employed. Despite this instruction some alien enemies, who had previously been employed on permits, were retained in positions of importance. One of these, who began work for the Curtiss Co. last fall, was put in charge of the milling machine department in the machine shop, and became assistant general foreman of the machine shop at the North Elmwood plant. Another German subject (having a brother in the German Navy), who began to work in the Curtiss plant in February, 1917, became foreman in the welding department at the North Elmwood plant and has been at work on all the tubing work and tail units for the Bristol Fighter as well as on the engine braces for the HS flying boats. Another, who had himself served one year in the German Army and was discharged on account of wounds, was employed as tool maker at the Curtiss plant until some time in June.

The Lincoln Motor Co. states: "It is our endeavor to employ none but American citizens or friendly aliens. We are careful and using every precaution to not employ enemy aliens." The Nordyke & Marmen Co. is equally careful. Their statement is: "At this date there are no alien enemies employed in the airplane engine division. A very few have been employed in this division from time to time, but for only short periods at a time, as it has been our settled policy from the beginning of the war to keep alien enemy employees out of our Government departments, notwithstanding the individual man might be perfectly harmless. As fast as these men have been discovered they have been discharged."

About 200 enemy aliens (including Austrians and Hungarians) are employed by the Packard Motor Car Company. About 200 enemy aliens (not Germans, but Austrians and Hungarians) are employed at the plants of the Wright-Martin Aircraft Corporation in New Brunswick and Newark. No enemy aliens are employed by that company at its Long Island City plant.

The Ford Motor Company has about 250 German aliens who are employed in departments dealing with Government work. One hundred and forty-three of these are in departments in which from 20 to 60 per cent of the work done is Government work; 35 are at the blast furnace, and 61 are at the ship-building plant which is doing Government work exclusively. These enemy aliens are working under special permit granted on the company's recommendation.

German Sympathizers.

The serious risk that is taken in permitting men of known pro-German sympathies, whatever their citizenship, to work in aircraft plants in any important capacity is generally

recognized. The opportunities are abundant for delays and interferences in production through the action or inaction of those controlling the progress of production. It is the assumed sympathy with his nation which makes the employment of the German subject dangerous, and the danger may be quite as great in the case of one who, although not an enemy alien, is more friendly to Germany than to the United States.

There have been persistent rumors of pro-German sympathies on the part of employees of the Curtiss Company, but it has been impossible to ascertain to what extent, if any, the demoralization that until recently has existed at the North Elmwood plant of that company was due to any influence of this hostile description. The conditions that existed naturally bred distrust which was reflected in common talk, but facts warranting a definite conclusion as to disloyalty on the part of employees in important positions are lacking.

In the case of the Ford Motor Co., one of the company's employees (who formerly had been in the educational department and had represented the American Protective League) testified as to his inquiry into cases of disloyalty. The reports obtained by him exhibit utterances of employees in antagonism to the Government, insulting references to the President, and praise of the Kaiser. In an extreme case, in which the employee reviled and even threatened the President, there was a prosecution and a plea of guilty. The man was fined \$300, was released, and the testimony is that he resumed work in the Ford plant. The reports were numerous, and the employee who obtained them testified that there were about 200 employees whose loyalty was seriously open to question, but how many of these were employed in Government work he could not say. So far as the Liberty engine was concerned, his investigation related to half a dozen cases in the drafting department in the Ford Company. In this department there was a serious situation which engaged the attention of the management. Its importance was manifest from the fact that the drafting department embraces the tool design and drafting room in which the drafting work upon the Liberty engine is done, and it is possible for one in that department to bring about delays, the causes of which, in view of the multiplicity of drawings involved, it would be difficult satisfactorily to trace. This department was in charge of Carl Emde. There were repeated reports of pronounced pro-German utterances by Emde. A former employee, who had left the plant voluntarily and had later been found with plans and photographs of the plant, was a close friend of Emde's and had been employed in his department. This man, it is understood, has been interred. While nothing conclusive could be established against Emde in relation to his work, the advisability of removing him from a position of such strategic importance was clear to some of the most important men in the management. A conference was held on the subject at which Mr. Ford and the factory managers were present. According to the minutes of this conference reports were read "from various members of the drafting department who were in touch with the situation, and who felt that the department was practically a pro-German institution." Several conferees expressed the opinion that Emde should be removed, and one said that in his opinion "in the very nature of things Mr. Emde could not give us everything required to assist the Government of the United States." Mr. Ford, however, was opposed to that course and overruled his associates. Mr. Ford's position and his reasons are thus set forth in the minutes: "Mr. Ford deliberated and stated that he had heard numerous rumors but in speaking of all he had heard there had not been one thing shown him which would make him change the present head of the drafting department. He felt that it was a time of sacrifice—that in the next few years every man would be called upon to make some sort of sacrifice, and that possibly Mr. Emde, German born, was making his sacrifice now when making drawings for the Liberty motor to be used ultimately against Germany."

This statement of attitude is sufficiently expressive and requires no comment. The proposed removal did not take place. There has been a laxity at the Ford plant with respect to those of German sympathies which is not at all compatible with the interests of the Government. In deference to Mr. Ford's view, those in direct charge of production, who were alive to the situation, have had to pursue a policy of constant watchfulness and supervision instead of being free to take the precautions which the exigency demanded.

REPORT ON AIRCRAFT PRODUCTION INQUIRY

MATERIALS.

The leading causes of waste in material were engineering changes and faulty workmanship. As material was rendered useless it was scrapped, and there is no little evidence of a lack of care in securing salvage. For the losses due exclusively to changes in design after authorized production had begun, the manufacturers can not be regarded as responsible; and these losses, while they can not be accurately computed, are undoubtedly heavy. Their extent, of course, is proportioned to the stage of production reached when changes were directed; and with respect to the service planes, the history of production at the Dayton Wright Airplane Co., the Fisher Body Corporation and the Standard Aircraft Corporation discloses the same conditions varying only in degree as to the delay and waste caused by repeated changes.

With respect to the intelligence and efficiency of the inspection, and the extent to which rejections have been on sound grounds, there are naturally differences of opinion and complaints and counter complaints the basis for which can not be satisfactorily determined. It is to be noted that the rejection of spruce which has gone into production has reached a high percentage. Even at one of the best plants the Government representative puts the percentage as high as 60 per cent after allowing for salvage, and at other plants the percentage of rejections was probably higher.

A poor industrial organization such as existed at the plants of the Standard Aircraft Corporation and the Curtiss Co. (North Elmwood plant) did not favor economical production, and in the case of the former company conditions were aggravated, as already pointed out, by the assignment to that company of a large number of small orders for varied work. At the North Elmwood plant of the Curtiss Co. the waste which was incident to delay and changes was vastly increased by irregular practices. Thus, in order to keep men busy who apparently had no proper work to do, there was excessive production of parts. A production order might be for 500 parts, but the actual production might run to 5,000 or even more of these parts until this unwarranted conduct was discovered and stopped. There is instance after instance of excessive production which served to increase the size of the scrap heap when a change made the parts useless.

Again, at this plant when a change would lead to an order stopping the production of parts, production often would continue despite the order. As an illustration, one witness testified that he had personally given a stop order on certain metal parts and found two weeks after, in going through the metal shop, that they were still making the parts, sending them through the various operations and working overtime on their production. During periods of idleness employees devoted their time to making clocks and toys out of the materials at their command in the factory. Excess material was scattered about the factory without a proper record being kept of it. And it appears that material would be sent to the scrap heap instead of being properly salvaged, in order to cover mistakes.

There was also a lack, at the Curtiss plant, of proper records of material. In the case of steel stores there was confusion between what had been supplied for the Army work, for the Navy work, and for the Curtiss fixed-price work, so that accurate accounting based on the ledger entries was wholly impossible. And in addition to other manifest delinquencies, there was an absence of proper plant protection. The situation of the company in view of its experience with both the Spad and Bristol orders was undoubtedly a difficult one, but the lack of competent industrial administration is too clear to admit of dispute and has freely been confessed.

There has been little evidence at the North Elmwood plant of the exercise of the broad powers of the Government to prevent these abuses, and the fact that conditions were permitted to continue reveals the failure of the representatives of the Signal Corps to take proper steps for the protection of the Government's interest. There was, however, such an absence of system on the part of the company in the keeping track of parts, and so many changes in the persons employed, that, while there is abundance of general testimony, it is practically impossible at this time to trace particular instances of dereliction to individuals in order with suitable particularity to support definite charges. The divided responsibility which resulted in giving the design of the Bristol so largely into the control of the representatives of the Curtiss Co. was also a source of embar-

assment, and the extreme haste to make up for lost time added to the confusion. Conditions through the winter and early spring were chaotic and the improvement that has been made since that time has been unnecessarily slow. It is fair to say, however, that recently there have been changes which promise a needed betterment in the industrial organization.

So far as the loss of the Government in connection with the Bristol is concerned, the payments already made to the Curtiss Co., according to the Government accounts, amount to upward of \$2,000,000, exclusive of advances, and, as already stated, the Government has estimated that the loss, including claims growing out of the cancellation may reach \$6,500,000 (ante, p. 16). The Government, however, has a margin of security by reason of deferred payments, and a reaudit is in progress which must be completed before a final settlement is made for materials furnished. The loose methods employed by the company should be taken into consideration and a final settlement should be reached only upon satisfactory proof of proper outlays.

OVERHEAD CHARGES.

In the course of production payments have been made on account of overhead charges upon the basis of a general estimate—that is, by taking a percentage of other outlays, which seems to be justified in the experience of the plant, as representing the overhead expense. The overhead expense embraces general administrative outlays, including executive salaries, and the theory of the cost-plus contract is that the Government pays the expense of superintendence as a part of the cost.

It is, of course, important that fair salaries should be allowed, and all exorbitant demands rejected. Reference has already been made to the salaries paid to the executive officers of the Dayton Wright Airplane Co., who were at the same time the stockholders in a close corporation and divided their time with other companies from which they received high salaries. There appears to be no justification for even the temporary allowances to the Talbotts and Kettering of annual salaries aggregating \$100,000, and the explanation furnished that the "relations with the contractor were somewhat delicate at first, and, moreover, the company was in crying need of cash, and any withholding of amounts due was sure to create much friction" is not convincing; inasmuch as the individuals, and not the company, got the money, and it is difficult to see how "friction" in this matter could have injured the Government. It is also stated that when the salaries were allowed in the fall of 1917, dating from August 1, 1917, it was felt that it was a matter of considerable importance "that would have to be passed by Col. Deeds, who was in charge of the Equipment Division," but Col. Deeds testifies that he knew nothing of the salaries that were paid to these officers.

It should be said, however, that these allowances, under the terms of the contract, should be regarded as tentative, and that it is within the authority of the finance department in its final settlement to adjust the matter on a fair basis. And that is the position of that department.

Even more extraordinary was the salary paid by the Standard Co. to its president, Mr. Mingle, at the rate of \$63,000 a year, which is sought to be charged as a part of the cost of operations. This, however, has not been allowed. The question what would be a proper allowance has been under consideration. Several vouchers have been passed which represent merely payments on account, or payments "subject to adjustment," and it is stated that the amount of Mr. Mingle's salary thus far actually allowed is at the rate of \$15,000 a year.

The adjustments of overhead expense, as are the other payments on vouchers under the cost-plus contracts, are subject to a revision of accounts and it is within the power of the finance division in the ultimate adjustment of cost in accordance with the terms of the contract to protect the Government against any claims on the part of the contractors which may be found to be unjustified.

TENTH. SPECIAL MATTERS.

1. Purchase of the Plant of the General Vehicle Co.

In November, 1917, the Government purchased the plant of the General Vehicle Co. at Long Island City, N. Y., for \$1,527,568. The purchase embraced all the real estate, build-

ing, and machinery constituting the plant, and all other assets, except that patents (other than those relating to internal combustion rotary aircraft engines), franchises, good will, cash, bills, and accounts receivable, specified securities, and all inventory assets not acquired and used in connection with the manufacture of Gnome engines, were retained by the General Vehicle Co. The company also agreed to release for the use of the Government its administrative and manufacturing organization, so that the Government might take over the plant property and organization as an active manufacturing establishment in full readiness for production. Upon a physical valuation and inspection of the books of the company by Government appraisers and accountants, showing that the price was a fair one on the basis of prices previous to the war, and upon an opinion of the Judge Advocate General as to the legality of the purchase and as to the propriety of the form of contract, the purchase was recommended by the Aircraft Board.

The advisability of the purchase, however, was doubted at the time by officers of the Government. It appears that at the outset, in formulating the aircraft program, it was supposed that the Gnome rotary engine would be a factor of some importance, and a small order for Monosopape motors was placed with the General Vehicle Co., but in view of doubts as to the planes to be built, with which such engines would be used, further orders were not placed. Later, on word from overseas that Gnome rotary engines should be put into production, there were negotiations with the General Motors Corporation looking to the acquisition of the General Vehicle plant and the manufacture of these engines in large quantities. Before the matter was closed the instructions from abroad were changed and the proposed transaction was abandoned. The considerations underlying the purchase are stated in the recitals of the Aircraft Board in the resolution adopted at its meeting of October 19, 1917. It was stated that advices from France indicated a doubt as to the future demand for rotary engines in aviation, but that nevertheless these engines would be used to a greater or less extent for a considerable period to come; that it was desirable that "the technique of manufacture of rotary engines should in any event be studied and developed in the United States in case of need"; that the General Vehicle Co. had "the only plant and organization of substantial size in the United States equipped and organized with the necessary facilities and experience for the manufacture of such engines"; and that the present and future demand for rotary engines was "not sufficient in amount or sufficiently continuous to justify a manufacturer in the maintenance of a plant and organization adequate for a prompt supply of such engines and for the proper study and development of the technique of that type of engine."

In a previous part of this report (ante, p. 98), reference has been made to the opinion of the Joint Army and Navy Technical Board, given on November 10, 1917, that in the program for the coming year rotary engines should be considered of secondary importance, but that it was deemed desirable that the art of building rotary engines should be retained in the United States, and that for this purpose the organization skilled in rotary-engine production should be preserved. While it was thought that an order which had been given to the Union Switch & Signal Co. for 2,500 80 H. P. LeRhones was larger than was necessary to preserve the art, it was further recommended that steps be taken to maintain the possibilities of production of the 160 H. P. Gnome engine. The resolution of the Joint Army and Navy Technical Board did not in terms approve the purchase of the General Vehicle Co.'s plant, nor did it express opposition in any definite way.

The actual necessity of the purchase of the General Vehicle Co.'s plant is not apparent. As soon as the Government made the purchase, a corporation called the Aeronautical Engine Co., with a nominal capital, was incorporated for the purpose of building Gnome engines at the plant and contracts were made for the manufacture of small quantities at cost without profit. This, however, did not continue long. It was found that the Union Switch & Signal Co. had mastered the art of making LeRhone engines, and although these were of a different type, it seemed that the necessity of keeping the organization in existence at the plant purchased from the General Vehicle Co. soon ceased or was very much minimized. In April last, it was proposed that the plant at Long Island be leased to the Wright-Martin Co. for the manufacture of

REPORT ON AIRCRAFT PRODUCTION INQUIRY

the 300 H. P. Hispano-Suiza engines, and an arrangement for this purpose was made soon thereafter, one of the reasons being stated to be "the practical abandonment of the manufacture of Gnome motors."

At the time of the purchase of this plant by the Government the General Vehicle Co. had outstanding notes amounting to \$1,530,000, which were held by the Peerless Truck and Motor Corporation. The purchase price paid by the Government was substantially equivalent to the amount of these notes and thus provided for their retirement. The purchase, however, was made on the basis of the value of assets, and whatever difference of opinion there may be as to the advisability of the purchase there are no facts warranting the conclusion that it was not made in good faith or that the amount paid was in excess of the fair value of the property acquired.

2. Mahogany Manufacturers and Importers Association.

True mahogany is a desirable wood (ranking, in the opinion of the Government's production engineers, next to black walnut) for the making of propellers for service or combat airplanes. To meet this demand contracts had been made for mahogany in the fall of 1917, but with only one responsible corporation—that is, Lewis Thompson & Co. A contract with one of the companies selected was canceled because it was apparently without financial resources and could not provide a bond, and in the case of another contractor no deliveries were made.

In the beginning of January, 1918, it appeared that there was a serious shortage in the Government's supply of wood for service-plane propellers and through the War Trade Board the leading mahogany manufacturers of the United States were invited to a conference in Washington. This conference was held on January 21, and at that time, or in the later conferences, the following corporations and firms were represented: Huddleston-Marsh Mahogany Co.; Ichabod T. Williams & Sons; George D. Emery Co. (said to be closely affiliated with I. T. Williams & Son); and the Astoria Veneer Mills and Dock Co., of New York; Palmer, Parker & Co., of Boston; Lewis Thompson & Co. and S. B. Vrooman Co., of Philadelphia; Freiberg Lumber Co., of Cincinnati; C. C. Mengel & Bro. Co., of Louisville; Talge Mahogany Co., of Indianapolis; C. J. L. Willey Co., of Chicago; and the Otis Manufacturing Co., of New Orleans. At the first conference the manufacturers were notified of the Government requirements for propeller stock their cooperation was sought, and they were asked to advise the Government of the quantity which each could furnish, and the price.

The representatives of the War Trade Board considered the advisability of an organization of the manufacturers to secure effective cooperation with the Government, and accordingly an association of the manufacturers was at once formed which appointed a war committee composed of A. S. Williams, of the Astoria Veneer Mills & Dock Co.; C. H. Thompson, of Lewis Thompson & Co.; F. C. Leary, of Ichabod T. Williams & Sons; F. G. Otis, of the Otis Manufacturing Co.; and J. C. Wickliffe, of the C. C. Mengel and Brother Co. The committee met at once, and passed a resolution expressing the opinion that the best interests of the Government would be served by the purchase by the Government "of all Central American mahogany logs now under contract with the members of the association at a price to be agreed upon; the Government to arrange transportation of said logs; the manufacturing of the logs into lumber to be done by the mills represented by this association at a price to be agreed upon." At the same meeting the officers of the association were elected: Thomas Williams, of Ichabod T. Williams & Sons, president; R. S. Huddleston, of the Huddleston-Marsh Mahogany Co., treasurer; and Charles H. Thompson, of Lewis Thompson & Co., secretary. This proposition was rejected by the representatives of the Signal Corps for reasons stated at length, which were in substance that it was deemed inadvisable that the Government should arrange for the purchase of logs directly from the loggers in Central America and Mexico in view of the unfamiliarity of the Signal Corps with the logging business, or that the Government should take over existing contracts for purchases of logs on account of the complications that might arise, or that the Government should become directly involved in log purchases. Recognizing the difficulties in the disposal of a largely increased quantity of lumber, the representatives of the Signal

Corps felt disposed to pay "a higher price than pre-war or existing prices for propeller stock" in order that the mahogany manufacturers might offset any loss due to the low market value of rejected material. It was then recommended by the Signal Corps that the manufacturers should make a proposition as to the price to be paid for propeller stock, and it was stated for the manufacturers that they could not quote prices on the basis of the existing Signal Corps specifications, as these were too restrictive as to the grade to be selected and permitted the Signal Corps to accept or reject the material based upon the judgment of the inspector.

It was finally suggested that the manufacturers should submit a proposition based on what are called "National Hardwood Inspection" rules (that is, the rules of the National Hardwood Lumber Association) quoting a separate price on "first and seconds, selects, and No. 1 common." Discussions continued between the war committee of the association and representatives of the Government, among the latter being Lieut. Ryerson, who was in charge of propeller parts in the Plane Production Section, Joseph S. Otis, who, as the result of a disagreement, had recently severed his connection with the Otis Manufacturing Co. and had offered his services to the Government as a mahogany expert, and representatives of the lumber committee of the Council of National Defense. At the meeting on January 23, according to Lieut. Ryerson's report, the war committee of the association suggested prices for propeller mahogany according to "National Hardwood Inspection" rules as follows: Firsts and seconds, \$350 per M feet; selects, \$320; No. 1 common, \$270. After these figures were submitted a discussion of costs followed in which Joseph S. Otis, representing the Government, and J. C. Wickliffe, representing C. C. Mengel & Bro. Co., gave their respective estimates of costs. Mr. Otis's estimate was considerably lower than the other, and was contested by Mr. Wickliffe. The question of specifications was again discussed, and the Signal Corps representatives stated that it would be impossible to place orders on the basis of "National Hardwood Inspection" rules, which permitted widths considerably less than those required for propeller stock. After further parley, Lieut. Ryerson stated that it would be preferable to negotiate with the various manufacturers and importers individually for the purchase of such mahogany as they were in a position to offer. It was considered that if negotiations could not be brought to a close on the basis of the prices quoted that it might be desirable for the Government to fix a price for the purchase of propeller stock and agree to provide in its contracts that after partial performance there should be an audit of costs and a readjustment of prices upon a fair basis.

After the negotiations had thus proceeded for several days, the manufacturers submitted to the officials of the Signal Corps the opinion that Joseph S. Otis was not competent to advise the Signal Corps with respect to mahogany costs, and suggested that action should be taken by which some one should be put in charge of the purchases of mahogany for the Government, who could develop the actual facts and be fair to the industry. Joseph S. Otis left the Signal Corps on January 29. On January 31 Henry Lockhart, Jr., was placed in charge of the Materials Department, Foreign and United States, which had the duty of procuring the materials necessary for the production of airplanes, with the exception of motors and instruments. About February 5, Henry K. S. Williams, who had formerly been in the lumber business as a member of the firm of Ichabod T. Williams & Sons (being a brother of Thomas Williams of that firm), but had retired several years before, was put at the head of the hardwoods section, which was a subdivision of the materials department, and had charge of the orders for woods required for propeller stock. Shortly after, on February 25, J. C. Wickliffe, who had been for 10 years secretary of the C. C. Mengel & Bro. Co., of Louisville, and had been active as a member of the War Committee of the Mahogany Manufacturers and Importers' Association, entered the service of the Government as assistant to H. K. S. Williams in the hardwoods section. The suggestion that he should take this position was made about the middle of February in a conversation between H. K. S. Williams and Mr. Mengel when the latter was asked if he could spare Mr. Wickliffe from his organization. On March 4, 1918, J. Edward McCullough, who had been superintendent at the mill of the George D. Emery Co.,

one of the members of the Mahogany Manufacturers and Importers' Association, was made district inspector of mahogany, as well as other woods in the New York district, embracing Boston, New York, Philadelphia, and New Orleans. He was selected by S. B. Vrooman, Jr., who about February 10 was given general charge of the inspection of all propeller lumber throughout the country. Prior to his connection with the Government (he started as an inspector in December, 1917), S. B. Vrooman, Jr., had been in the service of the S. B. Vrooman Co., also one of the members of the Mahogany Manufacturers and Importers' Association; he was, and has continued to be, during his service with the Government, one of the stockholders of that corporation (ante, p. 63).

Mr. Wickliffe, during his connection with the C. C. Mengel & Bro. Co., had owned 5 shares of its preferred stock, which he disposed of some years ago; his wife owned 5 shares of the common stock, which were sold when he entered the Government service. His salary as secretary of the Mengel Co. had been \$500 a month; his compensation from the Government was at the rate of \$4,000 a year. When it was suggested that he should become connected with the Government, he said that he could not afford it, but he was informed that Mr. Mengel had offered to continue his salary "as a donation to the Government during the war." Mr. Wickliffe replied that he did not like the arrangement, would not accept it without Mr. Lockhart's approval, and in any event would not consent to be paid more than enough to defray the living expenses of himself and his family. Mr. Wickliffe was paid by the Mengel Co., in addition to his salary from the Government, \$250 on March 25, \$250 on March 29, and \$250 on April 15, a total of \$750. This was subsequently adjusted on the basis of \$350 for the period to April 1 and \$400 was returned by Mr. Wickliffe to the Mengel Co. This was explained in Mr. Wickliffe's letter to Mr. Mengel as follows:

"628 LEXINGTON PLACE, WASHINGTON,
"April 13, 1918.

"MR. C. R. MENGEL,
"Pres't., C. C. Mengel & Bro. Co.,
"Louisville, Ky."

"DEAR MR. MENGEL: The Signal Corps having fixed the salary I am to receive from them at the highest figure they can pay of \$4,000 per annum, I want to let you know that I think it necessary now that you reduce the amount that you are remitting me monthly to \$350 per month. As near as I can estimate it, I can get by on Washington living expenses and do such official entertaining as I shall have to do on the sum of these two amounts. If I find that I can not, I shall frankly let you know the condition. But I feel that living here and doing the necessary at my present job on this figure is about the equivalent of the salary I had when I was with you in Louisville. Therefore, kindly give the necessary instructions to have the remittance cut down.

"Again thanking you and the company through you, I am,
"Very truly, yours,
"J. C. WICKLIFFE."

The arrangement with C. C. Mengel & Bro. Co. was approved by H. K. S. Williams in his letter of April 24, 1918, as follows:

"WASHINGTON, D. C.,
"April 24, 1918.

"From: Office of the Chief Signal Officer.
"To: C. C. Mengel & Brother Co.,
"Louisville, Ky.

"Subject: Services.

"1. In line with the request of your president, Mr. C. R. Mengel, this section desires to give you this letter stating that at the time it asked you for the services of your former secretary, Mr. J. C. Wickliffe, it was fully understood by it that you or the mahogany industry would pay him an amount of money per month over and above the salary the Signal Corps was authorized to pay him, so that the sum of these two would be sufficient to cover his and his family's expenses during his service with the Signal Corps. This was done with the full knowledge of Mr. Henry Lockhart, Jr., head of the Materials Department, because of the fact that the hardwood section needed his services, and in view of the further fact that your offer to do this was made with the distinct understanding that he should sever all connections with your company and with the mahogany industry and assume his

REPORT ON AIRCRAFT PRODUCTION INQUIRY

new duties, of course, entirely as a member of the Signal Corps organization. This section would also set forth the fact that your offer was specifically asked by you to be considered in the light of a donation to the war.

"By direction of the Acting Chief Signal Officer.

"HENRY LOCKHART, JR.,
"Materials Department,
Foreign and United States,
"By H. K. S. WILLIAMS,
"Hardwood Section."

The salary which S. B. Vrooman, jr., had received from the S. B. Vrooman Co. has been continued by that company, and, when J. Edward McCullough entered the service of the Government, the George D. Emery Co. paid until the arrangement mentioned below, the difference between his Government pay and his former compensation from the company.

It was soon arranged that the Mahogany Manufacturers and Importers' Association should assume the payment of the additional compensation to Mr. Wickliffe and to Mr. McCullough. Accordingly, for the period beginning with April this compensation was paid to both in checks from Mr. Huddleston, the treasurer of the association. The amounts were raised by voluntary contributions of various members of the association. The minutes of the association show the following action in the matter:

"The matter of the difference in compensation between the amount paid by the Government for services to J. C. Wickliffe and to Mr. McCullough and the amount of compensation previously received was discussed. The following resolution was then presented, duly seconded, and adopted by the affirmative vote of all present:

"Resolved that such excess compensation be paid by the various members of the association in the form of an annual subscription, which is made up by various amounts subscribed by the mahogany firms, amounting in total to fifty-seven hundred (\$5,700) dollars.

"The motion was duly made, seconded, and carried by the affirmative vote of all present, that a copy of this resolution be sent to Mr. H. K. S. Williams."

Mr. Wickliffe testifies that this arrangement was made "because it was felt that it was not right for any one individual firm to pay it all." Mr. Huddleston testifies that it was "purely a question of cooperation with Mr. Mengel." Early in May there was correspondence between H. K. S. Williams and Mr. Huddleston, the treasurer of the Mahogany Association, in which a letter in the following form, addressed by Mr. Huddleston to Mr. Wickliffe, was first submitted to H. K. S. Williams and approved by him:

"347 MADISON AVENUE,
"New York, N. Y., May 10, 1918.

"Mr. J. C. WICKLIFFE,
"Materials Department, Foreign and United States, Hardwood Section, Washington, D. C."

"MY DEAR MR. WICKLIFFE: A few days ago, when the heads of the various mahogany importing and manufacturing concerns met for general discussion, attention was called to the fact that by virtue of your recent appointment as assistant to Mr. H. K. S. Williams, your annual income had been cut something in excess of 50 per cent.

"After a general discussion, it was agreed that it would not be fair that you stand alone the burden imposed on you by your services to the Government in this particular department; therefore it was mutually agreed that the various mahogany firms, feeling as patriotic as you have demonstrated yourself to be, will make up the difference between your former income and what you are now receiving from the Government, provided such an act would meet with the approval of Mr. H. K. S. Williams, the head of your department.

"I am pleased to advise you that I am today in receipt of a letter from Mr. H. K. S. Williams, approving of this transaction; so, acting in the capacity of treasurer, I will mail you each month a check for \$350 beginning the month of April, which I am informed will make up the difference in your salary."

A similar letter was written, with the approval of H. K. S. Williams, to Mr. McCullough. Mr. McCullough was paid by the association for April, May, June, and July, at the rate of \$91.67 a month. He returned to his former employment early in August. In the case of Mr. Wickliffe the arrangement continued until it was officially disapproved on August 20, 1918, by Mr. J. Gilmore

Fletcher, on behalf of the Bureau of Aircraft Production, in the following letter:

WAR DEPARTMENT,
BUREAU OF AIRCRAFT PRODUCTION,
Washington, August 20, 1918.

Mr. J. C. WICKLIFFE,
Hardwood Section, 119 D Street, N.E.,
Washington, D. C.

MY DEAR MR. WICKLIFFE: In view of the fact that the Government looks with disfavor upon your receiving from the Mahogany Manufacturers and Importers Association your present monthly remittance, which I shall refer to here as a salary of \$350 per month, I deem it best, and hereby request, that you immediately refuse to accept any further payments from that source, or any other source which comes in direct line with your duties in the Hardwood Section, the Raw Materials Department, Division of Aircraft Procurement, Bureau of Aircraft Production.

I shall at once take the proper steps to have the salary now paid you by the Government, namely, \$4,000 per year, increased to \$8,200 per year, and shall make every effort to expedite a decision on the point of allowing you this increase.

Yours, very truly,
J. GILMORE FLETCHER,
Chief of Aircraft Procurement.

Mr. Wickliffe immediately requested Mr. Huddleston to discontinue the payments, and, accordingly, there has been no payment of additional compensation since the payment for the month of July.

Early in February, 1918, arrangements were made with some of the manufacturers for the taking over of certain mahogany which had been under contract for delivery to British merchants, but the amount was relatively small. After H. K. S. Williams took charge of the hardwood section, and also after J. C. Wickliffe became his assistant, negotiations were continued with the manufacturers composing the Mahogany Manufacturers and Importers' Association for the purchase by the Government of mahogany in large quantity for propeller stock. On the appointment of H. K. S. Williams, his brother, Thomas Williams (of Ichabod T. Williams and Sons) had resigned as president of the association, and C. R. Mengel was elected in his stead. On February 14, 1918, new specifications had been adopted by the Signal Corps (No. 15,028-A) modifying and liberalizing the prior specifications which had been adopted in the previous December. At about the same time (February 13th) the manufacturers had submitted two proposals, one under the Signal Corps specifications (No. 15,028-A) at \$400 per M feet for firsts, seconds, and select, and \$320 per M feet for lower grades, f. o. b. cars eastern mills (with corresponding prices for other points according to estimated freight rates), and another proposal under the national hardwood rules for specified sizes at \$350 per M feet for firsts, seconds, and select, and \$280 per M feet for No. 1 common, f. o. b. cars eastern mills. These had been refused. The important difference was with respect to the inspection.

In this situation a conference was held on March 6 between the manufacturers and H. K. S. Williams, J. C. Wickliffe, and S. B. Vrooman, jr., representing the Government. The minutes of this conference show that H. K. S. Williams opened the meeting with the announcement that "it was the purpose of the Signal Corps to grant as liberal an inspection as could be given consistent, of course, with the principle that no lumber could be taken that would not make propeller blades." After a discussion of the matter of utilizing lumber which showed scattered pin-worm holes, and the opinion having been expressed by Mr. Vrooman that such stock could be used where it did not affect the strength of the board, Mr. Williams stated that he would endeavor to have the inspection department accept such lumber. This, as Mr. Wickliffe testifies, was accomplished. The minutes show that Mr. Williams stated that Mr. Vrooman is going to be in charge of the inspection all over the country; that he will appoint various men to do the inspecting at the various mills, and shall show them what is to be done. Mr. Williams further stated that his object in having Mr. Vrooman at this conference was that "the interpretation of the Signal Corps specifications might be as easy as such interpretation could be made consistent with the principle of accepting only propeller material, but that the Government might get all such material that it could get." Mr. Williams then requested that each manufacturer advise him of the cost of

its logs placed alongside steamer at Central American and Mexican loading points, and these estimates were given.

Another conference was held on the same day between the manufacturers and H. K. S. Williams and J. C. Wickliffe, representing the Government, at which, after considerable discussion, Mr. Williams stated that he would recommend the payment by the Government of the following scale of prices on Mexican and Central American mahogany propeller stock under Signal Corps specifications No. 15028-A, as follows: \$350 per M feet for firsts, seconds, and select, and \$280 for lower grades, f. o. b. eastern and middle western points, and \$330 and \$265, respectively, at New Orleans; and the same schedule of prices was stated for African mahogany f. o. b. eastern and middle western points. At these conferences Mr. Wickliffe was in attendance as Mr. Williams's adviser. He reviewed the manufacturers' estimates, and made calculations for Mr. Williams as to costs, and in view of his extensive experience there can be no doubt that considerable reliance was placed upon his opinion and advice. The terms of the contracts were virtually settled, in accordance with Mr. Williams's proposal, at the second conference on March 6, and these terms were subsequently approved by Mr. Lockhart. The formal contracts were not made until some time later. On March 26 the Aircraft Board recommended the execution of the contracts on the above terms for the following quantities:

For African mahogany:

	Minimum.	Maximum.
Astoria Veneer Mills Dock Co.	2,000,000	3,500,000
I. T. Williams & Sons	500,000	1,500,000
Palmer & Parker Co.	600,000	1,500,000
C. C. Mengel & Bro. Co.	12,800,000	2,500,000
Talge Mahogany Co.	2,130,000	2,450,000

For Central American and Mexican mahogany:

	Minimum.	Maximum.
Huddleston & Marsh Mahogany Co.	1,750,000	3,000,000
Astoria Veneer Mills & Dock Co.	1,500,000	2,500,000
Lewis Thompson & Co.	1,500,000	2,000,000
Otis Manufacturing Co.	1,000,000	2,000,000
Frieberg Lumber Co.	500,000	1,250,000
I. T. Williams & Sons	750,000	2,000,000
Palmer & Parker Co.	300,000	750,000
C. C. Mengel & Bro.	2,800,000	2,800,000

¹Amended to read 1,700,000 minimum.

On April 16 the Aircraft Board recommended the making of a contract with the S. B. Vrooman Co. for Central American or Mexican mahogany 500,000 feet minimum and 1,500,000 maximum.

It is hardly necessary to say that it was a gross impropriety for corporations or firms, either individually or collectively, to pay additional compensation to an employee of the Government, and for the employee to receive such compensation, for services in relation to contracts and transactions in which the corporations or firms were directly and pecuniarily interested. It is not found, however, that there is any statute making this a criminal offense unless it is a case within the statute against bribery or proves to be part of a fraudulent scheme to take advantage of the Government or part of an endeavor to induce a violation of law.

The act of March 3, 1917 (ante, p. 25), making it a crime to pay additional compensation to an employee of the Government or for an employee to receive such additional compensation, only applies to such contributions after July 1, 1919. The occasion of this statute, it is understood, was criticism of payments of additional compensation made to experts in the employ of the Government where, however, the employee in the Government service was not acting in matters in which the person or corporation contributing had any pecuniary interest or motive of gain. Contributions for the support of those who have made sacrifices in undertaking war work for the Government are doubtless made in many instances, but there is no analogy between cases of this general description and payments of additional compensation to an

REPORT ON AIRCRAFT PRODUCTION INQUIRY

ployees of the Government by those having direct pecuniary interest in the transactions in which the employee acts as the Government's agent. But under the statute against bribery (Criminal Code, secs. 39, 117) it must be proved that the payment was made or received with intent to influence the decision or action of the representative of the Government on a question which may be brought before him in his official capacity or in his place of trust or profit or to influence him to commit, aid, collude in or allow a fraud, or to make opportunity for the commission of a fraud, on the United States, or to induce the employee to do or omit to do an act in violation of his lawful duty. Whether in the present case, in the circumstances disclosed, any charge of this sort could properly be made would largely depend upon the question whether the terms and prices secured by the mahogany manufacturers were fair and reasonable or could be deemed excessive and the result of improper influence.

In view of the intimate relation of the representatives of the Government, who took part in the negotiations, to the manufacturers, it is obviously appropriate that there should be a fair and impartial examination of the transactions by a body competent to make a survey and determination of questions of costs and profits. Testimony has been given in the present inquiry tending to show that the prices were high. Lower prices under prior orders and offers are referred to. On the other hand, the manufacturers urge that in view of the peculiar conditions of the industry, the difficulties attending the procurement of logs, and the risks taken by reason of the small percentage of lumber suitable for propeller material, the prices and terms were in all respects fair; that Mr. Williams, Mr. Wickliffe, Mr. Vrooman, and Mr. McCullough took their positions simply because of the necessity of having men in their respective places who were qualified by experience, and that throughout the transactions all the persons concerned have been moved solely by the desire to serve the Government. It was manifestly impossible in the course of the present inquiry to make such a survey of the mahogany industry as to reach a satisfactory conclusion with respect to the cost of producing the required mahogany, and as to the fairness of prices and terms. This sort of investigation would require special facilities of the kind which are at the command of the Federal Trade Commission, and through its instrumentality it is believed that such a survey of the industry and a determination of fair costs and profits can be made. Upon its report as to the cost of producing the required mahogany, it can readily be decided whether there is ground for prosecution by reason of the transactions which have been disclosed in this inquiry.

African Mahogany.

Attention should be called to the fact that the contracts with the mahogany manufacturers called for considerable quantities of African mahogany. It appears that prior to the war large importations of mahogany had been made from Africa. Thus, in 1914 out of total importations of mahogany logs of 70,914,000 feet, there were 31,177,000 feet of African mahogany. At the first conference with the Government representatives on January 21, 1918, as the minutes kept by these representatives show, Mr. Mengel had suggested the increased supply which could be obtained from Africa, and Mr. Leary (of Ichabod T. Williams & Sons) described his efforts to induce the Signal Corps to use African mahogany. Offers of African mahogany were made in proposals by several of the mahogany manufacturers under date of March 6. Thus, in the proposal then sent to the Signal Corps by C. C. Mengel & Bro. Co., it was stated that his company had at Axim, Africa (on the Gold Coast) "awaiting steamers 3,000,000 feet of sound, fresh, logs"; and also at Axim "now in streams tributary to it, and available for the June rains 4,000,000 feet, and these logs, located as they are, and from the best information we have, pretty nearly sure to be delivered at Axim on the June rains, as they were put in pretty good, safe streams by our own men in our own employ and paid by us, and put in streams selected so that they would come out on light water."

The advisability of using African mahogany as propeller material, however, was far from clear. It was not regarded as within the original specifications, but the modified specifications adopted on February 14, 1918 (No. 15028-A), stated that African mahogany (*Khaya senegalensis mahogani*) was approved by the Signal Corps. Despite this statement, the question was not regarded as settled. On February 13, 1918, H. S. Betts, Acting

Assistant Forester, in reply to a letter of Capt. Oakleaf of the Signal Corps, stated that it was "undoubtedly true that the term 'African mahogany' without further specifying as to kind of wood would include several species which are inferior in quality for propellers," but after referring to various tests quoted a report from the Forest Products Laboratory that the African mahogany was "practically the equal of the Central American species and could be substituted satisfactorily for the latter."

On February 26, H. K. S. Williams wrote to Maj. Gray of the Production Engineering Department, that he was "anxiously awaiting information as to whether African mahogany has been approved for use for the manufacture of propellers for battle and bombing aeroplanes." He said that he had reported the matter a number of times to his superiors and had been told to communicate with Maj. Gray, and after referring to communications he had received on the subject, he asked for a reply by telegraph. On March 1, the Production Engineering Department telegraphed its answer to H. K. S. Williams as follows:

"This department is not favorably disposed toward African mahogany for combat propellers and does not see why it should be shipped here and then back to Europe. Can not arrangements be made to have walnut for English diverted to our propeller manufacturers and to ship African mahogany to England? There is much poor African mahogany on American market. In any event for safe use African mahogany would have to be inspected at the source to make sure that we obtained the proper varieties and proper wood. We feel further that with provision for splicing which has been adopted there should be enough of other woods available to meet the propeller requirements."

Before this was received a telegram was sent on the same day to Maj. Gray, with the signature of the Materials Department, to the effect that they were "anxiously awaiting telegraphic reply to letter February 26;" and on March 2 the Production Engineering Department, notwithstanding the statements in its telegram of March 1, telegraphed to the Materials Department as follows:

"Regarding use of African mahogany for combat and bombing airplane propellers, advise that such wood is acceptable for use in these propellers."

And on March 16 the Airplane Engineering Department (by Mr. Caldwell, on behalf of Maj. Marmon) wrote to Maj. Gray of the Production Engineering Department, referring to tests of propellers made of African mahogany at Langley Field and McCook Field, and stated the following order of preference for propeller woods: (1) walnut; (2) Honduras mahogany; (3) cherry; (4) African mahogany; (5) quarter-sawed poplar; (6) quarter-sawed white oak. Mr. Caldwell stated further that the following species of African mahogany were acceptable: (1) Grand Bassan; (2) Lagos; (3) Benin; also that there was an African wood similar to mahogany known as "Iroko" which had been found acceptable in the English propeller construction. On March 21 Mr. Caldwell wrote to Lieut. Col. Horner of the Equipment Division, stating that they had definitely ascertained that the wood they had tested came from Axim, and that "this wood would be acceptable at least to the extent of three or four million feet." Mr. Wickliffe, on behalf of Mr. Lockhart, of the Materials Department, sent the following memorandum to the contract section on the same day (Mar. 21):

"It is only recently that the use of African mahogany has been authorized in the construction of propellers, and therefore the entrance of purchase request to cover the quantities of African mahogany shown in the attached proposals" (of the mahogany manufacturers) "has been withheld pending such authorization. Permission has now been received for the use of this wood and purchase requests are being sent to the priority section to-day covering the quantity of African mahogany shown in the proposals of Astoria Veneer Mills & Dock Co., Palmer & Parker Co., Ichabod T. Williams & Sons, and C. C. Mengel & Bro. Co."

In view of the heavy demand for shipping facilities, a serious question arose with the Shipping Board as to the necessity of getting in the African mahogany. In a conference between Mr. Karl de Laitre, representing the Shipping Board, and Mr. Sibley and Mr. Wickliffe of the Signal Corps, on May 4, Mr. Wickliffe's attention was called to the lack of shipping space, and he replied (according to the stenographer's minutes produced by Mr. de Laitre):

"Yes, but this is a matter of contract. We make our contracts in good faith on both sides. It is not permissible for the Govern-

ment to break these contracts; it would break the people making them. * * * We can not let these people down on the African product."

At another point in the conference, Mr. Wickliffe said:

"If the timber from Africa is not brought forward, coming in June, and is allowed to deteriorate, the first part that will be hit will be the outside of the log, out of which the aircraft material comes. If we do not get this African lumber, we have exhausted every resource in walnut and cherry and in Central American mahogany. We do not yet know as to the use of quarter-sawed oak. Then if we do not get this timber we can not get any African logs before June of the following year."

Meanwhile the subject had been taken up for investigation by representatives of the War Trade Board and of the Forestry Service. Its importance lay in the fact that there was an abundance of white oak available in this country, and it developed that there was opinion of considerable weight in favor of the use of oak on combat propellers.

On June 2 a conference was held between representatives of the production engineering department, the airplane engineering department, the propeller inspection department, the propeller purchase section and the wood inspection section of the Signal Corps. Mr. Caldwell, who had written the letter of March 21, represented the airplane engineering department. Lieut. Ryerson's memorandum of this conference contains the following:

"The question of the advisability of, and necessity for, importing African mahogany was carefully considered and it was the unanimous opinion that it would be possible to meet our present and future propeller lumber requirements from domestic or South American supplies and that because of the difficulty of inspecting African mahogany its further use in propellers should be discouraged."

On August 3, 1918, Lieut. Ryerson, of the propeller section, having been asked for a statement of the requirements of woods for propeller stock, requested the production engineering department for "an up-to-date formal statement" as to the kinds of lumber to be specified for combat propellers in their order of preference. This brought a reply under date of August 7 from the production engineering department, through Prof. J. S. MacGregor (head of the physical testing department, school of mines, Columbia University), as follows:

"Answering your memorandum of August 3, requesting information on kinds of wood for propellers, we advise you herewith that this department has authorized the use of the following woods for combat propellers. The list is given in the order of their preference:

- "Black walnut.
- "True mahogany (Honduras).
- "Cherry.
- "Quarter-sawed white oak.
- "African mahogany."

The objection to African mahogany (aside from the shipping problem) was that it varied considerably in quality and that inspection of it so far from its source would make it difficult to be sure that the right species was received. Throughout the controversy Mr. Wickliffe has expressed his views with considerable emphasis and has thrown the weight of his influence in favor of contracts for African mahogany and of the provision of shipping facilities to bring it in. In support of his position he has produced a memorandum, under date of August 23, signed by Charles Day, as special assistant to the Secretary of War, to the effect that "while oak propellers are being used with satisfactory results in connection with our training planes they have not been adopted for planes for active service overseas on account of unsatisfactory results obtained abroad when their use has been attempted for any considerable period."

Mr. Wickliffe has also presented a letter under date of July 19 from Lieut. Hollande, in charge of wood purchasing for the French Government, in which it is said that "we are buying a very great quantity of African mahogany in France direct from our colonies"; also a letter received from the office of the British War Mission giving information to the effect that "the home authorities propose during 1919 to use British Honduras and West African mahogany exclusively for propeller construction, cutting out walnut completely," and that demands from factories in England for propeller lumber are met "indiscriminately by the supply of either British Honduras or West African mahogany, the latter being considered as equivalent to the former for all purposes."

REPORT ON AIRCRAFT PRODUCTION INQUIRY

On the other hand, a very recent cablegram (September 28) from the Scientific Attaché to the American Embassy in London in answer to an inquiry of the Research Information Service here, states that "authorities British opinion and practice placing walnut and Kauranian, Nicaraguan, Cuban mahogany ahead of African. British would not use African if sufficient quantities of above were available. African used only in combination with other woods." The statement to the contrary as to British practice is said to be incorrect, and it is added "British have not tested oak, cherry, poplar sufficiently to make comparison. American Army wood experts now here state A. E. F. satisfied with oak and have advised Washington, D. C., accordingly. Poplar has also showed up well on tests. British unable to see any justification for United States using African mahogany in view of other furnishings available."

It is understood that ships for African mahogany were finally provided. Upon the evidence, it is apparent that the matter was the subject of discussion and presented grounds for differences of opinion. The interest, however, of some of the leading mahogany manufacturers in obtaining contracts for the delivery of African mahogany is apparent, and while the efforts to induce its purchase and transportation may have been based upon the belief that the wood was better than that available here and that the supply was needed by the Government, the matter is one which should receive consideration in connection with the survey of the industry which has been suggested for the purpose of determining the fairness of the mahogany contracts and of the action taken under them.

3. Sabotage Act—Grand Jury Proceedings.

There have been occurrences in various plants indicating efforts to injure war material, or to make it defective, or to conceal defects, but on investigation it has generally been very difficult to find sufficient basis for criminal prosecution, either for lack of evidence as to the particular individual who had committed the act, or because on close examination it appeared that the condition of the material could be fairly attributed to carelessness and evidence of criminal intent was wanting.

Hammondsport Plant of the Curtiss Co.

In the course of this inquiry information was received that frequent attempts had been made to conceal defects in motors and their different parts which were in course of manufacture at the plant of the Curtiss Aeroplane & Motor Corporation at Hammondsport, N. Y. Evidence having been obtained as to specific instances of this practice, there was an investigation in July last before a grand jury in the western district of New York, John W. Ryan, Esq., of Buffalo, being appointed special counsel for the purpose, which resulted in the return of indictments against Lewis Longwell and Hector Borden, subforemen in the assembly room of the Hammondsport plant, under section 3 of the sabotage act of April 20, 1918. Demurrers to these indictments have been overruled and the cases are awaiting trial.

North Elmwood Plant.

In view of the conditions found at the North Elmwood plant of the Curtiss Aeroplane & Motor Corporation, there was a special investigation through special agents of the Department of Justice for the purpose of discovering violations of the sabotage act, with the result that evidence was brought before the grand jury in the western district of New York, John W. Ryan, Esq., acting as special counsel, and indictments were obtained in September against Richard Eastman, foreman of the propeller department; Frank Trull, an assistant foreman; and David Rogovan, a workman, under the sabotage act. On October 9 these defendants pleaded guilty and were fined \$500 each.

Liberty Iron Works.

Testimony given in this inquiry in relation to alleged irregularities at the Liberty Iron Works at Sacramento, Cal., led to a special investigation in charge of John W. Preston, Esq., special assistant to the Attorney General, before the grand jury at Sacramento in September last. Considerable testimony has been taken, but no indictments have been returned.

4. Cross-License Agreement as to Rights Under Airplane Patents.

In view of claims under alleged patent rights, and with the object of facilitating aircraft production by providing for manufacture on a definite basis, a corporation was formed under the laws of the State of New York known as the Manufacturers' Aircraft Association (Inc.). This corporation entered into an agreement with its "subscribers"—that is, its stockholders—called the cross-license agreement. The Government is not a party to the agreement, but it was recommended by the National Advisory Committee for Aeronautics, was indorsed by the Aircraft Board, and received the approval of the Secretary of War and the Secretary of the Navy.

By the cross-license agreement, the subscribers grant to each other licenses under all airplane patents now or hereafter owned or controlled by them in the United States, its territories and dependencies (except foreign patents and certain specified patents); the corporation is designated as the agent of the subscribers to execute licenses accordingly; each subscriber agrees that it will not enter into any agreement or arrangement whereby its privileges under United States airplane patents or inventions will be diminished or surrendered so as to exclude or restrict the operation of the agreement, and that it will not grant licenses under any such patents for use in airplanes with reference to which it is receiving royalties under the agreement, to any other person, firm, or corporation on more favorable or lower terms of royalty than those provided in the agreement, or which may become more favorable or lower during the term of the license. Under the agreement in its original form, in providing for the payments to be made by subscribers, it is stipulated that each subscriber shall pay and delivered by the subscriber until the Wright-Martin Aircraft Corporation and the Curtiss Aeroplane & Motor Corporation (these corporations claiming to hold basic patents) had each been paid the sum of \$2,000,000. A supplemental agreement has since been made modifying the provision for payments by subscribers, and providing that the aggregate payments to both the Wright-Martin Corporation and the Curtiss Co. should be \$2,000,000 instead of \$4,000,000.

The agreement has been criticized upon the ground that its provisions constitute a hindrance to the progress of invention in the important airplane field and as being in restraint of trade. Whatever ground for criticism exists in this respect is to be found in the terms of the agreement itself, as these are quite definite and determine its operation and effect. I shall not deal with the question of the legality of the agreement, as the question was specifically submitted by the Secretary of War to the Attorney General whether the association and the agreement were in contravention of the antitrust statutes of the United States, and the opinion was expressed by the Attorney General that they were not. That disposed of the question, in the absence of a contrary decision by the courts, so far as the action of the Executive department is concerned.

To the question whether the patents of the Wright-Martin Co. and of the Curtiss Co. are basic patents, and whether the payments for which the agreement provides constitute a proper compensation for the rights conferred, it would require an exhaustive examination of the patent situation to give a satisfactory answer, and this inquiry has furnished no opportunity for such examination. For this

reason no opinion is expressed upon the point further than to say that, if the validity of the agreement be assumed, the amount of the payments was a matter of sound administrative discretion, and there is no ground for the conclusion that the amount as fixed in the supplemental agreement could not fairly be allowed. It is also asserted that the Government is left liable to other claimants, but this also requires an opinion upon the validity of certain patent claims which could not be dealt with in this inquiry.

General Conclusions and Recommendations.

1. The controlling facts and the conclusions in relation to the matters reviewed have been stated under appropriate headings. It would be impossible to restate them in a brief summary. The defective organization of the work of aircraft production and the serious lack of competent direction of that work by the responsible officers of the Signal Corps, to which the delays and waste were chiefly due, were matters for administrative correction through unification of effort under competent control. The provisions of the criminal statutes do not reach inefficiency.

It is not within the province of this report to make recommendations with respect to administrative policy, but it should be said that under the direction of Mr. Ryan and Mr. Potter there has been improvement in organization, and progress has been made in gratifying measure.

2. The evidence discloses conduct, which, although of a reprehensible character, can not be regarded as affording a sufficient basis for charges under existing statutes, but there are certain acts shown, not only highly improper in themselves but of especial significance, which should lead to disciplinary measures. The evidence with respect to Col. Edward A. Deeds should be presented to the Secretary of War to the end that Col. Deeds may be tried by court-martial under articles 95 and 96 of the Articles of War for his conduct (1) in acting as confidential adviser of his former business associate, E. B. Talbot, of the Dayton Wright Airplane Co., and in conveying information to Mr. Talbot in an improper manner, with respect to the transaction of business between that company and the division of the Signal Corps of which Col. Deeds was the head; and (2) in giving to the representatives of the Committee on Public Information a false and misleading statement with respect to the progress of aircraft production for the purpose of publication, with the authority of the Secretary of War.

3. The absence of proper appreciation of the obvious impropriety of transactions by Government officers and agents with firms or corporations in which they are interested, compels the conclusion that public policy demands that the statutory provisions bearing upon this conduct should be strictly enforced. It is therefore recommended that the officers found to have had transactions on behalf of the Government with corporations in the pecuniary profits of which they had an interest, should be prosecuted under section 41 of the Criminal Code.

4. The Federal Trade Commission should be requested to report upon the proper cost of mahogany for airplane propellers, to the end that upon the coming in of its report the question of the propriety of further action with respect to the transactions of the Mahogany Manufacturers and Importers Association may be determined.

5. It is recommended that the representatives of the Department of Justice should keep in touch with the progress of the audit of accounts so that it may be advised of the complete enforcement of the rights of the Government in final settlement of accounts, and that the Government has been fully protected against unnecessary loss through waste and the absence of suitable factory supervision.

6. Permit me also to suggest that a special division, or subdivision of the present Bureau of Investigation, in the Department of Justice should be assigned to the consideration of suggested delinquencies in connection with aircraft production, so that the work already done may be appropriately followed up. In particular, it is recommended that the activities in relation to spruce production, which being largely centered on the Pacific coast it was impracticable to embrace in the present inquiry, should be carefully scrutinized.

I have the honor to remain,

Respectfully, yours,
(Signed) CHARLES E. HUGHES.

Official U. S. Bulletin Index

An index for the Official U. S. Bulletin for the first six months of 1918 may be had on application to this office at 5 cents per copy. An index for each month is printed in an early issue of the Bulletin after the close of that month.